

WRIT 4501: Usability and Human Factors in Technical Communication

Minnesota Report Card Website Usability Test Report

MIBA

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## Executive Summary

To: Department of Education - Minnesota Report Card  
From: Israa Mohamed, Brandon Wetterlin, Mollie Barnes, Annisa Mohamed  
Subject: Executive Summary of Usability Test  
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This executive summary shares an overview of the purpose and research question, methodology, results, and recommendations from our team's usability test of the Minnesota Report Card website.

### Purpose and Research Question

Our usability test focused specifically on how well users can effectively navigate the Minnesota Report Card website to find relevant information. We chose this focus because the Minnesota Department of Education is centrally concerned with users' ability to find the specific information they're looking for. The Minnesota Department of Education mentioned that there are multiple elements of the website that they know users find confusing. These include figuring out how to use the Menu to find specific reports, how to filter data, and how to keep track of where they are located on the website. We tailored our user scenarios in the hopes of gaining more feedback on these aspects of navigating the website. With this in mind, we hoped to learn the following things:

- Can users navigate between two reports?
- Are users able to compare two schools/districts for a specific student group's data?
- Can users find state reading test data?
- Are users able to identify what year data is from?
- Can users change the language setting from English to another language?

Our specific research question was as follows:

- Can the user find and identify relevant information in a timely manner upon request?

### Methods

There were four methods of information gathering used during the test.

1. The background questionnaires gathered some basic demographics. Participants supplied information including age, experience with helping school-aged children with academics, and experience and comfort with using technology (see Appendix A).
2. During the test, participants were asked to complete ordinary tasks relevant to what the Minnesota Report Card Workgroup audience may search for on the website. After

participants completed the scenarios, they were given post-task questions. All of the questions asked them to rate the ease or difficulty of the task.

3. When the test was over, the participants were given a debriefing interview to inquire about their impressions of the site and the testing experience in depth.
4. After the debriefing interview, participants selected words from a set of 36 Product Reaction Cards. Each participant selected five words that they felt best described the website based on their experience using it.

## Results

All participants completed scenarios for a 72% successful completion rate across all five scenarios. Time-on-task varied between 21 seconds (Scenario 5) and seven minutes (Scenario 2); generally, the time users spent on each scenario was under seven minutes. Participants generally rated tasks as slightly difficult, with average ratings around 3.28 on a five-point scale. When given a list of words to select to describe their usability experience, participants selected positive words such as:

- Informative
- Trustworthy
- Useful

However, participants encountered a number of issues that impeded their ability to complete tasks. Our findings confirm the severity of known issues communicated by the Minnesota Report Card Workgroup in the Client Information Sheet: users struggle to use the menu to find specific reports, filter data for different student groups, and keep track of where they are located on the website or what data they are looking at.

Participants encountered the following issues, which are fully explained in the report:

- Difficulties Navigating the Menu:
  - Users cannot intuit what content a Menu tab contains based on its description. During tasks, participants would often have to click through every tab in the Menu in order to find one that contained the specific information they were looking for.
  - Multiple users said that they wanted a Menu with multiple drop-downs, or a second “tree” branching off from the first Menu to show what specific content each tab contains.
  - The organizational hierarchy of the Menu is unclear. Users were confused by the section dividers, main tabs and subtabs in the Menu, and requested that the subtabs be indented like they are on other websites.
  - Users disliked *only* having the Menu to rely on. The simplistic design of the current Menu feels insufficient to users. While the simplicity of the website avoids intimidating users at first glance, users became increasingly overwhelmed as they continued to use the site because they felt they didn't have enough resources available to them.
- Inability to Clear a Report Pane or Start From Scratch:

- Multiple users complained that they could not reload a page to get rid of existing reports. Many tried clicking the three-line Menu icon, the Minnesota Report Card icon, and the reload button in the address bar in an attempt to clear a previous school search; none of these strategies worked. This was a major source of frustration for multiple users.
- **Obscure Report Page Layout:**
  - Users cannot identify the “+Add Another View” button, and cannot generate side-by-side reports as a result.
  - The report page title/headings are too small for users. Users indicated in post-task questions that they struggled to locate where they were in the website in part due to how small the report page titles are. This created issues for a user with a visual impairment.
  - Users struggled to figure out that the magnifying glass icon in the report pane headers was both a search and filter function. A participant remarked that this header is only slightly darker in color than the gray background, and that they did not realize it was an interactive feature because of this.
- **Website Does Not Keep With Industry Conventions**
  - Users’ expectations regarding menus, “Home” pages and navigation bars, and the ability to refresh a page are incongruous with the design of Minnesota Report Card. Multiple users discussed feeling that websites typically have these elements, and that their absence on Minnesota Report Card was disorienting.

## **Discussion**

The usability of the Minnesota Report Card website is undermined by the Menu design, report page layouts, a lack of error recovery strategies, and poor visibility and placement of interactive elements. There are several key strategies that should be employed to improve users’ ability to navigate the site and access specific pieces of information:

- Creating an intuitive Menu with standard placement and design. This might include a Home page, and a navigation menu placed horizontally at the top of the website with drop-down subtabs. Menu tab titles should avoid using a question format.
- Giving users the ability to start from scratch. Allowing them to reload the page or return to a Home page to clear existing data for schools may reduce frustration. Or, allowing them to close a report pane, even if it’s the only one remaining.
- Improving report page layout by redesigning headers and interactive elements. Making report page headings larger and clarifying the function of the “+Add Another View,” “Done” and magnifying glass buttons will ensure users can make use of these tools.

Specific recommendations are outlined below.

## **Recommendations**

Based on our results, we have suggested the following recommendations:

- ***Establish a Menu navigation bar at the top of the website, with a “Home” page and a search bar (if possible).***
  - This might also include a “breadcrumb trail” in the upper-left part of the screen to help users keep track of where they are located in the site.
- ***Use short descriptions for the Menu tabs instead of formatting them as questions, and clarify the informational hierarchy of the Menu by creating “branches” for subtabs.***
- ***Improve the visibility of system status by enlarging headers and clarifying the purpose of interactive elements on the website, like the “Done” button or “+Add Another View” button.***
  - Enlarge the report page headers for increased visibility.
  - Change the “Done” button to a bright green “Apply Filters” button.
  - Change the “+Add Another View” button to a green “+Add a School/District” button
  - Change the header for the report panes to a brighter color, and enlarge the font for the list of selected data criteria.
  - Enlarge font throughout the website, particularly in the report pages and graphs if possible.
- ***Provide users with additional guidance by including a short description of how to generate a report or compare schools/districts on report pages.***
- ***Improve exit strategies by enabling users to close a report pane.***
  - Instead of always leaving a report pane open on a report page, a red “X” button can be added to the upper-left corner of the pane that allows users to clear the report pane.

Recommendation mock-ups are available under “Recommendations” in **Figures 9-11**.

#### **Additional Suggestion:**

- **We want to bring an issue regarding translations to the attention of the MN Report Card Workgroup.** One of our participants, who speaks Somali, noted that the word “Done” for the data filter button was mistranslated on the website when they were tasked with changing the language to Somali in Scenario 5.

We are unaware of the extent of any mistranslations, so it has not been included in the formal list of recommendations, but we strongly recommend that the Department of Education **consult with translators to ensure that the translations provided for Minnesota Report Card are accurate.** Mistranslation is a serious accessibility issue and effectively denies certain groups access to public information. We hope that the Department of Education will use this as an opportunity to review the translated material on the website to ensure equal access to all users.

## Introduction

This report describes the results for conducting a usability test during the development of the Minnesota Report Card website (<https://rc.education.mn.gov/#mySchool/p--3>). Minnesota Report Card is a public website that provides the public with data on public and charter schools in the state of Minnesota. The website serves a wide variety of users with diverse goals for which there are multiple contexts of use. While the primary target audience for Minnesota Report Card is parents and guardians, there are several different types of users who use the site. As outlined by the Minnesota Department of Education, these include:

- **Parents/Guardians and Families** who are looking for information about a school or district, trying to make decisions on where to enroll their children.
- **School/District Employees** who are looking up their school/district because they do not have access to the Secure Reports with the same information, or are looking up other schools/districts for comparisons.
- **Media/Journalists** who are writing material about Minnesota education.
- **Researchers/Policy Makers** who are trying to learn more about the state of education in Minnesota.

In addition to its diversity of users, the Minnesota Report Card contains a wealth of data across multiple categories for individual schools and school districts, as well as the state of Minnesota as a whole. This data covers topics that include:

- **Academic achievements and benchmarks:** School attendance, graduation rates, standardized test performance, educational engagement, academic rigor, accelerated course catalogs, etc.
- **Institutional culture and climate:** educator engagement and disposition, etc.
- **Safety:** expulsion and exclusion rates, incidents of violence, and referrals to law enforcement.
- **Student and staff demographics**
- **Fiscal transparency**

...among others.

Our report will address our purpose and methodology during usability testing, and results and recommendations for the Minnesota Department of Education.

Our usability test focused specifically on how well users can effectively navigate the website to find specific, relevant information. We chose this focus because the Minnesota Department of Education is centrally concerned with users' ability to find the specific information they're looking for. The Minnesota Department of Education mentioned that there are multiple elements of the website that they know users find confusing. These include figuring out how to use the Menu to find specific reports, how to filter data, and how to keep track of where they are located on the website. We tailored our user scenarios in the hopes of gaining more feedback on these aspects of navigating the website. With this in mind, we hoped to learn the following things:

- Can users navigate between two reports?
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- Can users change the language setting from English to another language?

Our specific research question was as follows:

- **Can the user find and identify relevant information in a timely manner upon request?**

In terms of efficiency, we addressed whether or not participants were able to complete tasks and we measured the time users spent trying to complete each task. We anticipated a benchmark of three to five minutes for completing Scenarios 1 through 4 in the test. We anticipated a benchmark of one minute for completing Scenario 5.

In terms of error frequency, we recorded both critical and noncritical issues. Critical issues were those that deterred participants from successfully completing a task, whereas noncritical issues were those that slowed down but did not prevent successful completion of the task. We anticipated a benchmark of a 70% critical issue-free rate. In other words, we expected that, at most, 30% of the users would experience critical issues, which deterred them from successfully completing their task.

In terms of user performance, we asked participants to describe their impressions and experiences in a debriefing interview. We also asked them to rate the difficulty of each of the tasks, as a post-task question, on a scale of 1 to 5, 1 being *very difficult* and 5 being *very easy*. We anticipated an average benchmark of 3 out of 5 for user satisfaction, indicating moderate satisfaction.

Our research question was as follows: Can the user find and identify relevant information in a timely manner upon request?

## **Participants**

Please refer to Appendix A for a complete table of participant responses.

### **Targeted Participants**

According to the client information provided to us from Minnesota Report Card website users include:

- **Parents/Guardians and Families** who are looking for information about a school or district, trying to make decisions on where to enroll their children.

- **School/District Employees** people who are looking up their school/district because they do not have access to the Secure Reports with the same information, or are looking up other schools/districts for comparisons.
- **Media/Journalists** who are writing material about Minnesota education.
- **Researchers/Policy Makers** who are trying to learn more about the state of education in Minnesota.

Users would be characterized by tasks they wished to accomplish, rather than by demographic. Our scenarios were designed to center around tasks that Parents/Guardians or Family might seek to know about Minnesota schools and districts; this includes information pertaining to fiscal transparency and how state and federal funds are spent, comparing IB exam participation rates for students at two different schools, state reading proficiency, and suspension data.

The diversity of users and their goals makes it especially important that the Minnesota Report Card website be easy to navigate. Additionally, it should be noted that some contexts of use may be emotionally-laden for some users. For example, a parent deciding where to send their child to school, or examining data surrounding school safety that may directly concern their child, are sensitive circumstances. This will inform how these users approach the website and how quickly they become frustrated or otherwise deterred. Consideration of the diversity of contexts of use will help ensure the Minnesota Report Card is a useful tool for its broad assortment of users.

### **Actual Participants**

We recruited five participants for this usability evaluation. We recruited participants through emailing friends, neighbors, relatives and others. Given the wide variety of users that Minnesota Report Card [<https://rc.education.mn.gov/>] is intended to serve, we feel confident that our recruited participants are well-representative of one or more target audiences. Due to the logistics of participant recruitment, our selected participants primarily fall under the user category of Parents/Guardians and Family. Three of our participants are parents or guardians, or are family members with school-aged relatives whom they help with academics.

None of our participants has had previous experience and familiarity with the Minnesota Report Card website. We feel that it is important that our participants are lay people; educators or individuals working in policy or journalism may be familiar with having to navigate complex interfaces or interpret data, which may have been a confounding factor in evaluating user experience. Ideally, Minnesota Report Card should be accessible and intuitive for all users. Running usability tests with individuals who do not possess special knowledge or skills related to these kinds of tasks helps us assess the user experience for novice users.

For easier reference, we will refer to all of our participants as P1, P2, P3, P4, and P5. All the participants recruited are between the ages of 21-29 or 50-59.



## Methods

The evaluation used a usability test that involved representative users and asked them to complete realistic web tasks. The usability test involved participants who may be prospective users of the Minnesota Report Card website. Procedures included a background questionnaire, tasks based on scenarios and post-task questions, and a debriefing interview with Product Reaction Cards. A “think aloud” protocol was used throughout the test. These procedures are described more fully below.

### Background Questionnaire

Participants completed a demographic and background information questionnaire. The questionnaire asked for information including user age, experience with helping school-aged children with academics, and experience and comfort with using technology (see **Table 4** in Appendix A).

### Tasks and Scenarios with Post-Task Questions

The participants were provided a task description, asked to read it out loud, and start the task. Time-on-task measurement began when the participant started the task. The list of tasks and scenarios along with the answer key can be found in Appendix F. Once the participant completed a task, they completed the post-task questionnaire and elaborated on the task session with the moderator (see Appendix C). The moderator instructed the participant to ‘think aloud’ so that a verbal record existed of their interaction with the web site. The logger observed and entered user behavior, user comments, and system actions in the data worksheet.

### Debriefing Interview with Product Reaction Cards

After all task scenarios were attempted, the moderator asked participants about their impressions of the site and testing experience (see Appendix C for debriefing interview responses). Part of the interview involved a methodology from the Microsoft Desirability Toolkit asking participants to select words from the “Product Reaction Cards” that described the design based on their experience (see Appendix D).

*Note.* Prior to usability testing, each team member of MIBA conducted an independent heuristic evaluation of the Minnesota Report Card website. A heuristic evaluation is an informal method to assess a product or service against recognized usability principles, and serves to identify major problems in a website or system (Nielsen 1994). While they are not part of the usability test outlined in this document, these evaluations may offer additional insights that the Minnesota Report Card Workgroup may find to be of interest. See Appendix E for heuristic evaluations.

## Results

### Background Questionnaire

All participants recruited fell into two age groups: 60% of users were aged 21-29, and 40% were aged 50-59. Three of the five participants said that they are an individual who helps school-aged students with academic tasks, making them strong prospective users of Minnesota Report Card.

In regards to their relationship with technology, three participants described themselves as people who like technology and say that they can usually troubleshoot any technical problems they encounter on their own. One individual said that technology was a passion of theirs, and that others often seek their help for issues related to technology. One participant said that they feel comfortable with technology, and feel that they know the basics.

Participants were asked how they tend to evaluate new websites they come across. Three of the five participants said that visual design was a major factor that influenced their initial impression of a site. The remaining two participants said that it was the navigation menu that the website offers.

In regards to technology use, participants chose laptops (100% of users), smartphones (80% of users), and desktop computers (40% of users) as their most frequently used devices. Four out of five users said they use a computer several times a day, while one said they use a computer daily.

In regards to using unfamiliar websites, two participants described themselves as “very comfortable” using a new website. One participant described themselves as “comfortable,” and one as “moderately comfortable.”

### Scenarios

We asked participants to rate the difficulty of each of the tasks on a scale of 1 to 5, with 1 being *very difficult* and 5 being *very easy*.

Very Difficult ①—②—③—④—⑤ Very Easy

Please refer to Appendix F for our scenarios and tasks, and their answer key.

#### Scenario 1

Participant 1 (P1) successfully completed Scenario 1 within the allotted time frame. There were no major frustrations or points of confusion expressed, though P1 did express feeling disinterested in using the website due to its design. They commented on the lack of color and “personality” regarding site layout, and were noticeably disengaged. While they did not encounter any issues regarding task completion, they said they would prefer if information was more spread out across the screen. In their initial impression of the Menu on the left-hand side of the screen, they felt that it was nice that everything was to the left. **Participant 1 gave this task a rating of 5 out of 5, indicating that it was very easy.**

Participant 2 (P2) successfully completed Scenario 1 within the allotted time frame. Upon starting the task, Participant 2 felt like they didn't know where to start when routed to the "My School" landing page. They said they were surprised that nothing happened when they clicked the three-line Menu icon, and thought that it might open a separate Menu than the one already displayed on screen. They also appeared to assume that the search bar on the "My School" page was a site-wide search function, and attempted to use it to search for what they were looking for. They eventually navigated to the Menu and found the tab for "Fiscal Transparency," and used the Spending Summary table to find the correct answer. After completing the task, they remarked that they didn't know the Menu was what they had to use to find information, because it "didn't seem like a main part of the page." **Participant 2 gave this task a rating of 3 out of 5, indicating that it was slightly difficult.**

Participant 3 (P3) successfully completed Scenario 1 within the allotted time frame. They easily navigated to the correct Menu tab, and used the Spending Summary table to retrieve the correct answers. The participant was confused as to why "Fiscal Transparency" was the only subtab under "How is money spent?", and felt it didn't make sense to have subtabs if there was only going to be one; they suggested that the website might be improved by making "Fiscal Transparency" a main tab instead of having users click twice to find it. **Participant 3 gave this task a rating of 4 out of 5, indicating that it was easy.**

Participant 4 (P4) successfully completed Scenario 1 within the allotted time frame. They easily navigated to the correct Menu tab, and used the Spending Summary table to retrieve the correct answers. They felt that it was easy to find information regarding state and federal spending because they could identify the word "money" in the Menu tab, "How is money spent?". **Participant 4 gave this task a rating of 5 out of 5, indicating that it was very easy.**

Participant 5 (P5) successfully completed Scenario 1 within the allotted time frame. As they looked through the Menu tabs, they told us they were looking for words related to "funds" or "statewide." They eventually found the "Fiscal Transparency" tab, and filtered by year. They used the Spending Summary data table instead of the visual graph to retrieve their answer. They remarked that their impression of the website is that the side Menu makes sense, but that once they get to a report page it becomes much more complicated. They found the "Done" button confusing, because they weren't sure if they were completing a search or applying filters. See **Figure 1** below for reference. **Participant 5 gave this task a rating of 4 out of 5, indicating that it was easy.**

## Figure 1

*"Done" Button*

**Minnesota Report Card** Language Assistance

**North Star Academic Progress:** Are students improving or maintaining achievement levels on academic tests?

This report now uses eight state-defined racial and ethnic categories, including the state definition of American Indian.

**Statewide**  
Year: 2023 Demographics: All Students

School or District:

Year: 2023

Optionally choose a category:

American Indian	Asian	Black Or African American
Hispanic Or Latino	Native Hawaiian Or Pacific Islander	Other Indigenous Peoples
White	Two or more races	English Learner
Special Education	Free/Reduced-Price Meals	

**Done**

☒ Achievement level improved  
☐ Achievement level maintained  
☐ Achievement level decreased/does not meet

		Statewide
Achievement level improved	Count	41,951
	Percent	14.8%
Achievement level maintained	Count	117,331
	Percent	41.5%
Achievement level decreased or stayed	Count	123,370

*Note.* Multiple users throughout the course of the study expressed confusion regarding the purpose and function of the “Done” button outlined in red. Users remarked that it feels like a check point indicating that they *are* finished, not a button that must be selected *to* finish generating data.

## Scenario 2

Participant 1 (P1) failed to complete Scenario 2, and spent a total of six minutes trying to complete the task. They struggled considerably to find the correct Menu tab to navigate to, and spent a lot of time switching between Menu tabs and subtabs and scrolling through report panes to find information related to IB exams. The user expressed frustration with this task, and described the experience of navigating the Menu as “annoying.” They also mentioned that it felt like there “was no clear directory” to use to find specific information. While the user did eventually find the relevant Menu tab and was able to successfully generate two side-by-side reports using the “+Add Another View” button, the moderator had to end the task early due to time constraints. After completing Scenario 2, P1 remarked:

“I just thought the Menu on the left was annoying....it was so many different tabs, and I kind of got lost in the amount of tabs there were. I felt like there was no clear directory...and [as far as] getting to where I needed to go, I felt like it was hidden in a random [part of] the Menu. There’s just so much information.”

**Participant 1 gave this task a rating of 2 out of 5, indicating that it was difficult.**

Participant 2 (P2) failed to complete Scenario 2, and spent a total of two minutes attempting to complete the task. The participant was able to generate data for the percentage of students

statewide who were Black and male and participated in an IB exam in 2018, and believed they were done with the task. They did not generate reports for either school prescribed in the instructions. The moderator did not prompt them to reread the task. They found the task pretty difficult, and were confused by the magnifying glass icon being used to represent a data filter function, and felt it is usually used exclusively for search functions. See **Figure 7** for reference. Upon completing the task, they offered the following remark:

“I just think the website in general doesn’t make it obvious what something is for. The descriptions they use for the Menu is not straight-forward. I couldn’t figure out if the information about the schools [Anoka and Southwest] is within [a specific] tab...If I came onto this website and wanted to know more about where my child is going, I would have to look through and guess [at] where everything is at. That was kind of frustrating.”

**Participant 2 gave this task a rating of 2 out of 5, indicating that it was difficult.**

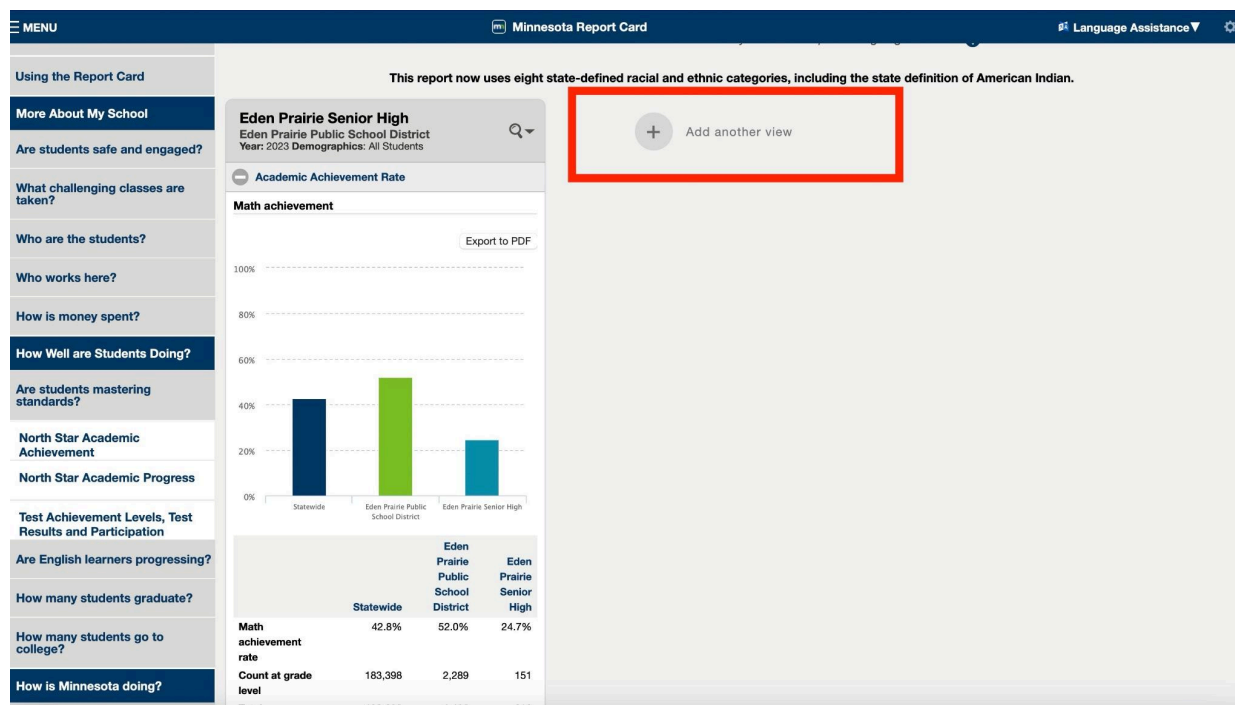
Participant 3 (P3) failed to complete Scenario 2, and spent a total of six minutes attempting to complete the task. The participant successfully navigated to “Rigorous Course Taking,” and successfully generated a report for Southwest High with the appropriate data filters. The participant did not open the correct report-pane (“Rigorous Course Exams”) and as a result did not see data related to IB exams. Instead of clicking “+Add Another View,” the participant cleared their search to start a new one for Anoka High School, instead of generating two side-by-side reports. The Scenario was ended early by the moderator due to time constraints.

**Participant 3 gave this task a rating of 1 out of 5, indicating that it was very difficult.**

Participant 4 (P4) failed to complete Scenario 2, and spent a total of seven minutes attempting to complete the task. The participant started by looking through Menu tabs to see if they could find one that seemed relevant. They then navigated directly to “My School” looking for information about either Anoka or Southwest high schools. The participant then asked the moderator if they can just search for a school somewhere on the website. They proceeded to use the “My School” search bar to search for Southwest High, but this did not yield results related to IB exam participation. They then attempted to look up Anoka High School under “My School” as well. They asked the moderator if there’s a way to compare schools side-by-side, indicating that users struggle to find the “+Add Another View” button. See **Figure 2** below for reference.

## **Figure 2**

*“+Add Another View” Button*



*Note.* The “+Add Another View” button outlined in red is a faint gray color that blends into the background. Similarly, the term “view” fails to communicate the button’s function, as this term is not used elsewhere on the site; it may be better to change the button to “+Add Another School/District” or “Compare Schools.”

P4 then navigated to the “Demographics” subtab, at which point they remarked that the task was difficult. They asked us why they couldn’t discern what year of data was being shown in the report. They then navigated to the “NAEP” subtab, where they realized that they could select the magnifying glass icon in a report to search by school/district and demographics (see **Figure 7** for reference). Feeling lost, they rerouted to “My School” and attempted to use it as a site-wide search bar to look for data on either of the schools. The moderator then ended the task due to time constraints. **Participant 4 gave this task a rating of 1 out of 5, indicating that it was very difficult.**

Participant 5 (P5) failed to complete Scenario 2, and spent a total of six-and-a-half minutes attempting to complete the task. The participant started by trying to find a matching term, relating to “IB” or the year 2018. They remarked that they don’t know how to get rid of a previously generated report, and that they wanted to just focus on the Menu. They went through the tabs under the “How well are students doing” section. They told the moderator that they were feeling frustrated, and were noticeably irritated. This user has impaired vision, and wondered out loud if their disability might be impeding their ability to see material related to IB; this was not the case, as they hadn’t come across anything related to IB exams at that point in testing. They navigated to the “Demographics” tab and didn’t find anything. \*The moderator then intervened, and prompted them to navigate to the “Rigorous Course Taking” tab. There, they found the first mention of IB; they then opened the “Rigorous Course Exams” report-pane. The moderator prompted them to remember that they’re looking to compare data from two different schools, and

asked them how they might do that. The participant then successfully searched for Anoka High School and filtered by race and gender. They then decided they wanted to be done with the task.

Participant 5 would later remark that they would want a second pull-down Menu, or a “branch-off” for additional subtabs, and said that this would have helped them identify where to find information related to IB exams:

“I'd like a little more details on the left [Menu], just for someone, you know, digging around for something very specific. Sometimes I know that a website can have a second pull-down menu, or some options under, or take me to a second tree that would allow me to choose IB, AP courses. I think for me, that would have helped me get to [the right] spot.”

**Participant 5 gave this task a rating of 1 out of 5, indicating that it was very difficult.**

*\*Note:* The moderator intervened in this scenario during testing with Participant 5 to see if more data could be collected. Intervention still did not result in successful completion of the task.

### Scenario 3

*Note:* The correct answer(s) accepted for this scenario have been modified due to user interpretation of scenario instructions. The official correct answer for this task is 50.5%, which accounts for students who met *and* exceeded standards in reading as being considered “proficient”; retrieving this answer requires the user to scroll down to a report pane towards the bottom of the page. Instead, some users chose to use the report graph to determine the percentage of students who *only* met the standards but did not exceed, yielding a result of 36.1%. We consider this to be a technically correct answer in the context of the scenario presented and the use of the word “proficiency,” and consider both 50.5% and 36.1% to be correct answers resulting in successful completion of Scenario 3. Both answers required that users navigate to the same report and filter data successfully, and use graphs and tables therein to find the correct answer.

Participant 1 (P1) successfully completed Scenario 3 within the allotted time frame, with the answer provided being 36.1%. They navigated to the correct Menu tab quickly. After successfully filtering the data according to the relevant criteria, they struggled to determine if they had correctly selected reading, and asked if the data report was filtered to reading. See **Figure 7** for reference. Later, during the debrief, they commented:

“I guess what I would have needed is a little bit more reassurance that I was doing the right thing.... I'm very into hand-holding. So if there was a big bolded thing saying ‘hey, you're in the reading category, hey, this is the amount of students that are proficient’ ....just constant reminders that are very clear [would be helpful].”

They eventually hovered their mouse over the bar graph provided in order to retrieve their answer, instead of navigating to the appropriate report pane. After completing the task, they described it as “a little confusing,” but less time-consuming than Scenario 2. **Participant 1 gave this task a rating of 3 out of 5, indicating that it was slightly difficult.**

Participant 2 (P2) successfully completed Scenario 3 within the allotted time frame, with the answer provided being 50.5%. P2 struggled to decide between selecting two different Menu tabs (“Are students mastering standards?” or “Are English learners progressing?”). They chose the correct tab and scrolled past the data filters, and down to the report pane with data on proficiency. They remarked that they didn’t know what kind of data was being shown for proficiency (what year, what subject), suggesting an inability to interpret the report-pane headers; this is referenced in **Figure 7**. They scrolled back up to the data filters and successfully filtered for reading statewide, but said they didn’t know how to filter for the year. They used the trend line provided in the graph to yield the correct answer. After completing the task, the user remarked that they felt they “got lucky” by choosing the right Menu tab. They described the data filters as “wordy,” and were confused that some of the data filters were drop-downs while others were box selections. They said that the “Done” button doesn’t stand out as a button; they would prefer a green confirmation button or something similar to generate data. They would later offer the following remark detailing their struggles with completing the task:

“[It was hard] because I didn't know which [Menu tab] to click. And then I clicked on the ‘Are students mastering standards?’ [tab], and I got lucky because there was a test achievement level section. I also think [the data filters] are just really wordy. Also [some of the filters] are drop-downs, but then the rest are boxes....I feel like it would be easier if they were all just the same. And then the ‘Done’ button is also confusing, because I’m just not used to something like this. I feel like just....like a green button would be better. It didn’t occur to me that [the ‘Done’ button] is supposed to be a button. Like a lot of these [features] are just not the way that I’m used to, so I’m just clicking on anything I find at this point.”

**Participant 2 gave this task a rating of 2 out of 5, indicating that it was difficult.**

Participant 3 (P3) successfully completed Scenario 3 within the allotted time frame, with the answer provided being 50.5%. The participant was surprised that the school data they had entered for Scenario 2 repopulated in the report; they said that they had expected that changing tabs would leave them with a clean report without pre-entered data. The participant quickly and easily navigated to the correct page and filtered the data. They used the data table under the “2019-2023 Proficiency” report pane to retrieve the correct answer. Participant 3 would later offer the following remark regarding the function of the “Done” button for the data filters in Scenarios 2 and 3:

“To me, [the “Done” button] implies ‘already done,’ when you really mean to say, ‘click here to *make* it be done.’”

**Participant 3 gave this task a rating of 3 out of 5, indicating that it was slightly difficult.**

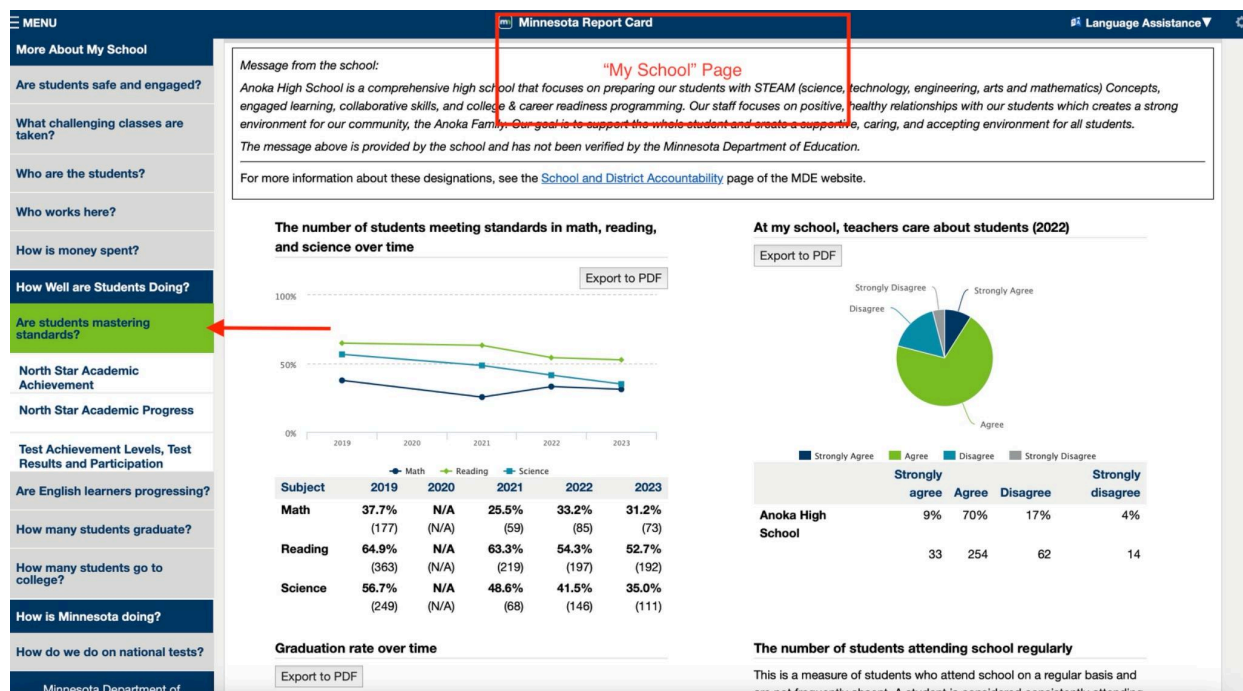
Participant 4 (P4) failed to complete Scenario 3, and spent a little over three minutes attempting the task. They found the “Are students mastering standards?” tab quickly and clicked on it. However, they did not realize that the report page was still showing the “My School” page; while they selected the “Are students mastering standards?” main tab, they did not select any of the subtabs under it, which would have routed them to a different report page. The user did not know where they were on the site or what they were looking at. This is due to the fact that some Main



tabs turn green when selected, which makes it appear as though the user has opened new content when they have not. See **Figure 3** below.

**Figure 3**

### Report Tab Selection



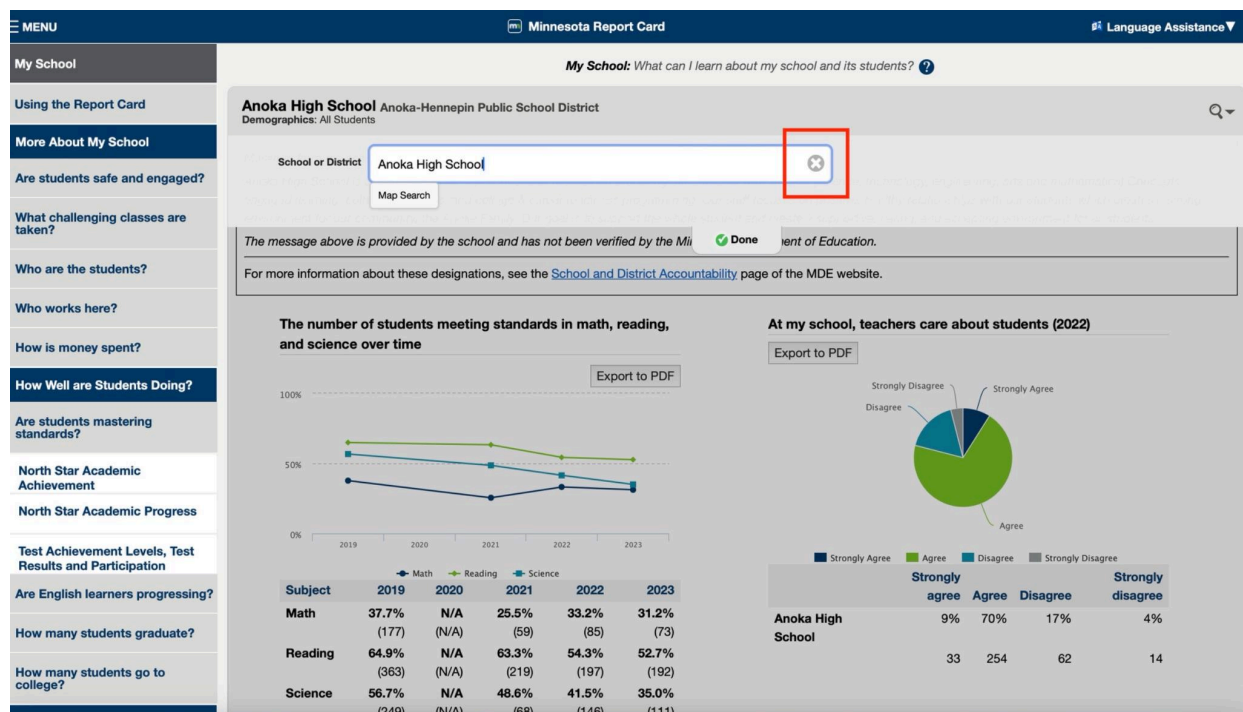
*Note.* This figure shows the issue encountered by the user. They had selected the main Menu tab “Are students mastering standards?”, which is indicated using a red arrow. The tab turns green when selected, leading the user to believe that they’re looking at this page, but this tab itself does not house content; one of the three white subtabs under it must be selected to show new data. As a result, the report page is still displaying data from “My School”; but because the user has scrolled down, the “My School” header is not visible to remind them of where they are. The “My School” header has been added for reference. As a result, the user is led to believe that they are under a different Menu tab than they are, and that the tab must simply not contain the information they need.

They realized eventually that they were looking at content for Southwest High, which had been loaded in Scenario 2. They re-selected the “My School” main tab, but this failed to clear the page of preloaded content. They then asked the moderator how to refresh the page. They attempted to click the header of the page, but it generated a pop-up describing the content of the page. They clicked away from it almost right away. They then remarked that they feel like everything on the website is now connected to Southwest, and that they don’t know how to go back. They reloaded the webpage using the reload button in the address bar, but this action did not clear content related to Southwest. When they clicked in the search bar on “My School,” they attempted to click the “X” that appears alongside the search bar, but this only functions to clear anything that

has been typed into the search, and does not eliminate a school report. This is shown below in **Figure 4**.

**Figure 4**

*Misinterpretation of “X” Button Functionality in Search Bars*



*Note.* Users often try to use the “X” buttons in search bars to clear data from previous searches. However, it only clears the *text* entered into the search bar, while the actual data displayed stays the same. The “X” button described is shown boxed in red.

They then tried to click the three-line Menu icon, but this did not take them anywhere. The participant gave up on the task. Participant 4 offered the following remark on their inability to refresh the page and clear existing content:

“How do I refresh from the absolute start? Everything is connected to Southwest...so [eventually] I gave up.”

**Participant 4 gave this task a rating of 1 out of 5, indicating that it was very difficult.**

Participant 5 (P5) failed to complete Scenario 3, and spent a total of five minutes attempting to complete the task. The participant started by clicking the three-line Menu icon to try and find a Home page. They then told the team that they wanted to get rid of the report page they’re on, so that they can focus entirely on the Menu. They wanted to be able to exit out of a report. They eventually navigated to the correct subtab (“Test Achievement Levels...”), but couldn’t figure out how to search for statewide data when the report was still displaying data for Anoka High School generated in Scenario 2. They stated that they think the “X” in the search bar should clear the existing school data (as shown in Figure 4). They then searched for “state” and yielded

statewide data, but then altered the criteria for “Students Included” to “All tested” instead of “Only those meeting enrollment criteria.” Had the user not selected this, they likely would have yielded the correct answer. Instead, the selected criteria yielded an incorrect answer of 35.7%.

**Participant 5 gave this task a rating of 2 out of 5, indicating that it was difficult.**

#### **Scenario 4**

Participant 1 (P1) successfully completed Scenario 4 within the allotted time frame. Participant 1 found the appropriate Menu tab for suspensions quickly, and used the legend in the report graph to confirm that they were in the correct part of the website for information relating to in-school suspensions. This was the final Scenario completed by Participant 1 due to time constraints, and they offered several remarks in post-task questioning regarding the use of negative space on the site, the inability to reload the site and start over, and the atypical design of the Menu:

“It was kind of overwhelming, the amount of text, and the Menu wasn’t very common. I think it’s helpful to people if large menus like that are reminiscent of other websites. Like Wikipedia, or YouTube or something.”

“I think one thing that would be helpful is a clear indicator to get rid of Menus, and bring it back. On websites, those three lines...or a drop-down menu. Oh, just like a reload button. I feel like with YouTube, when you click the YouTube icon, it completely refreshes the site.... I don't know if [Minnesota Report Card] had [that], but I couldn't find it. And I feel like that [would be] nice to restart.”

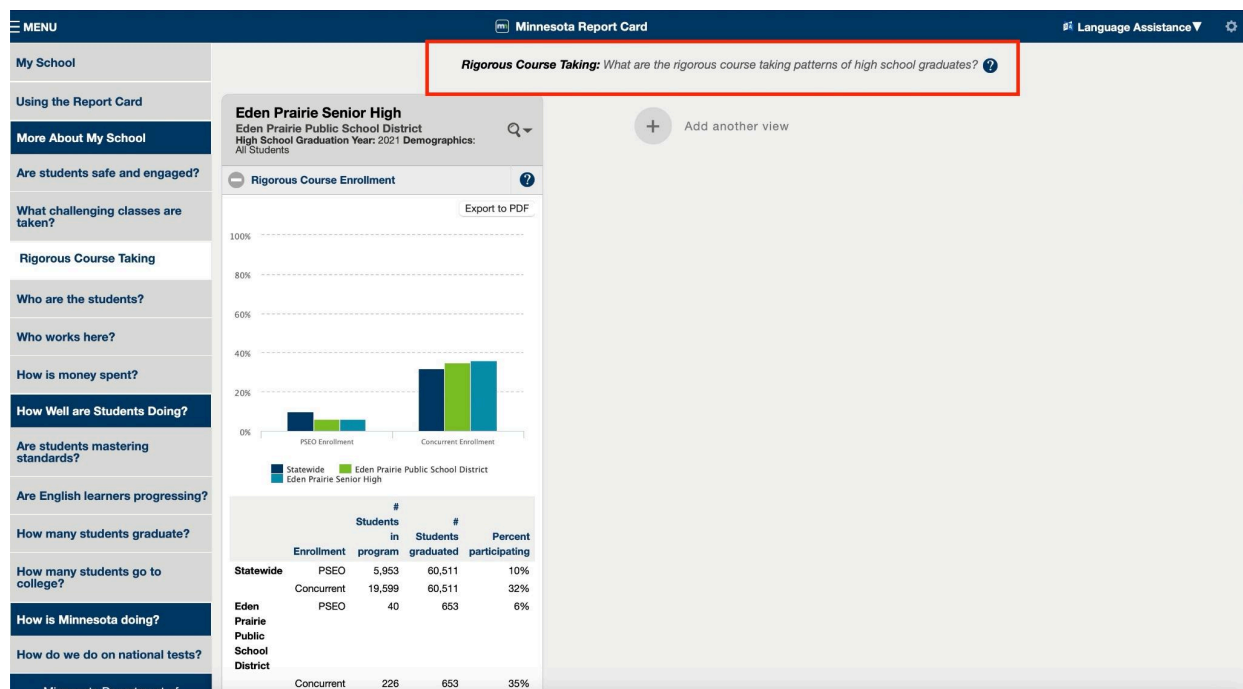
They also felt that the headings on the report pages were incredibly small, which made it more difficult to discern where they are located in the website:

“The headings, in my opinion, were non-existent. They were so small. I feel like I needed a magnifying glass to see them. [It would have been helpful] if they were big, [or a] different color...”

See **Figure 5** below for reference. **Participant 1 gave this task a rating of 4 out of 5, indicating that it was easy.**

#### **Figure 5**

*Heading Font Size and Formatting*



*Note.* The title of the page is outlined in red. The title is bolded and italicized, but is joined with an explanatory question using a colon. The title is very small, and is difficult to distinguish from body text, making it difficult for users to determine where they are in the website.

Participant 2 (P2) successfully completed Scenario 4 within the allotted time frame. Upon starting the task, P2 struggled to decide on what Menu tab to select to generate the appropriate report. They started at the top of the Menu and worked their way down the tabs, and found the correct “Suspensions” tab quickly because it was under the first section. Participant 2 would later offer the following remarks:

“The Menu sections were very vague...I’ve never seen a Menu with [tabs formatted as] questions. Usually they’re one-word descriptions of what’s under that section. That was challenging.”

“I would try to find my information somewhere else [from a different website], just because I don’t know what some of the [Menu] tabs mean....like I don’t understand why the ‘Suspension’ section is under ‘Are students safe and engaged?’ I feel like suspensions don’t really have anything to do with safety. I just feel like a lot of the sections and buttons I’m seeing [on the site] are things I’m not familiar with usually.”

**Participant 2 gave this task a rating of 4 out of 5, indicating that it was easy.**

Participant 3 (P3) successfully completed Scenario 4 within the allotted time frame. The participant correctly identified that suspension data would be under the “Are students safe and

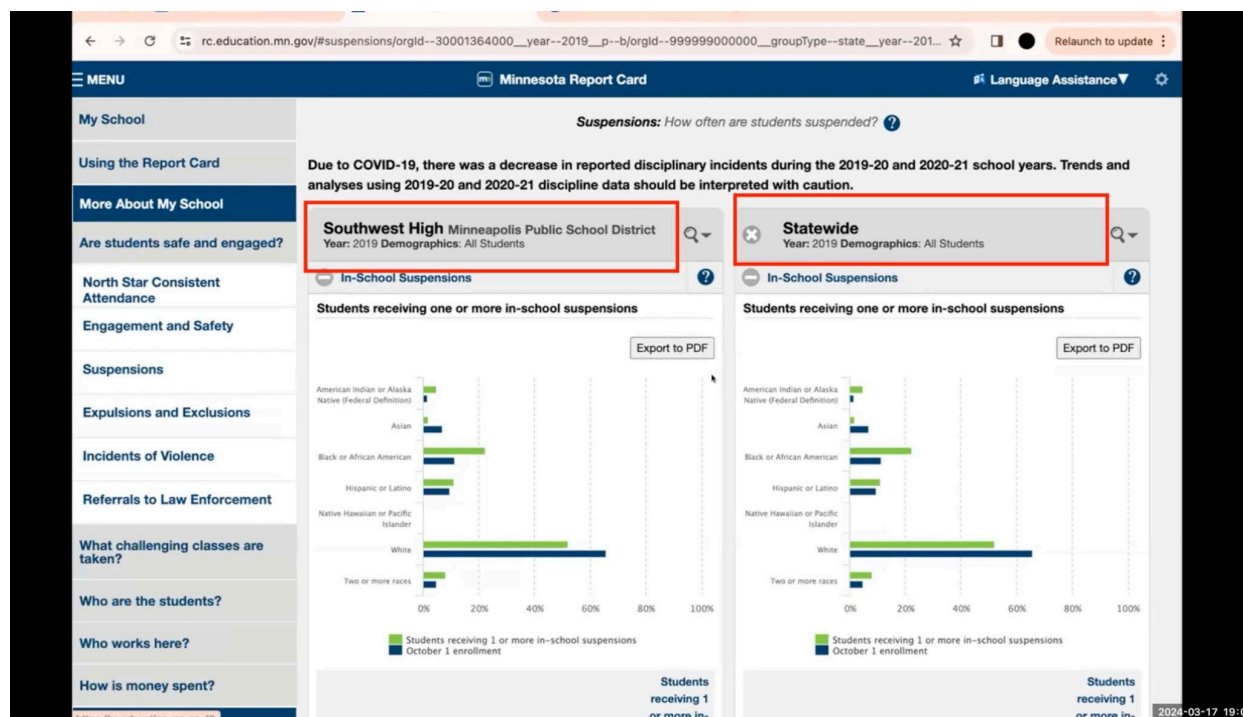
engaged?” Menu tab. They appropriately filtered data and used the first data table available to retrieve the correct answer. **Participant 3 gave this task a rating of 4 out of 5.**

Participant 4 (P4) successfully completed Scenario 4 in the allotted time frame, but was confused by what appears to be a glitch in the Minnesota Report Card system. See the *Note* below.

*Note:* The task was to find the number of students receiving 1 or more in-school suspensions statewide in 2019. The participant failed to figure out how to clear data pertaining to Southwest High, and did not know they could use the filters to search for “statewide” data. However, there appears to be a glitch in the Minnesota Report Card system where, even with reports that can only load statewide data and not data specific to schools/districts, the name of a previously searched school will preload with state data attributed to it. So the user felt they were likely giving the wrong answer, because the data was attributed to Southwest and they did not know how to change it, but the data itself was correct but misidentified as school-specific. While the user eventually generated another view that showed statewide data for 2019, the user was confused that the school data was identical to the state data. They still provided the correct answer in an effort to move on from the task. See **Figure 6** below:

**Figure 6**

*Misattribution of State Data to Schools/Districts*



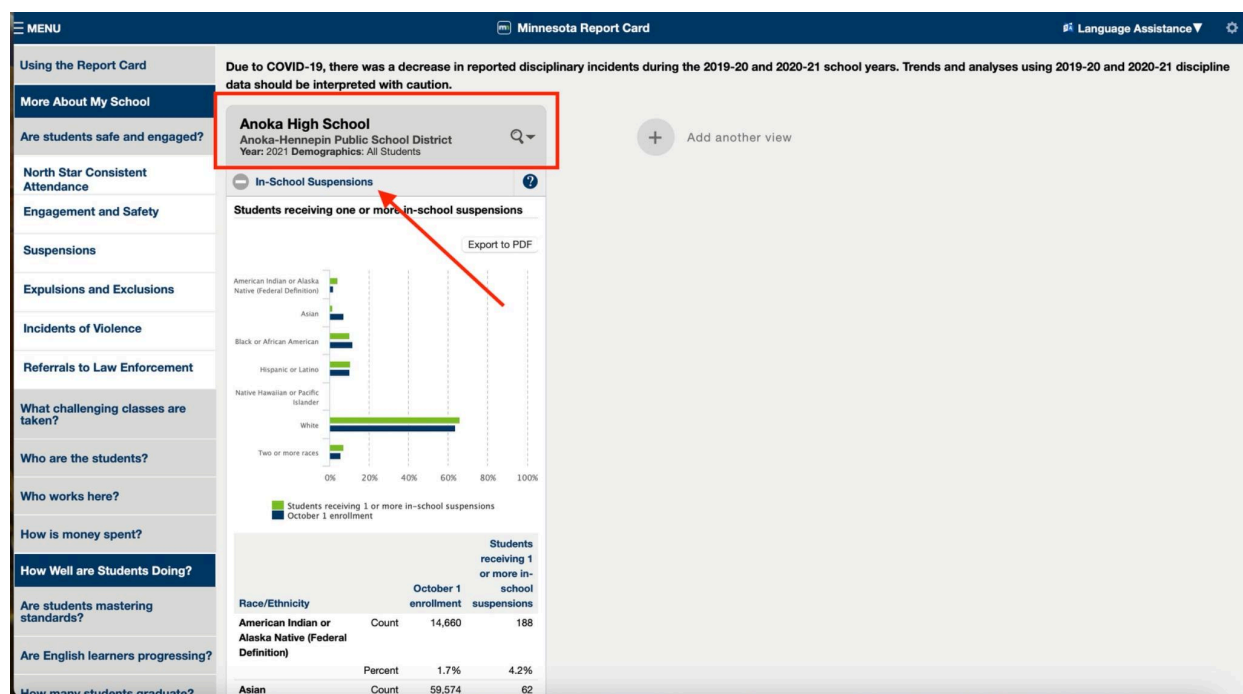
*Note.* While only statewide data is available for school suspensions, any previously searched schools or districts will pre-populate with statewide data attributed to them. Above, the suspension data for ‘Southwest High’ and ‘Statewide’ is identical, because state data is being

attributed to Southwest High. This confused the user, who did not realize that state data was being falsely attributed to Southwest High.

Upon starting the task, the participant remarked that they expected data on suspensions to be under the “How Well are Students Doing?” section divider. When they didn’t find it, they moved through the following tabs: “Are students mastering standards?”; “Are English learners progressing?”; “How many students graduate?”; “College-going”; “My School”; “Who works here?”; and “Demographics.” Eventually, they found the correct tab (“Are students safe and engaged?”). When looking for data on in-school suspensions, the participant spent time scrolling through the report panes before noticing that the report already generated with the report pane on in-school suspensions open at the top of the report; they remarked that the label for “In-School Suspensions” was tiny and should have been more clear. They were surprised to find that they could click on the report header to filter by year, and said they wouldn’t have known they could click on the header to search for a school because it’s the same color as the background. This is shown below in **Figure 7**.

**Figure 7**

### *Report Pane Data Filters*



*Note.* Users struggle to interpret the report-pane header outlined in red. It’s unclear to users that it is a search function and data filter; users remarked that it looks like a stylistic element. Users struggle to see that the data criteria selected, like “Year” and “Demographics,” are shown in this header as well. In this Scenario, P4 struggled to see that the “In-School Suspensions” report-pane shown by the arrow was already open, and already displaying the data that they needed. There is



a tendency for users to immediately attempt to sift through the data presented to them when they open a report page, though they often don't know what data they are looking at.

The user then became frustrated that the data for Southwest High generated during Scenario 2 was still automatically being generated. At the last minute, they figured out that they could hit "+Add Another View," which generated a second report showing statewide data. They were confused that this data matches the data for Southwest exactly, and gave us what they believed to be an incorrect answer. See **Figure 6. Participant 4 gave this task a rating of 3 out of 5, indicating that it was slightly difficult.**

Participant 5 (P5) successfully completed Scenario 4 within the allotted time. The participant started by trying to click the three-line Menu icon, and stated that they feel that they should be able to get more information from doing so; they disliked that the Menu is always open. They then found the "Suspensions" tab. They remarked that the font is really small; it should be noted that while this user shared they have a visual impairment, other users expressed frustration with the small font size as well. They then clicked the "More Information" pane, but said that it was too much to read. They struggled with their vision, and said they struggled to see the count. They eventually correctly answered the question using the data table. **Participant 5 gave this task a rating of 3 out of 5, indicating that it was slightly difficult.**

### Scenario 5

*Note:* Due to time constraints, Participant 1 did not complete Scenario 5.

Participant 2 (P2) successfully completed Scenario 5 in the allotted time frame. They easily identified where the language setting was located, and were able to change the language to Somali and back to English with ease. **Participant 2 gave this task a rating of 5 out of 5, indicating that it was easy.**

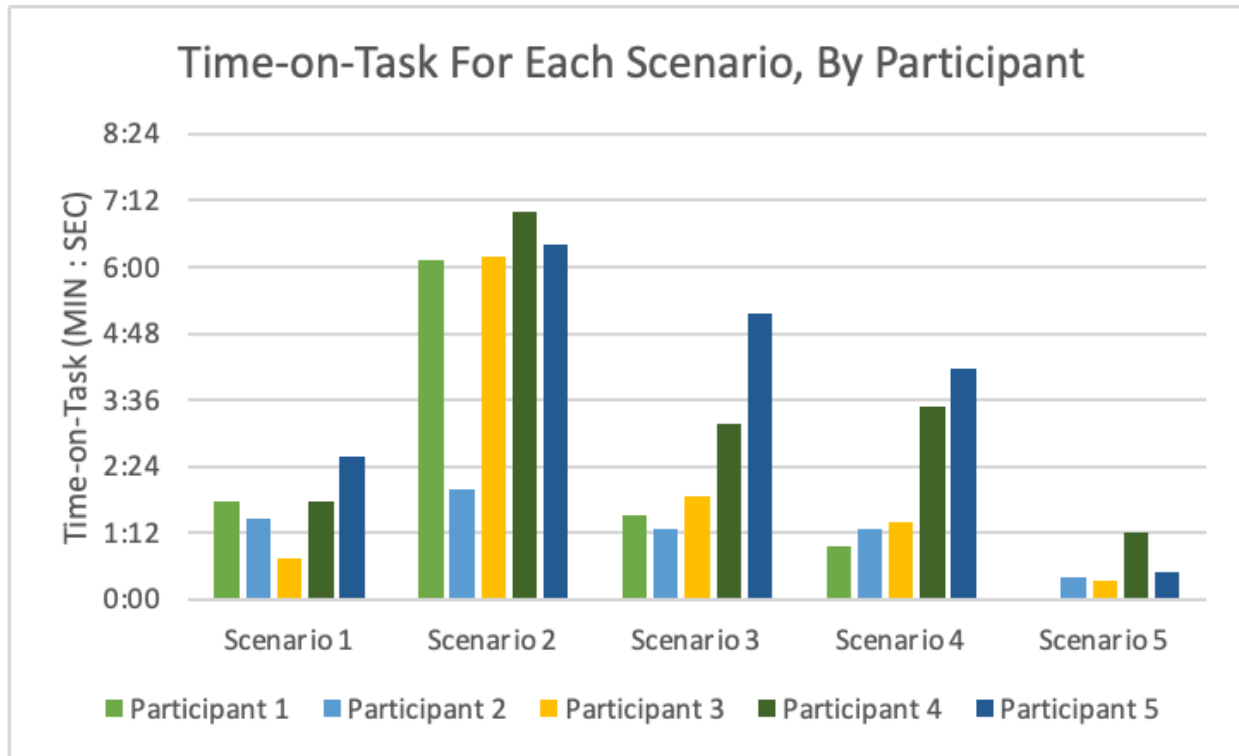
Participant 3 (P3) successfully completed Scenario 5 within the allotted time frame. They easily identified where the language setting was located, and were able to change the language to Somali and back to English with ease. **Participant 3 gave this task a rating of 5 out of 5, indicating that it was easy.**

Participant 4 (P4) successfully completed Scenario 5 within the allotted time frame. They first attempted to sort through the Menu tabs, looking for a language setting; eventually, they found the language setting located in the upper-right hand corner. They remarked that they would not have thought to look there, because all of the other information on the website is on the left-hand side of the screen. They also remarked that the translation for the word "Done" was mistranslated into Somali. **Participant 4 gave this task a rating of 5 out of 5, indicating that it was easy.**

Participant 5 (P5) successfully completed Scenario 5 within the allotted time frame. **Participant 5 gave this task a rating of 5 out of 5, indicating that it was easy.**

### Scenario Time Completion

**Chart 1** shows the time-on-task for each scenario, for each participant.

**Chart 1***Time-on-Task For Each Scenario, By Participant*

*Note.* Chart 1 shows the amount of time each participant spent attempting to complete each scenario. Note that there is no data for P1 on Scenario 5; P1 did not complete Scenario 5 due to time constraints.

All participants spent the most amount of time attempting to complete Scenario 2, but could not retrieve the correct answer. Participants required the least amount of time to complete Scenario 5, in which all participants assigned the task (P2, P3, P4, and P5) successfully changed the language settings on the website, with all but one user changing the language in under one minute.

**Table 1** below shows the average time-on-task all participants spent on each scenario.

**Table 1***Average Time-on-Task per Scenario*

Average Time-on-Task per Scenario					
	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Average Time-on-Task (MIN : SEC)	1:40	5:40	2:36	2:15	0:36

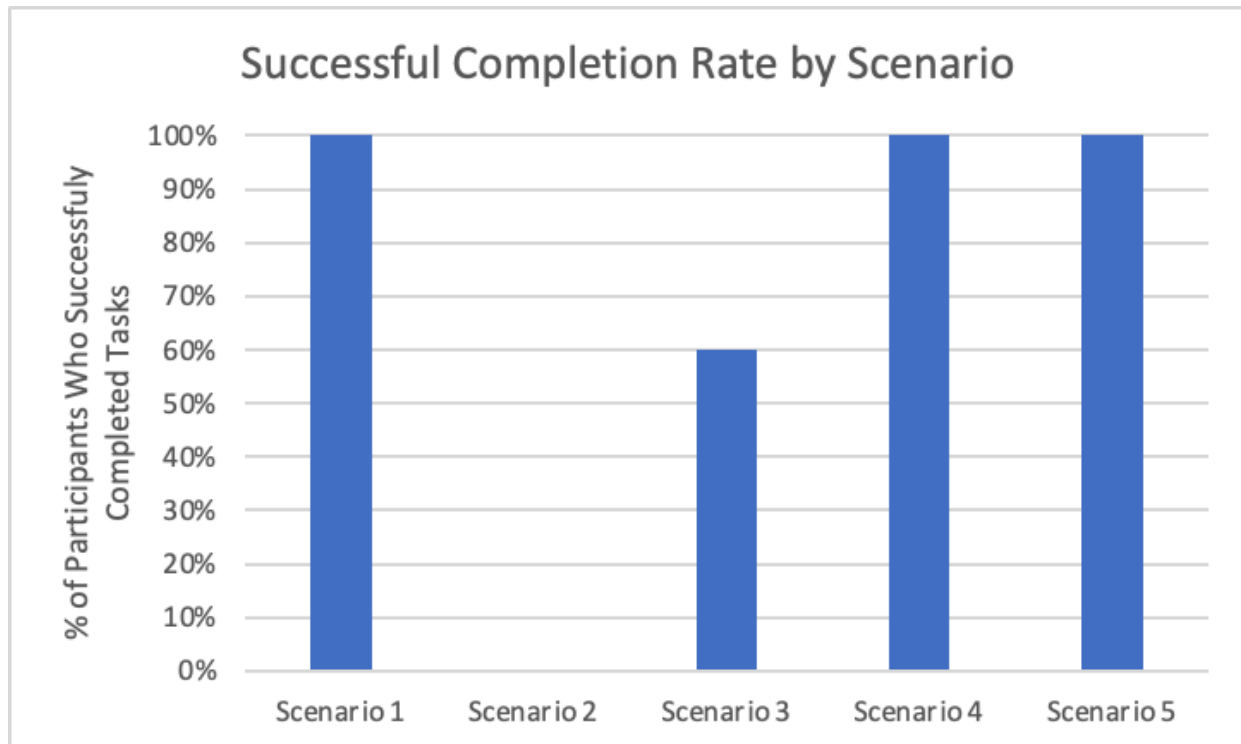


*Note.* Table 1 shows the average amount of time all five participants collectively spent attempting to complete each scenario. Note that the average time for Scenario 5 is taken only from P2, P3, P4 and P5; P1 did not complete Scenario 5 due to time constraints.

**Chart 2** shows the completion rate of each scenario.

**Chart 2**

*Successful Completion Rate by Scenario*



*Note.* All participants successfully completed Scenarios 1, 4, and 5; note that P1 did not complete Scenario 5 due to time constraints. Only three participants successfully completed Scenario 3, and none successfully completed Scenario 2.

### Post-Task Rating

**Table 2** indicates the participants' ratings of the difficulty of each task on a scale of 1 to 5, with 1 being *very difficult* and 5 being *very easy*.

**Table 2**

*User Ratings of Difficulty by Scenario*

Scenario #	P1	P2	P3	P4	P5	Average Rating
------------	----	----	----	----	----	----------------

Scenario 1	5	3	4	5	4	4.2
Scenario 2	2	2	1	1	1	1.4
Scenario 3	3	2	3	1	2	2.2
Scenario 4	4	4	4	3	3	3.6
Scenario 5	NO DATA*	5	5	5	5	5

*Note.* Table 2 shows the difficulty rating each participant assigned to each scenario. Average ratings for each scenario can be seen under the “Average Rating” column. Note that P1 did not complete Scenario 5 due to time constraints.

**Table 2 Key:** Very Difficult ①–②–③–④–⑤ Very Easy

**Very Difficult** **Difficult** **Slightly Difficult** **Easy** **Very Easy**

Scenario 1 was generally regarded by participants as being easy. Scenario 2 was considered to be very difficult. Scenario 3 was regarded as generally being difficult by users. Scenario 4 was slightly difficult for users, while Scenario 5 was considered to be very easy.

### Debriefing Interview

When all tasks scenarios were completed, our moderator asked a series of questions to assess the overall reaction from the participants’ perspective. In-depth participant responses can be found in Appendix C. Below are the debriefing interview questions along with a summary of participant responses:

1. What was your impression of the site when you first started to use it?

Participants 1 and 2 described the site as “visually unappealing,” “boring,” and remarked that it lacks personality. However, P3 appreciated that the color scheme wasn’t “aggressive” or “busy.” In regards to the perceived ease of use of the website upon first viewing, P2 told the moderator that they didn’t know what to do or where to start at first; they felt they had to sort through all of the Menu tabs to find something relevant to what they were looking for. P4 remarked:

“When I first started to use [the website], I was thinking, ‘oh, it’s not going to be that hard, because it’s only the [Menu] tabs, that’s it.’ But as the questions got more specific, then I realized, ‘oh, this is going to be hard, because I *only* have the tabs and they’re asking me to look for specific things.’”

P5 remarked that it seemed “a little bit confusing...but not to the point where I would give up,” though it was hard to find what they needed.

2. How did your impression change as you continued to use the website?

Three participants (P1, P3, P4) felt that the website became more overwhelming as they continued to use it. They remarked that having to look for specific information “amplified” their confusion. P3 remarked that they were surprised by the transition from plain language to technical jargon when switching from the Menu to the report pages. They said that it felt as though the Menu was written in plain English, but the report pages seemed to assume that they knew about niche academic terms. P4 described feeling as though the website was “horrible” by the end of the final scenario. They felt like key elements of the website, like the “+Add Another View” button and the search bars and data filters in the report-pane headers weren’t visible or their function wasn’t apparent.

P2 said that their impression of the website didn’t change over time; they feel it contains useful information, but they wish it was organized better.

P5 was the only participant who said that the website started to make more sense as they continued to use it. They stated that they didn’t find it intuitive, but that as they completed scenarios they began to understand how each “piece” of the website works.

3. Please rate the ease and/or difficulty of these tasks on a scale of 1 to 5, with 5 being very easy.
  - a. Figure out how to find reports (i.e., use menu):

The average difficulty rating for figuring out how to find reports was a 2.6, indicating that it was **difficult** for users. Participants remarked that it was easy if there was a clear connection between the Menu tab description and their goal (for example, going to Fiscal Transparency when they have a question about money); but many described struggling to figure out what content was housed under each tab.

- b. Figure out how to look at data by different student groups (i.e., use filters)

The average difficulty rating for figuring out how to look at data for different groups was a 3, indicating it was **slightly difficult**. Participants described liking the use of boxes and data filters. P2 described being confused as to why some of the filter criteria were displayed in drop-downs while others were boxes that needed to be selected. P2 also felt that the magnifying glass icon feels indicative of a search function, not a filter function.

- c. Figure out where to find specific reports (i.e., menu labels are not clear)

The average difficulty rating for figuring out where to find specific reports was a 2.2, indicating that it was **difficult** for users. P4 remarked that the material was “hidden” in the website. P1 and P2 felt that it was challenging to determine where specific content was located based on the Menu labels alone.

- d. Knowing what you're looking at and where you are located in the site (e.g., where filter labels do/do not show up, where the overall headings align on the page):

The average difficulty rating for knowing what they're looking at and where they are located in the site was a 2.25\*, indicating that it was **difficult** for users to figure out where they are. P1 remarked that it felt like they "needed a magnifying glass" in order to see the report page headings.

*\*Note:* Participant 2 did not give a rating for this question; the average rating is the mean from ratings provided by P1, P3, P4, and P5.

4. Did you find the navigation system easy to use?

P1, P2, and P4 explicitly stated that the navigation system was not easy to use. P1 remarked that the drop-downs in the Menu and report-pane search bars weren't clear or intuitive. P2 remarked that the navigation was the "most confusing" part of the website. P3 appreciated that much of the website is mouse-driven, and that they did not have to type a lot in order to navigate the site. P5 stated that the Menu descriptions were not intuitive, and that this made it difficult to move through the site.

5. What are your thoughts on the language settings? Was it easy to find? Did it look how you expected?

All but one participant said that the language settings were easy to find. P1, who did not complete Scenario 5 due to time constraints, remarked without prompting that there were no language settings that they had seen, and that, therefore, they were not easy enough to find.

6. What were the biggest difficulties you encountered when using the site, if any? What was most frustrating?

P1 described struggling with reading report-page headings, and stated that it would have been helpful if they were bigger or a different color; they said it was challenging figuring out where they needed to be as a result. P2 remarked that figuring out what the sections for the Menu meant was the hardest. The Menu tabs felt like "big umbrella questions" for different things that didn't seem related to each other. P3 struggled with data-digging, but felt that the aesthetics of the site were good. P4 struggled the most with the search engines on the site, and with not being able to refresh the page. They remarked that usually they would just refresh a website if they were confused, but this action doesn't clear existing data on Minnesota Report Card. P5 also had issues with the report-pane search functions. They wanted a description under the report page header that described how to use the search feature for the user.

7. What are the strengths of the website, if any? What was the best part of the experience using the site?

P1 liked that the pages typically load fast on the website. P2 said that the navigation was easy once they figured out how to use the search feature for reports for looking for schools and filtering data, and that they liked how easy it was to find the language settings. P3 liked how the site was mouse-driven, and that the report search features pre-populated with schools and districts as they typed. P4 felt the site was informative, but that it felt like an information overload where things were “hiding in plain sight.” P5 likewise felt that the site was trustworthy and seemed to provide reliable data, but that it just wasn’t intuitive to use and was very different from the websites they use day-to-day.

8. If you could make any changes you wanted to the website, what would they be?

P1 felt that the aesthetics were a major drawback, and said they would use more color to make the site more inviting and friendly.

P2, P3, P4, and P5 expressed that the Menu needed to be changed. P2 felt that the Menu needed to be easier to understand; they said that the sections currently “don’t make sense.” They felt, for example, that the suspension data doesn’t belong under “Are students safe and engaged?” They also wanted the Menu to be moved to a top navigation bar, because that’s “where they usually are” on websites. Likewise, P5 felt that the Menu descriptions were lacking as well. P4 felt that the hierarchy of the subtabs in the Menu was unclear, and suggested that subtabs should be indented to indicate that they are positioned under a main tab. P3 felt there were too many Menu tabs in general.

P2, P3, and P4 disliked aspects of the data filters on report pages. P2 felt that the magnifying glass icon does not indicate a filter feature, but a search; P3 felt that the “Done” button on the report implies that they’re done filling out the criteria, but that it doesn’t seem like something they need to select in order to generate data.

P5 also reiterated that they would like a description of how to generate reports under the header of each report page.

9. Do you feel this site would benefit from a Homepage or navigation bar?

All participants feel that the site would benefit from a Home page or navigation bar. P2 also wanted a website-wide search bar; they had been under the impression that the “My School” bar was a site-wide search engine. P2 also felt that the Home page should be more obvious to find. P5 also wanted a search bar, and said their instinct is to use one if they can’t find what they need using a Menu. P2 and P4 also wanted a navigation bar with more options; P4 remarked that they kept “getting stuck in the side Menu with no other options.”

10. Any other thoughts or comments you would like to share with us today?

P1 remarked that they would feel frustrated if they had to use the website on a regular basis. P4 added that the bottom of the website doesn’t have any links or additional information, and that

this something sites usually have. P5 remarked that the website is overall a useful tool, but hard to figure out how to navigate.

### **Product Reaction Cards**

After participants completed the testing, we asked users to complete a “Product Reaction Card” activity to describe their overall experience with using the website. Each participant chose five words from a total of 36 words that they felt best described their experience using the Minnesota Report Card website to find information.

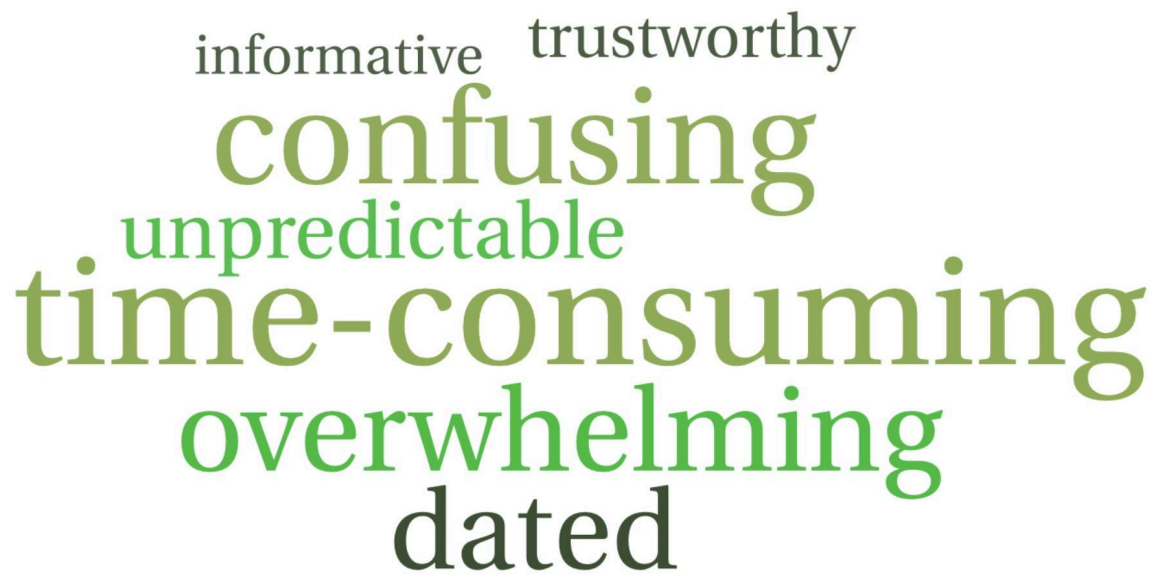
Participant responses are recorded below:

1. Participant 1: Time-consuming; overwhelming; wordy; dated; confusing.
2. Participant 2: Slow; unpredictable; easy to use [“some sections, but some are not easy”]; time-consuming; dated.
3. Participant 3: Jargon-filled [“in the report page and filters”]; engaging; inconsistent; trust-worthy [“a lot of data was provided”]; informative.
4. Participant 4: Confusing; frustrating; hard to use; overwhelming [the Menu]; time-consuming.
5. Participant 5: Confusing; unpredictable; informative; useful; trustworthy.

**Figure 8** below shows the most frequently mentioned words. “Time-consuming” and “confusing” were the most mentioned words, with three out of five participants selecting them. There were five additional words mentioned by more than one participant: “overwhelming,” “dated,” “unpredictable,” “trustworthy” and “informative.”

### **Figure 8**

*Commonly Selected Words From Product Reaction Cards*



A word cloud visualization of participant feedback. The words are arranged in a central cluster, with 'time-consuming' and 'overwhelming' being the largest. 'confusing' is also large and positioned above 'time-consuming'. 'dated' is at the bottom, and 'informative' and 'trustworthy' are at the top. 'unpredictable' is positioned between 'confusing' and 'time-consuming'.

informative trustworthy  
confusing  
unpredictable  
time-consuming  
overwhelming  
dated

*Note.* Figure 8 shows the words selected by more than one participant from the Product Reaction Cards provided during the testing session debrief.

## Discussion

The results provide us with data and evidence which helps answer our research question: Can the user find and identify relevant information in a timely manner upon request?

While users exceeded our benchmark of a 70% successful completion rate across all five scenarios at 72%, we identified a number of issues that impede users' ability to identify and find specific pieces of information, and we feel that improvement can be made to enhance the usability of Minnesota Report Card to fully realize its potential as a tool for people in Minnesota. Key issues are discussed below.

### Key Issues

There were several key issues that impeded users' ability to successfully complete the tasks administered. They are listed below:

- Difficulties Navigating the Menu:
  - Users cannot intuit what a tab contains based on its description. According to our participants, the Menu tab titles often do not reflect the content they contain. During tasks, participants would often have to click through every tab in the Menu in order to find one that contained the specific information they were looking for.
  - Multiple participants said that they wanted a Menu with multiple drop-downs, or a second "tree" branching off from the first Menu to show what specific content each tab contains.
  - It is unclear when a Menu tab has been selected. During Scenario 3, P4 opened a main tab, but did not realize they hadn't selected a subtab; the report page was still displaying data from "My School," but they were under the impression they were under the tab they had selected.
  - The organizational hierarchy of the Menu is unclear. Participant 4 was confused by the section dividers, main tabs and subtabs in the Menu, and requested that the subtabs be indented like they are on other websites.
  - Users want to be able to hide the Menu. It was described as distracting, and many participants tried to close it repeatedly while completing their tasks.
  - Participants disliked *only* having the Menu to rely on. The simplistic design the Menu currently has feels insufficient for users. While the simplicity of the website avoids intimidating users at first glance, users became increasingly overwhelmed as they continued to use the site because they felt they didn't have enough resources available to them.
- Inability to Clear a Report Pane or Start From Scratch:
  - Multiple participants complained that they could not reload a page to get rid of existing reports. Many tried clicking the three-line Menu icon, the Minnesota Report Card icon, and the reload button in the address bar in an attempt to clear a previous school search; none of these strategies worked. This was a major source of frustration for multiple users.
- Obscure Report Page Layout:



- Participants cannot identify the “+Add Another View” button, and cannot generate side-by-side reports as a result. Multiple participants only noticed the “+Add Another View” button halfway through the testing session; some commented that it needs to be more prominent and visible. Only P1 successfully generated two side-by-side reports for the purpose of comparing schools in Scenario 2.
- The report page title/headings are too small for users. P1 remarked that they felt like they “needed a magnifying glass” to see them. Participants indicated in post-task questions that they struggled to locate where they were in the website in part due to how small the report page titles are. This created issues for a user with a visual impairment.
- Participants struggled to figure out that the magnifying glass icon in the report pane headers was both a search and filter function. A participant remarked that this header is only slightly darker in color than the gray background, and that they didn’t realize it was an interactive feature because of this.
- During task completion, multiple participants would ask us what data was being displayed in report panes (what year the data was from, if the data was for the right school subject, etc.), and could not see that the selected criteria was displayed in the report pane header.
- Users did not realize they could search “Statewide” to generate data for the state. This resulted in confusion for some users.
- There were no instructions on the report pages. P5 stated that it would have been helpful if there was a description of how to generate reports directly below the page heading.
- The “Done” button did not seem like an interactive element to users. They said they were expecting something like a green button that said “Apply Filters”; they stated that the “Done” button makes them think they’re done filling things out, not that they then have to click the button to finish their search.
- Participants often did not notice what report pane was already opened when they navigated to a report page. They often immediately began to try and interpret the graph and data they were presented with, or started to scroll to look at other report-panes.
- Even when participants correctly identified the relevant Menu tab for the information they were looking for, they were sometimes so overwhelmed by the data they were immediately presented with on report pages that they did not scroll through the remaining report panes and failed to complete the task as a result.
- The font in report pages is small and was difficult for some participants to read. This is an accessibility issue.
- Website Does Not Keep With Industry Conventions
  - Participants’ expectations regarding menus, “Home” pages and navigation bars, and the ability to refresh a page are incongruous with the design of Minnesota Report Card. Multiple participants discussed feeling that websites typically have these elements, and that their absence on Minnesota Report Card was disorienting.

Below is our discussion of each scenario:

## Scenarios

### Scenario 1

For Scenario 1, 100% of participants successfully completed the task. The task was intended to be fairly straightforward, and was meant to gain an understanding of how users approach the site for the first time. All of the participants completed the test within the allotted benchmark of three minutes, which falls in line with our initial expectations for the task. Users collectively rated the task as easy, with an average rating of 4.2 out of 5, with 1 being *very difficult* and 5 being *very easy*.

The layout of Minnesota Report Card posed some issues regarding first-time navigation. In Scenario 1, we noted that P2 indicated that they did not know where to start and struggled to figure out where to begin to find information related to funding. Multiple participants tried to use the three-line Menu icon and Minnesota Report Card icon to find a homepage. P2 tried to use the "My School" search bar as a site-wide search function before eventually navigating to the Menu. P3 became confused as to why some Menu tabs only have one subtab under them, and felt that this was unnecessary. P4 liked that the subtab name "Fiscal Transparency" was clearly tied to data surrounding money and spending, and appreciated that the Menu description matched the question they were looking to answer. However, P3 who found it confusing for information about money being used by schools statewide to be contained under the "Fiscal Transparency" tab. This could be seen as the biggest obstacle of this particular scenario as once in the tab, participants only had to filter the data by year and either read the graph or the Spending Summary table provided to retrieve the correct answer.

Peculiarities identified in Scenario 1 pertaining to the Menu layout, formatting, and descriptions, alongside the absence of a homepage, were notable barriers that continued to impede user navigation throughout the remainder of the testing session.

There were also some issues regarding participants' ability to use the graph; many did not seem to realize that the quantity of money spent would be shown when they hover over the bars in the graph. P1 was the only one who was able to figure out how to use the graph in that regard, though this may also be a matter of user preference; some users may prefer to look at a data table instead of a graph.

It was also unclear that the "Done" button was the equivalent of an "Apply Filter" button for some users; this sentiment is reiterated later on in testing as well.

Additionally, P2 accidentally clicked into the map search while trying to find the correct Menu tab; because the map opens in the same window and does not have a clearly distinguished exit strategy, the participant had to close the tab entirely and re-open the link we provided for them in order to reroute to the landing page. While this was an isolated occurrence, it did cause confusion for the user.

## Scenario 2

For Scenario 2, 0% of participants were able to successfully complete the task within a timely manner or without giving up. All participants took over six minutes on this task, with the exception of P2 who gave up in two minutes. The benchmark for time-on-task was five minutes. Users collectively rated this task as being very difficult, with an average rating of 1.4 out of 5, with 1 being *very difficult* and 5 being *very easy*.

Multiple issues regarding the usability of the site emerged as participants completed Scenario 2.

All participants expressed increased frustration with the Menu at this stage of testing. Scenario 2 requires more intensive use of the Menu tabs in order to search for data, and this task highlights the issues with having participants rely *only* on a Menu. Users felt that they did not know what Menu tab to go to based on the information they needed, and that the question format of the Menu tab descriptions was confusing. Users expressed that it was unclear what kind of content the Menu tabs contained based on their descriptions alone. Much of the time users spent trying to complete the task was spent clicking through different tabs to try and find information relevant to the task. They said that the Menu tab descriptions were not straightforward, and they felt as though they were “guessing” at where information was located. In the post-task questions, users recommended including a drop-down main Menu, with a second branch of subtabs for a more clear organizational hierarchy. These issues with the Menu reinforce issues that the Minnesota Report Card Workgroup has already identified with site navigation and have highlighted in the Client Information Sheet; our results confirm their current understanding that users find the Menu hard to use, especially in regards to finding specific reports.

There were also clear issues regarding the visibility of the “+Add Another View” option on the report pages. Only P1 was able to generate an additional report using the “+Add Another View” button for the purpose of comparing schools. Many of the other participants did not notice this feature until later on during the testing session, long after Scenario 2 was completed; this feature needs to be more visible and its purpose needs to be clear to users. The use of the term “view” is incongruent with what the button accomplishes—the button allows users to compare schools or generate additional reports, but its description doesn’t articulate this purpose. This issue was not articulated in the Client Information Sheet, and requires further study.

Additionally, participants often tried to use the “My School” tab to reorient themselves, and some seemed to think that its search bar was a site-wide search feature. P2 felt that they should be able to search for a school or district under “My School” and have data pertaining to that school appear all in one place. The utility and placement of this search bar needs to be further evaluated, and may be the subject of future usability testing.

Having to use the data filters was a challenge for some participants. P2 remarked that the report-pane header was the same color as the background, and that they did not intuit that it was a search and filter feature. This issue further reinforces the difficulty users encounter with filtering data as outlined in the Client Information Sheet, though the participant comments about its color and design offer additional insight. The header resembles a stylistic element rather than an interactive, functional element; improving its visibility may be helpful.

### Scenario 3

*Note:* The correct answer(s) accepted for this scenario have been modified due to user interpretation of scenario instructions. The official correct answer for this task is 50.5%, which accounts for students who met *and* exceeded standards in reading as being considered “proficient”; retrieving this answer requires the user to scroll down to a report-pane towards the bottom of the page. Instead, some users chose to use the report graph to determine the percentage of students who *only* met the standards but did not exceed, yielding a result of 36.1%. We consider this to be a technically correct answer in the context of the scenario presented, and consider both 50.5% and 36.1% to be correct answers resulting in successful completion of Scenario 3.

For Scenario 3, there was a successful completion rate of 60%, with P1, P2, and P3 finding the correct answer. Users collectively rated this task as difficult, with an average rating of 2.2 out of 5, with 1 being *very difficult* and 5 being *very easy*.

P1 quickly found the appropriate Menu tab and filtered by the appropriate criteria, but struggled to determine if they had correctly changed the subject of the data to “reading.” They did not see the selected criteria listed in the report pane’s header. This difficulty in interpreting what data is being shown in a report was a persistent issue for several participants; this issue was also outlined in the Client Information Sheet and confirms that this is a persistent issue for users. During the debriefing interview, P1 commented:

“I guess what I would have needed is a little bit more reassurance that I was doing the right thing.... I’m very into hand-holding. So if there was a big bolded thing saying ‘hey, you’re in the reading category, hey, this is the amount of students that are proficient’ ....just constant reminders that are very clear [would be helpful].”

P2 struggled to decide between selecting two different Menu tabs (“Are students mastering standards?” or “Are English learners progressing?”). They chose the correct tab and scrolled past the data filters, and down to the report pane with data on proficiency. They remarked that they didn’t know what kind of data was being shown for proficiency, similar to the issue encountered by P1. Eventually they were able to fill out the data filters and successfully filtered for reading statewide, but said they didn’t know how to filter for the year. Instead, they used the trend line provided in the “2019-2023 Proficiency” graph to yield the correct answer. P3 also used the trend line graph instead of filtering by year. There are clear issues regarding participants’ ability to filter data or to figure out what criteria has already been selected.

P4 and P5 failed to complete Scenario 3. P4 failed to complete the task because of issues selecting Menu tabs. They click on the tab “Are students mastering standards?” without realizing that it is merely a drop-down with subtabs, and that one of the subtabs needs to be selected to open new content. Because the report page heading is not visible, they didn’t realize that the report page was still showing the “My School” page. As a result, the user did not know where they were on the site or what they were looking at; this is a serious issue which needs to be addressed.

P4 and P5 also struggled to dismiss a school report generated during Scenario 2. P4 attempted to re-select the “My School” main tab and the Minnesota Report Card icon to clear the preloaded content, which didn’t work. They asked the moderator how to refresh the page. They remarked that they feel like everything on the website is now connected to Southwest, and that they don’t know how to go back. Both P4 and P5 attempted to click the “X” that appears alongside the “My School” search to clear school data but it only functions to clear anything that has been typed into the search and does not eliminate a school report. P4 then gave up on the task.

P5 would have successfully completed the task, but they altered the criteria for “Students Included” to “All tested” instead of “Only those meeting enrollment criteria.” Had the user not selected this, they likely would have yielded the correct answer.

#### **Scenario 4**

For Scenario 4, there was a successful completion rate of 100%, with all participants finding the correct answer in the allotted time frame of three minutes. This task was completed with relative ease in comparison to Scenarios 2 and 3. Users collectively rated the task as slightly difficult, with an average rating of 3.6 out of 5, with 1 being *very difficult* and 5 being *very easy*.

The most prominent issue encountered by participants was struggling to determine what Menu tab the information would be under, though all users eventually navigated to the correct location. One participant expressed confusion at suspension data being under “Are students safe and engaged?”, and remarked that they see no connection between suspension and school safety. This mismatch between Menu tab descriptions and the users’ assumptions regarding their content is a persistent trend that confirms previous findings noted in the Client Information Sheet.

P4 encountered what appears to be a serious glitch in the website. For the “Suspensions” tab, only statewide data can be generated; the site does not offer school- or district-specific suspension data. However, there appears to be a glitch in the Minnesota Report Card system where, even with reports that can only load statewide data and not data specific to schools/districts, the name of a previously searched school will preload with state data attributed to it. The participant was struggling to figure out how to clear data pertaining to Southwest High that had been generated during Scenario 2, and did not know they could use the filters to search for “statewide” data. They eventually opened another report by hitting “+Add Another View” to generate state data, but became confused as to why the number of suspensions for the entire state was identical to those for Southwest High. So, the user felt they were likely giving the wrong answer, because the state data was attributed to Southwest. They still provided the correct answer (despite thinking they were incorrect) in an effort to move on from the task. This issue caused confusion for the user and is a severe error that in a non-testing environment may misinform citizens. We recommend that this be the subject of future testing to evaluate the extent of this “glitch.”

#### **Scenario 5**

For Scenario 5, there was a successful completion rate of 100%, with all users able to change the language settings of the website in a timely manner. Only one user exceeded the benchmark of one minute, though only by around ten seconds. Users collectively rated the task as very easy,

with an average rating of 5 out of 5, with 1 being *very difficult* and 5 being *very easy*. Note that P1 was not assigned Scenario 5 due to time constraints.

P1 did not complete this task, due to time constraints; however, during the debrief, they remarked that they did not see any language settings during their use of the site, and that they would not know where to go to find it. This should be noted.

Despite the ease of identifying the language settings for most users, **we want to bring an issue to the attention of the Workgroup regarding translations.** One of our participants, who speaks Somali, noted that the word for “Done” was mistranslated on the website when they were tasked with changing the language to Somali in Scenario 5.

We are unaware of the extent of any mistranslations, so it has not been included in the formal list of recommendations, but we highly recommend that the Department of Education **consult with translators to ensure that the translations provided for Minnesota Report Card are accurate.** Mistranslation is a serious accessibility issue and effectively denies certain groups access to public information. We hope that the Department of Education will use this as an opportunity to review the translated material on the website to ensure equal access for all users.

### Scenario Time Completion

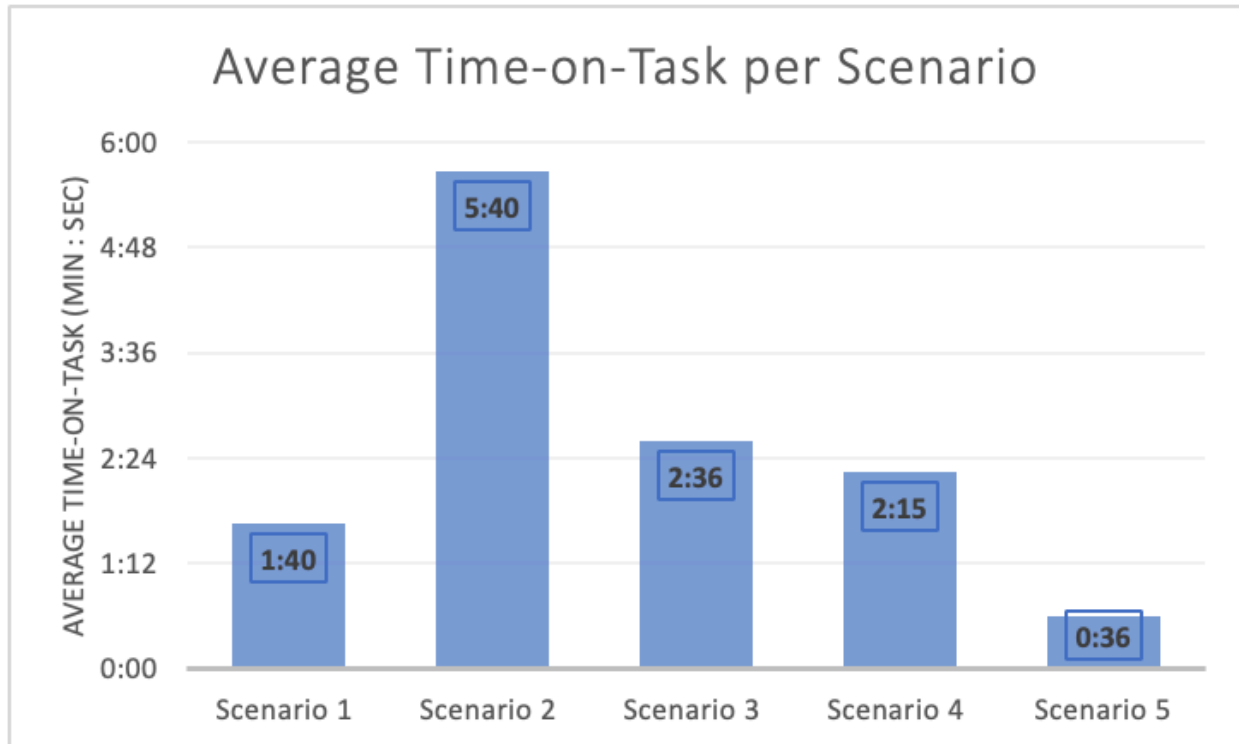
Our benchmarks for time-on-task for each scenario are listed below:

- Scenario 1: 3 minutes
- Scenario 2: 5 minutes
- Scenario 3: 4 minutes
- Scenario 4: 3 minutes
- Scenario 5: 1 minute

**Chart 2** shows the average amount of time spent on-task for each scenario for all the participants, collectively.

### Chart 2

*Average Time-on-Task per Scenario*



*Note.* The chart indicates the average time all five participants spent on each scenario. Note that Scenario 5 is an average of the time spent on task for P2, P3, P4, and P5; P1 did not complete Scenario 5 due to time constraints.

Scenario 2 was the only task where participants spent more time on task than anticipated. It should also be noted that none of the participants were able to successfully complete Scenario 2, despite spending nearly six minutes on average attempting to. Scenario 2 required that users generate two side-by-side reports in order to compare IB exam participation rates for two schools; given that this is a good example of the type of information a parent or family member might look for on Minnesota Report Card, changes should be implemented to address how time-consuming this is.

It should be noted that for Scenario 3, two participants were unable to successfully complete the task. So while the time spent on-task is in-line with our benchmarks, two of these users were unable to provide the correct answer.

Scenario 5 required that users change the language setting on the website to Somali, and then back to English.\* P2, P3, P4, and P5 all successfully changed the language in a timely manner. The ease of locating and changing the language settings was noted by all four participants, and indicates that there are few issues encountered by users in regards to changing the language. P1 did, however, mention during the debrief that they had not seen any language settings while using the website. This may indicate the need for further study.

*\*Note:* Scenario 5 is an average of the time spent on task for P2, P3, P4, and P5; P1 did not complete Scenario 5 due to time constraints.

A summary of the quantitative data can be found in **Table 3** in Appendix B.

### **Post-Task Rating**

Scenario 1 was generally regarded by participants as being easy. This task was intended to be an introductory task that allowed users to familiarize themselves with the layout of the site prior to completing Scenario 2, which is a much more intensive task that requires that the user navigate to a specific Menu tab and report-pane window, and generate two side-by-side reports to compare data from two different schools. The success users experienced when completing Scenario 1 is attributable at least in part to the strong and intuitive correlation between funding and the Menu description “Fiscal Transparency.” Users had remarked that this task was easy to do because the Menu tab name “makes sense.”

Users considered Scenario 2 to be very difficult. The biggest frustration noted among users was that there was no distinctive Menu tab for “IB exams.” Users described wanting to be able to search for “IB exams” or find a subtab that explicitly names it. Users also could not discern what the function of the “+Add Another View” button was, and asked the moderator if there was a way to generate two reports side-by-side.

Scenario 3 was regarded as generally being difficult by users. The most notable issue for Scenario 3 was users’ inability to interpret the data filters for reports or identify the function of the “magnifying glass” icon. This icon allows users to search for schools, districts, or statewide data; because the header that contains it is light gray, it wasn’t interpreted as a search feature but rather a stylistic element; this was explicitly stated by a user. Likewise, once users had filtered data, they did not see that the header displays the selected criteria. These issues confirm previous findings outlined in the Client Information Sheet. Additionally, users struggled to clear data for schools that was generated during Scenario 2. The difficulty of this task is likely attributable to misinterpretation of the data filter functions and the inability to reload the page. This inability to reload the page was not outlined in the Client Information Sheet, and may be a new finding.

Scenario 4 was slightly difficult for users. Some users did not feel that suspension data belonged under “Are students safe and engaged?” Others struggled considerably to clear data for schools that was generated during Scenario 2. The inability to clear previously generated reports or to refresh the site and start over was a serious source of frustration for users.

Scenario 5 was considered to be very easy. While P1 did not complete this scenario due to time constraints, the other four participants found the language settings easy to identify and intuitive to find in the upper-right corner. However, P1 later remarked during the debriefing interview that they did not see any language settings on the site; this may need to be further evaluated.

### **Product Reaction Cards**

Users’ overall dissatisfaction with Minnesota Report Card is further supported by users’ most frequently selected words during the Product Reaction Card activity. Following testing, participants each chose five words out of a total of 36 that they felt best described their experience with the website. Eleven of the words selected by users were negative.

“Time-consuming” and “confusing” were the most commonly selected words, with three out of



five participants selecting them. There were five additional words mentioned by more than one participant: “overwhelming,” “dated,” “unpredictable,” “trustworthy” and “informative.” P2 offered the following comments:

"I don't know, I would say ‘unpredictable,’ just because I couldn't tell what was under the navigation Menu sections until I clicked on them and just looked through."

"Time-consuming, because you have to just keep scrolling and looking through the website to figure out what you might find on there."

Additional words mentioned by users are listed below:

- Wordy
- Slow
- Easy to Use [“some sections, but some are not easy”]
- Jargon-Filled [“in the report page and data filters”]
- Engaging
- Inconsistent
- Frustrating
- Hard to Use
- Useful

While the majority of the words used to describe the website were negative, participants also described the site as “trustworthy,” “informative,” and “useful” in large part due to the wealth of information it provides. All participants described feeling that the site contained useful information that they would want to know, but they felt it was too inaccessible and hard to navigate. Users clearly expressed that they see value in what Minnesota Report Card has to offer, which reinforces the importance of the site as a tool for the public, and the importance of employing user feedback to improve the usability of the site.

## Conclusion

The usability of the Minnesota Report Card website is undermined by the Menu design, report page layouts, a lack of error recovery strategies, and poor visibility and placement of interactive elements. There are several key strategies that should be employed to improve users’ ability to navigate the site and access specific pieces of information:

- Creating an intuitive Menu with standard placement and design. This might include a Home page, and a navigation menu placed horizontally at the top of the website with drop-down subtabs. Menu tab titles should avoid using a question format.
- Giving users the ability to start from scratch. Allowing them to reload the page or return to a Home page to clear existing data for schools may reduce frustration.
- Improving report page layout by redesigning headers and interactive elements. Making report page headings larger and clarifying the function of the “+Add Another View,” “Done” and magnifying glass icon buttons will ensure users can make use of these tools.

Detailed recommendations for improving site usability are outlined in “Recommendations.”

The Minnesota Report Card Workgroup expressed an explicit need for evaluating how well users can find the information they're looking for, with particular attention to ease of navigation and evaluation of how user interaction with the website changes with more frequent use. Users felt that three out of the five scenarios they were tasked were at least "slightly difficult," and reported multiple issues with navigating the site. Further, three participants explicitly felt that the site became *more* difficult to use as they continued to use it, due to the overreliance on the Menu and absence of additional resources. During testing, none of the participants were able to successfully compare exam participation rates between two schools; this is an example of important information citizens should be able to access, and highlights a previously unidentified issue regarding visibility of the "+Add Another View" button.

Users expressed considerable degrees of frustration with using Minnesota Report Card due to these issues, and both qualitative and quantitative data suggest that the difficulty users experience in using the site hinders its utility. However, despite expressing frustration, all participants also expressed that they feel the website is important and valuable; users are receptive to the purpose and mission of Minnesota Report Card and see value in what it has to offer users, despite difficulties navigating it.

Accessibility and navigability are the most crucial characteristics that will make Minnesota Report Card a useful tool for members of the public. The Minnesota Department of Education is required under federal and state law to provide information that is comprehensible for diverse users, and they work to exceed these expectations in order to best serve the public. Our study has reaffirmed issues previously identified by the Minnesota Report Card Workgroup that users frequently encounter when using the site, which impede their ability to find and use specific pieces of information. In order to maximize the Minnesota Report Card website's utility, we hope that the experiences of our users will be taken into consideration. See "Recommendations" for explicit suggestions.

## **Limitations**

Note that there are two limitations to our study.

First, Participant 1 was unable to participate in Scenario 5 due to time constraints; all data for Scenario 5 is for Participants 2, 3, 4, and 5.

Second, the correct answers accepted for Scenario 3 were modified due to user interpretation of the task. The official correct answer for this task is 50.5%, which accounts for students who met *and* exceeded standards in reading as being considered "proficient"; retrieving this answer required the user to scroll down to a report-pane towards the bottom of the page. Instead, some users chose to use the report graph to determine the percentage of students who *only* met the standards but did not exceed, yielding a result of 36.1%. We consider this to be a technically correct answer in the context of the scenario presented and with the use of the word "proficient"; we consider both 50.5% and 36.1% to be correct answers resulting in successful completion of Scenario 3. Both answers required that users navigate to a specific report pane and utilize either the graphs or data tables to determine student performance on state reading exams.

## Recommendations

Our recommendations are based on the significance of our findings, what they imply, and what users wish had been incorporated to help them find and identify relevant information in a timely manner.

Recommendation mock-ups are shown in **Figures 9, 10, and 11**.

### Recommendation 1:

***Establish a Menu navigation bar at the top of the website, with a “Home” page and a search bar (if possible):***

Users struggled considerably with having to rely on the left-hand Menu for task completion. While the simplicity of the Menu avoided intimidating users at first glance, three out of five participants felt that the site became *more* overwhelming and difficult to use as they continued to use it and as the information they sought became more specific. Participant 4 remarked:

“When I first started to use [the website], I was thinking, ‘oh, it’s not going to be that hard, because it’s only the [Menu] tabs, that’s it.’ But as the questions got more specific, then I realized, ‘oh, this is going to be hard, because I *only* have the [Menu] tabs and they’re asking me to look for specific things.’”

In the debriefing interview, all five participants said that the website would benefit from a “Home” page and navigation bar, with P5 additionally requesting a site-wide search bar if possible. Multiple participants also cited a website’s navigation menu as being important to their impression of a website in the background questionnaire administered, highlighting its value for users.

Establishing a “Home” page and navigation bar also appeals to users’ existing experience with websites. Most users utilize a diversity of systems over their lifetime, and these experiences inform how they will approach new systems and attempt to navigate them. Based on common attributes shared by different systems, users develop expectations surrounding how to navigate systems more broadly (Krause, 2021). As a result, most users will anticipate having a “Home” page to navigate to when they get lost or confused. Participant 1 remarked:

“The Menu wasn’t very common... I think it’s helpful to people if large Menus like that are reminiscent of other websites. Like Wikipedia, or YouTube or something [where you can refresh the site]”

Participants expected the Menu icon to “reset” the site and allow them to start over. Participant 1 remarked that this is a common feature for sites like YouTube, and they wished Minnesota Report Card also refreshed completely when navigating back to the Menu. Participant 2 repeatedly re-navigated to the original site link we provided for her in order to refresh the page. They remarked:

“For both of the tasks. I couldn't figure out how to get back to the “Home” page. So I kept scrolling up to [the provided link] and re-clicking [it].”

Participants also wished to hide the Menu, and expected that the three-line Menu icon would allow them to collapse it or obscure it from view.

The absence of a Home page left users without the ability to reorient themselves in the system or figure out where they were located. Usability research shows that the visibility of system status can help users feel in control of a system as they're using it. Clear feedback, like the use of a breadcrumb trail, minimizes the amount of time users must spend evaluating where they are and what the system is doing and how to get to where they want to be (Harley, 2018).

**To address these issues**, consider establishing a Menu navigation bar at the top of the website in place of the current left-hand Menu. This might also include a “breadcrumb trail” in the upper-left part of the screen to help users keep track of where they are located in the site. These often have the following format: “Home > Are students mastering standards? > Test Achievement Levels, Test Results and Participation.”

See **Figures 9 and 10** for an example of what these changes might look like on the Minnesota Report Card interface.

## **Recommendation 2:**

***Use short descriptions for the Menu tabs instead of formatting them as questions, and clarify the informational hierarchy of the Menu by creating branches for subtabs:***

Our research indicates that there is too big of a discrepancy between Menu tab descriptions and the type of content users think they will contain:

Participant 2: “The Menu sections were very vague...I've never seen a Menu with [tabs formatted as] questions. Usually they're one-word descriptions of what's under that section. That was challenging.”

Participant 2 said that figuring out what the sections for the Menu meant was the most difficult part of navigating the website. They described the feeling that the Menu tabs were “just big umbrella [questions]” for different things that don't seem related to each other.

Participant 5 requested that additional subtabs be added with more specific information on what is housed under the main Menu tabs:

“I'd like a little more details on the left [Menu], just for someone, you know, digging around for something very specific. Sometimes I know that a website can have a second pull-down menu, or some options under, or take me to a second tree that would allow me to choose IB, AP courses. I think for me, that would have helped me get to [the right] spot.”

Similarly, there are issues with the organizational hierarchy of Menu tabs. Users had trouble identifying what Menu tabs they were under; they also struggled to determine which of the tabs are subtabs, because of the vertical layout of the current Menu:

Participant 4: “[On the Menu], when you click on a tab, there’s a drop-down from [the main tab] you already clicked on...but you don’t realize it’s a drop-down [or subtab]. You don’t realize it’s a drop-down [subtab], because usually, 9 times out of 10, those are indented or [shifted] off to the side [on other websites], but it was just exactly there in a [uniform vertical line].”

Selecting the incorrect Menu tabs was the most common mistake users made, and often led to users spending time looking through each tab to find relevant information. This mistake results from a discrepancy between the user’s goal and the task flow they used to try and accomplish it, because the Menu design does not match their expectations regarding website features and functions (Laubheimer, 2015) (Nielsen, 1994).

**To address this**, we suggest that, in addition to moving the Menu to a top navigation bar, the Menu titles be reformatted as brief descriptions of the content they house in order to adhere to users’ expectations and website standards (Krause, 2021). Users were confused by the question format, as it isn’t something that they would typically encounter; ideally, a system’s information structure and flow should be built around users’ past experiences with similar systems so that they know what to expect (Kaley, 2018). Working to prevent errors like incorrect Menu tab selection will reduce the cognitive burden associated with using the website, and will help users feel more confident in using and exploring what it has to offer (Laubheimer, 2015).

Similarly, changing to a top navigation bar would also allow for the inclusion of a second or third “branch” of subtabs, which will help clarify the hierarchy of information and possibly provide users with a better understanding of what content each Menu tab contains. For example, the main tabs might consist of a “Home” page, “My School,” “More About My School,” and “How is Minnesota Doing?,” with their existing respective subtabs contained in drop-downs. You might include a third “branch” of information for these subtabs. These consist of the individual report-pane descriptions offered in the report page, provided through a pop-up using a question mark icon. For example, indicating that “Test Achievement Levels, Test Results and Participation” contains information on student proficiency in math, reading and science for MCA exams. This may help users to find specific information more quickly.

**See Figures 9 and 10** for an example of what these changes might look like on the Minnesota Report Card interface.

### **Recommendation 3:**

***Improve the visibility of system status by enlarging headers and clarifying the purpose of interactive elements on the website, like the “Done” button or “+Add Another View” button:***

Among the most persistent issues encountered by participants was their inability to locate where they are and figure out how to use certain elements of the report pages.

Participants disliked how small the report page headings were (ex: “Fiscal Transparency”). One participant shared that they have a visual impairment, and found navigating the site to be incredibly difficult due to the small font size used throughout. Addressing this is crucial to ensuring equal access to information for all users, regardless of visual acuity. Multiple participants commented on how small the font size is throughout the site.

Likewise, report page titles resemble body text, and it is not always immediately clear that they are titles. This is exacerbated by their corresponding question mark icons, which can make them resemble supplementary information and not core content. Participant 1 remarked:

“The headings, in my opinion, were non-existent. They were so small. I feel like I needed a magnifying glass to see them. [It would have been helpful] if they were bigger, or [a] different color...”

This further exacerbated users’ inability to keep track of where they were located on the website.

Users also did not know how to “+Add Another View” and/or did not understand its function. During Scenario 2, where participants had to directly compare data from two different schools, only Participant 1 was able to generate a second report. Other users would ask the moderator if it was possible to do so during testing, or complained during post-task questioning that there should be a way to compare schools side-by-side. The use of the term “view” is incongruent with what the button accomplishes—the button allows users to compare schools or generate additional reports, but its description doesn’t articulate this purpose. This makes the button’s function unclear and makes the site harder for users to navigate because the design does not match their expectations of system features (Laubheimer, 2015) (Nielsen, 1994).

Participants 2, 3 and 5 were also confused by the “Done” button on the report pages. They didn’t feel that it was reminiscent of an interactive element, and assumed that it was just notifying them that they had reached the end of the list of data filters. Participant 3 suggested that this be changed to an “Apply Filters” button for clarity. Participant 2 remarked:

“The “Done” button is confusing, because I’m just not used to something like this. I feel like just.... a green button would be better. It didn’t occur to me that [the Done button] is supposed to be a button. Like a lot of these [features] are just not the way that I’m used to, so I’m just clicking on anything I find at this point.”

Participant 3 remarked:

“[The “Done” button] implies ‘already done,’ when you really mean to say, ‘click here to *make* it be done.’”

For some participants, the way the report-pane search features were displayed made it unclear that they were both search bars and data filters. Users thought that the light gray heading was just to distinguish it from the background. When users encounter a report page, they are focused on the data graphs presented to them and don’t realize that this header can be clicked on to open a search feature that allows them to filter data. It’s important that interface cues be visible and

accessible in order to reduce user burden and make using a product more enjoyable (Budi, 2014).

Once users completed a search, they also found it hard to identify what criteria was being displayed, though it was shown in the same report-pane header. For example, in Scenario 3, Participant 1 struggled to determine what school subject the data displayed was for. They later remarked:

“I guess what I would have needed is a little bit more reassurance that I was doing the right thing.... I’m very into hand-holding. So if there was a big bolded thing saying ‘hey, you’re in the reading category, hey, this is the amount of students that are proficient’ ....just constant reminders that are very clear [would be helpful].”

**To address these issues,** we suggest the following:

- Enlarge the report page titles for increased visibility.
- Change the “Done” button to a bright green “Apply Filters” button.
- Change the “+Add Another View” button to a green “+Add a School/District” button.
- Change the header for the report panes to a brighter color, and enlarge the font for the list of selected data criteria.
- Enlarge font throughout the website, particularly in the report pages and graphs if possible.

**See Figures 10 and 11** for an example of what these changes might look like on the Minnesota Report Card interface.

#### **Recommendation 4:**

***Provide users with additional guidance by including a short description of how to generate a report or compare schools/districts on report pages:***

Given the issues users encounter with conducting school searches, filtering data, and generating new reports, Participant 5 suggested in the debriefing interview that the Department of Education might include a short description of how to complete a search and compare schools directly on the report page.

Though it is ideal that a system can be used without too much help provided, providing users with proactive help can work to build the user’s familiarity and ongoing proficiency with a new system (Joyce, 2020). Providing a short description in a report page instructing users how to use the tools provided can ensure that they make good use of the website and find what they need quickly.

For example, in each report page you might have a short description like the following:

“To search for a school or district, click the magnifying glass icon in the report-pane below. To compare schools or districts, click the “+Add a School/District” button to the left of the report-pane.”

This will improve the ease of navigation for users and allow them to make use of the tools available to them to retrieve specific pieces of information.

**See Figure 10** for an example of what these changes might look like on the Minnesota Report Card interface. In Figure 10, the description is included on the left-hand side of the interface; this description might also be added directly below the title of the page (ex: “Suspensions: How many students are suspended?”) instead.

### **Recommendation 5:**

#### ***Improve exit strategies by enabling users to close a report pane:***

Participants struggled to dismiss school reports generated during previous tasks, and became confused as to how to start a new report from scratch.

In Scenario 3, Participants 4 and 5 struggled to dismiss a school report generated during Scenario 2. They attempted to re-select both the “My School” main tab and the Minnesota Report Card icon to clear the pre-loaded content, and asked the moderator how to refresh the page. Both attempted to click the “X” that appears alongside the “My School” search to clear school data, but this only functions to clear anything that has been typed into the search and does not eliminate a school report.

Participant 4 shared that their biggest frustration with the site was the inability to refresh the page:

“I didn't know how to refresh things. Usually, if I'm confused about a website, and I want to retrace my steps, I would just refresh. But you can't refresh with this one. So that is the most difficult thing.”

“How do I refresh from the absolute start? Everything is connected to Southwest High [and I can't change it]. So I just gave up.”

Participant 1 felt that the inability to reload a page to clear content deviates from how other websites work:

“[For example], I feel like with YouTube, when you click the YouTube icon, it completely refreshes the site.... I don't know if [Minnesota Report Card] had this, but I couldn't find it. And I feel like [it would be] nice to restart.”

It's important to implement exit strategies to reinforce the user's sense of control and their freedom to explore the website without worrying that there will be repercussions from trying too many things (Rosala, 2020). It may also be important to adhere to website standards in this regard; users are used to being able to use the reload button in the address bar, select the website icon, or navigate to a Home page to start from scratch (Krause, 2021). If this is not possible on Minnesota Report Card, users should be equipped with a different exit strategy.



**To address this**, instead of always leaving a report pane open on a report page, a red “X” button can be added to the upper-left corner of the report pane that allows users to clear it. If no report panes are open, the page could then shift to display an enlarged “+Add a School/District” button at its center.

We understand that current reload options are likely limited in order to prevent users from accidentally losing their reports if the page reloads unexpectedly, or in the event that they need to navigate to a different page but want to keep the reports they’ve generated. Providing users with a red “X” button on a report pane can allow them to start over if they need to without creating conditions that might make it easy to lose data. If desired, selecting this red “X” might generate a pop-up asking users to confirm that they want to close the report and that their data will be lost.

**See Figures 9, 10 and 11** for an example of what these changes might look like on the Minnesota Report Card interface.

#### **Additional Suggestion:**

**We want to bring an issue regarding translations to the attention of the Minnesota Report Card Workgroup.** One of our participants, who speaks Somali, noted that the word “Done” for the data filter button was mistranslated on the website when they were tasked with changing the language in Scenario 5.

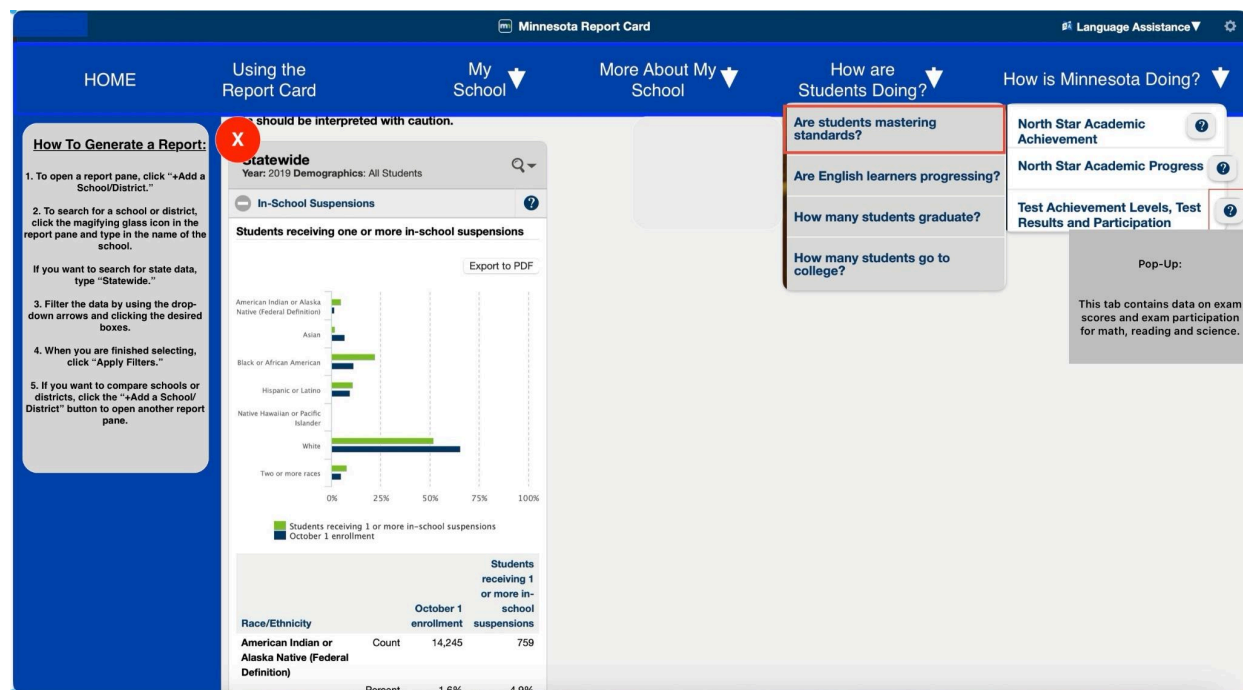
We are unaware of the extent of any mistranslations, so it has not been included in the formal list of recommendations, but we strongly recommend that the Department of Education **consult with translators to ensure that the translations provided for Minnesota Report Card are accurate.** Mistranslation is a serious accessibility issue and effectively denies certain groups access to public information. We hope that the Department of Education will use this as an opportunity to review the translated material on the website to ensure equal access to all users.

## Recommendation Mock-ups

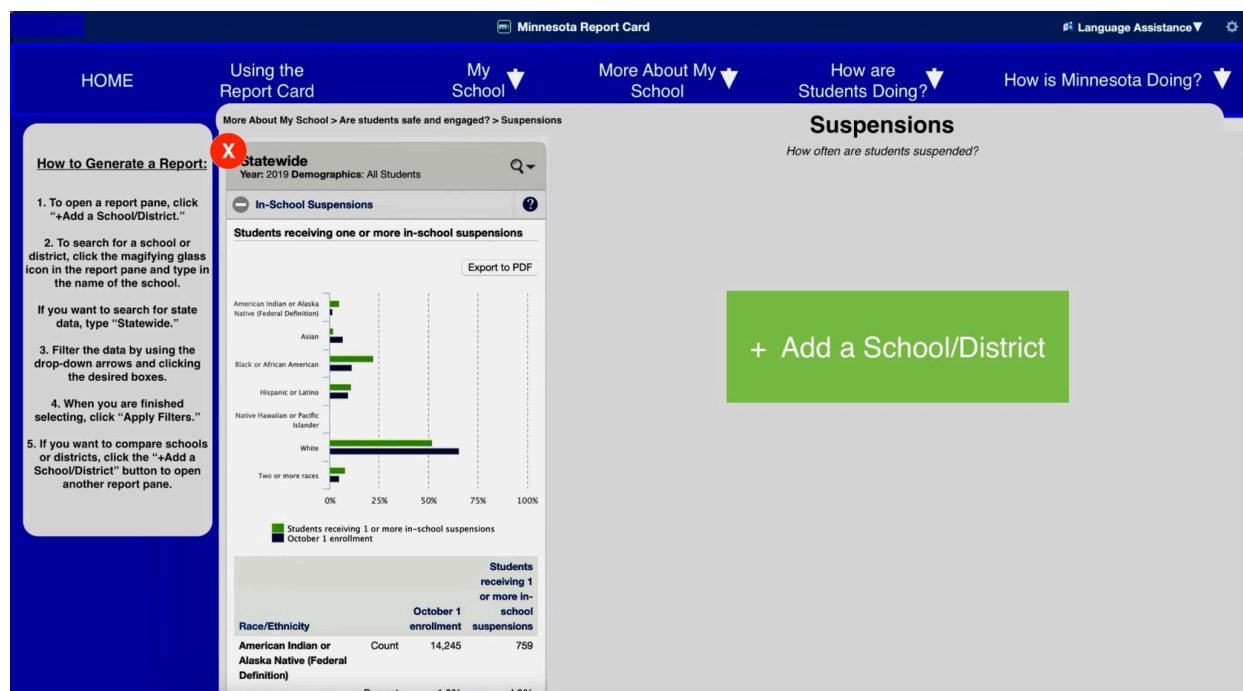
Below are three views of what the implemented recommendations might look like on the Minnesota Report Card interface. These are rough designs that are intended to provide the Minnesota Report Card Workgroup with an idea of how recommendations might be employed. See **Figures 9–11** below:

**Figure 9**

*Minnesota Report Card Mock-up, View #1: Navigation Menu*

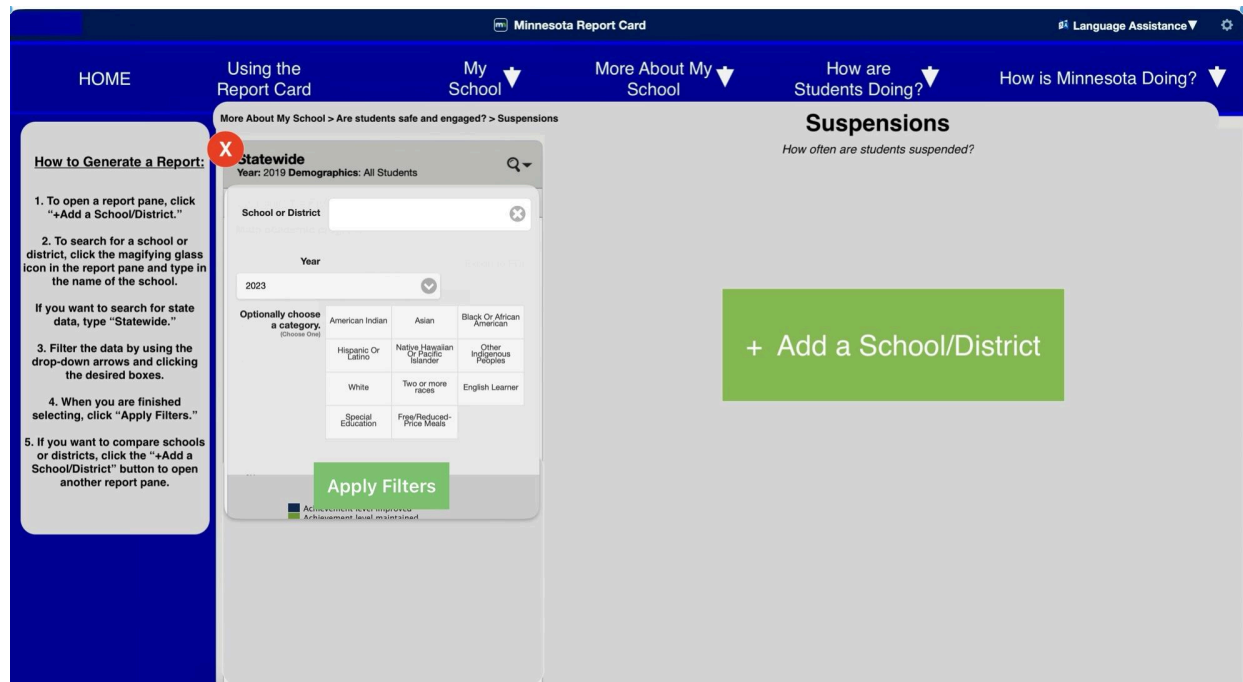


*Note.* The left-hand Menu bar is replaced with a navigation bar at the top of the website. The navigation bar contains a Home page, and multiple drop-down tabs containing additional information. In the figure shown, the user has selected “Are students mastering standards?” under the “How are Students Doing?” tab. This opens an additional “branch” of subtabs, each of which has a “?” icon that generates a pop-up describing what information the subtabs contain. In the figure, the user has selected the “?” icon for “Test Achievement Levels, Test Results and Participation,” which offers a description of the content the tab contains. Note that a sitewide search bar is not included in the figure; we still recommend including one, if possible, but we recognize the limitations surrounding the Minnesota Report Card website and understand that including a sitewide search tool may not be practical. Also note that the Menu descriptions are still formatted as questions; whether or how the Menu tabs are to be rewritten as short descriptions is at the discretion of the Workgroup, though we do advise that they be reformatted based on the user preferences identified in our study.

**Figure 10***Minnesota Report Card Mock-up, View #2: Report Page*

*Note.* The figure above shows a rough guideline of what the Minnesota Report Card report page might look like if recommendations are implemented. Note that the header of the report page ("Suspensions") is enlarged for visibility/accessibility. In the upper-left corner, a breadcrumb trail is included that indicates to users where they are in the website and how they got there (More About My School > Are students safe and engaged? > Suspensions). The "+Add Another View" button has been replaced with a larger, more visible "+ Add a School/District" button. In place of the left-hand Menu, users are provided with instructions on how to generate a report. In the upper-left corner of the report pane, a red "X" button allows users to close the report pane and start from scratch if desired. Providing users with a red "X" button can allow them to start over if they need to without creating conditions that might make it easy to lose data. If desired, selecting this red "X" might generate a pop-up asking users to confirm that they want to close the report and that their data will be lost. If the user chooses to close the only remaining report pane, the "+ Add a School/District" button might shift to the center of the page.

**Figure 11***Minnesota Report Card Mock-up, View #3: Data Filters*



*Note.* In the figure shown, the “Done” button used to generate reports after filtering data has been replaced with an “Apply Filters” button to clarify the button’s function. Note that the data filter header, which contains the magnifying glass and data being displayed (“Statewide,” “Year: 2018,” and “Demographics: All Students”) was a point of confusion for users; many did not realize it was a search function or were unable to see that it lists the data filters that have already been applied. Enlarging this text and changing the header from a dark gray to a more distinctive color may help users identify it as a key feature of the report pane. This is not shown in the figure above due to editing software limitations.

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## Appendix A: Background Questionnaire, Collected Data:

The data below consists of collected responses from the background questionnaire administered to users prior to the start of testing. **Table 4** shows a condensed summary of individual responses for each question. The remaining charts show the distribution of user responses for each question.

**Table 4**

### *Background Questionnaire: Collected Responses*

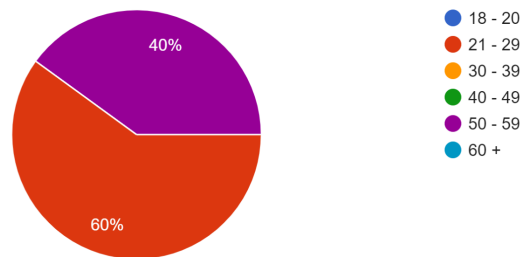
Questions	P1	P2	P3	P4	P5
Age	21 - 29	21 - 29	50 - 59	21 - 29	50 - 59
Are you a parent/guardian, or someone that helps school-aged students with academic-related tasks?	No	Yes	Yes	Yes	No
Which of the following statements best describes your relationship with technology?	I like technology, and I can mostly troubleshoot any problems that occur on my own.	Technology is a real passion of mine, and people come to me for help with technical issues when they get stuck.	I like technology, and I can mostly troubleshoot any problems that occur on my own.	I feel comfortable with technology, and I feel I now know the basics.	I like technology, and I can mostly troubleshoot any problems that occur on my own.
When encountering a new website, what factors influence your initial impression of the site?	Visual Design	Navigation Menu	Navigation Menu	Visual Design	Visual Design
What technological devices do you use most often?	Laptop	Smartphone and Laptop	Smartphone, Laptop and Desktop Computer	Smartphone, Laptop and Desktop Computer	Smartphone and Laptop
How often on average do you use a computer?	Several times a day	Several times a day	Several times a day	Daily	Several times a day
How do you most often use a computer?	Work	Internet	Work	Work	Work
How comfortable do you feel using unfamiliar websites?	5	5	4	3	3

*Note.* Table 4 shows the individual responses collected from users for each question provided on the background questionnaire.

Below are the collected responses from the background questionnaire administered to users prior to testing, with the user distribution for each question shown.

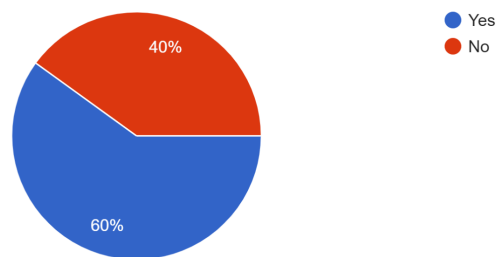
#### Age Category

5 responses



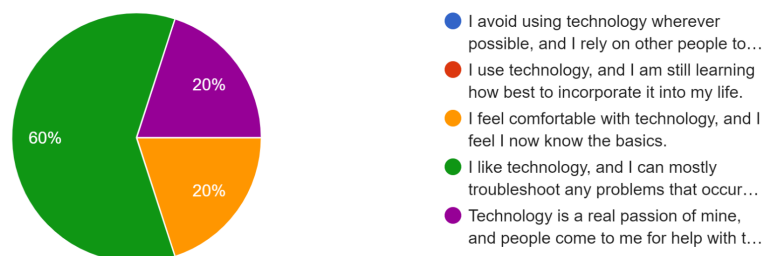
#### Are you a parents/guardians or someone that help school aged students with academic related tasks?

5 responses



#### Which of the following statements best describes your relationship with technology?

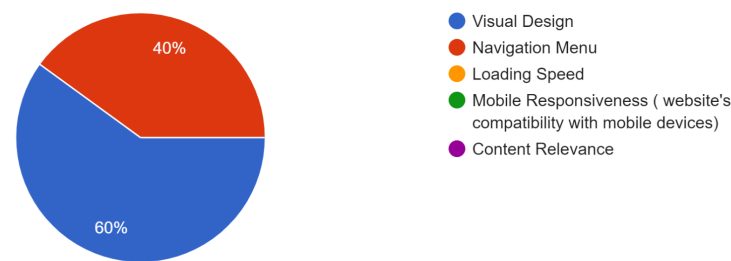
5 responses





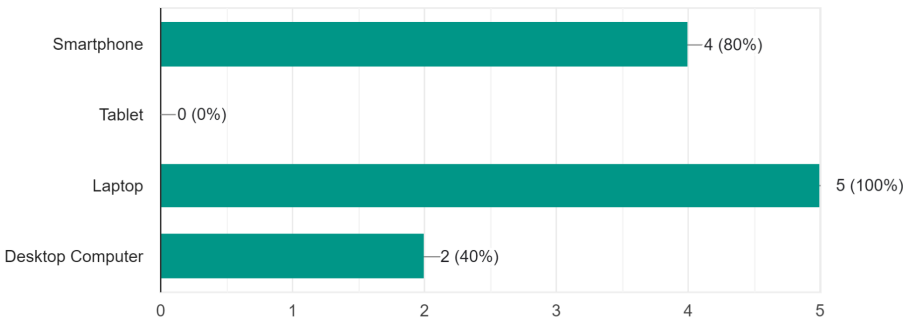
When encountering a new website, what factors influence your initial impression?

5 responses



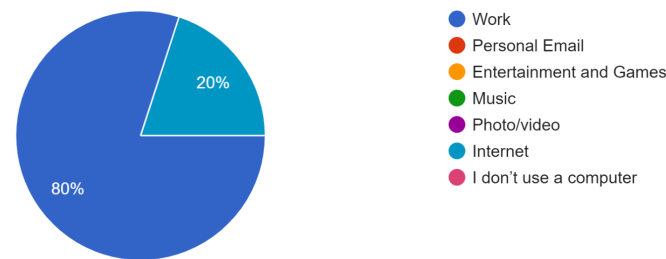
What technological devices do you use most often?

5 responses

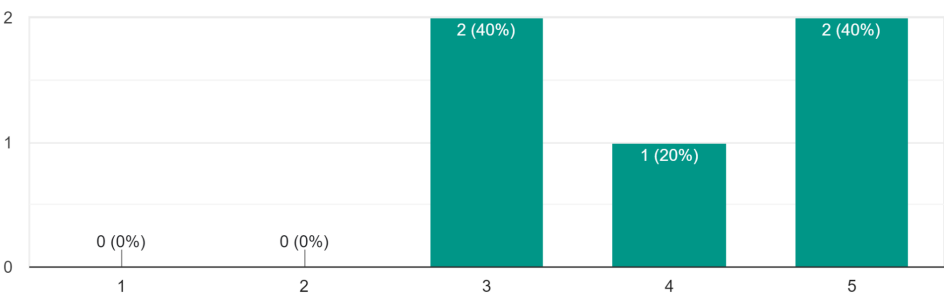


How do you most often use a Computer?

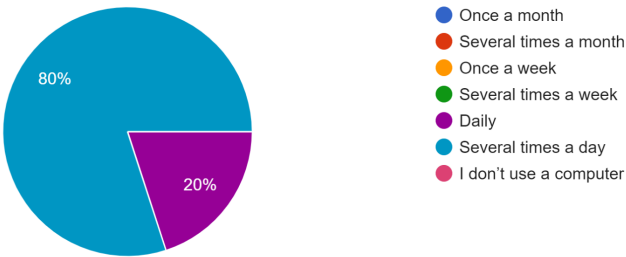
5 responses



On a scale of 1 - 5: How comfortable do you feel using unfamiliar websites?  
5 responses



How often on average do you use a computer?  
5 responses

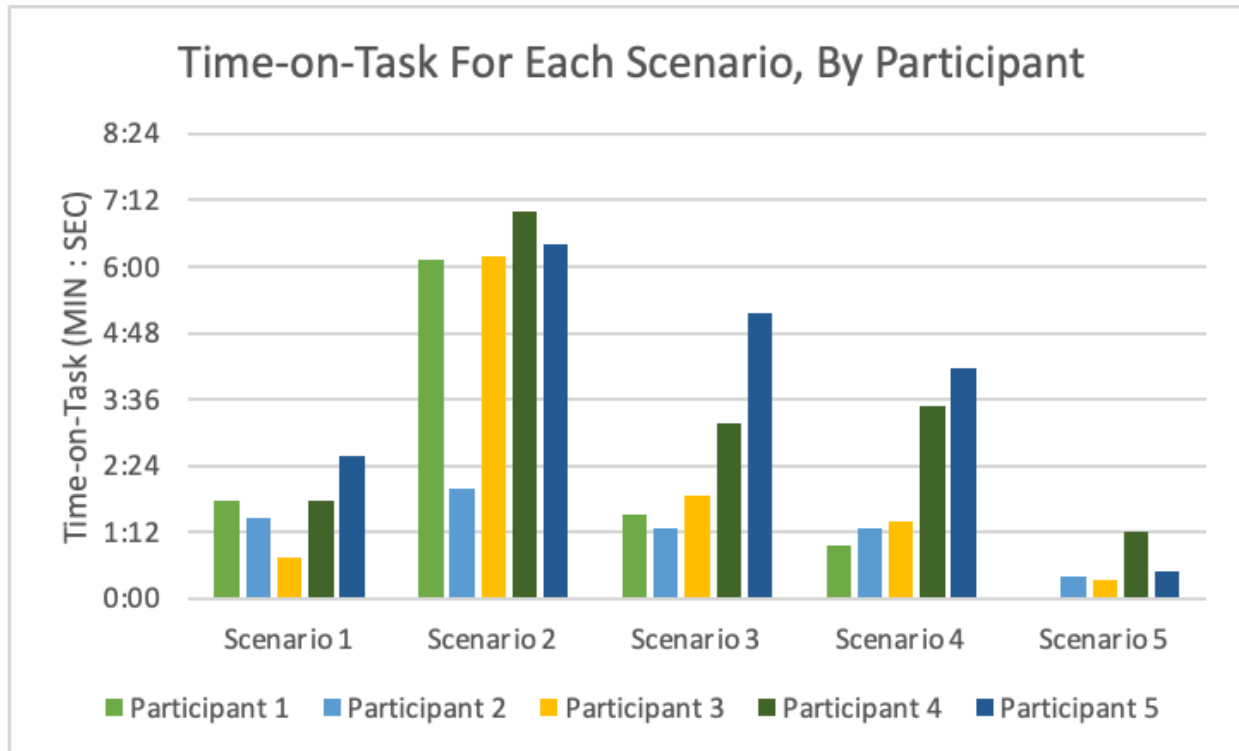


**Appendix B: Usability Test, Quantitative Data**

**Chart 1** shows how much time each participant spent on-task for each Scenario.

**Chart 1**

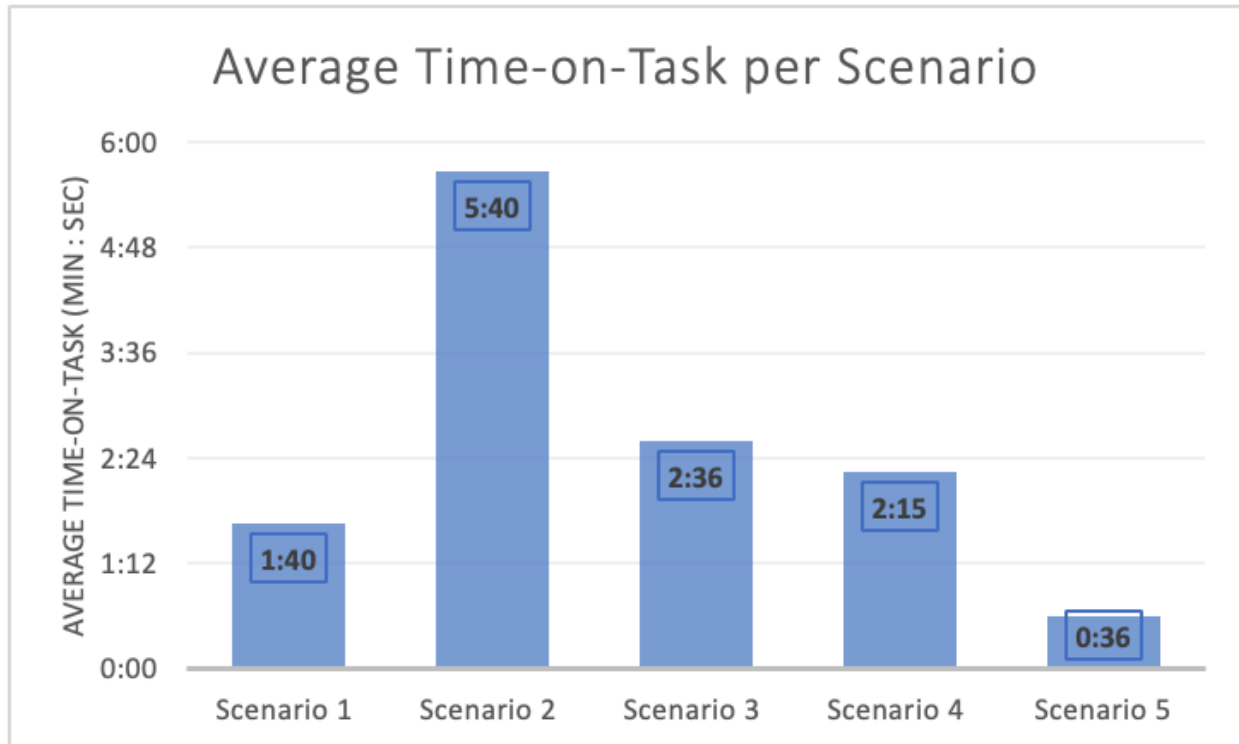
*Time-on-Task For Each Scenario, By Participant*



*Note.* Chart 1 shows the amount of time each participant spent attempting to complete each scenario. Note that there is no data for P1 on Scenario 5; P1 did not complete Scenario 5 due to time constraints.

**Chart 2** shows the average amount of time spent on-task for each scenario for all the participants, collectively.

**Chart 2:** *Average Time-on-Task for Each Scenario*



*Note.* The chart indicates the average time all five participants spent on each Scenario. Note that Scenario 5 is an average of the time spent on-task for P2, P3, P4, and P5; P1 did not complete Scenario 5 due to time constraints.

**Table 1** below shows the average time-on-task all participants spent on each scenario.

**Table 1**

*Average Time-on-Task per Scenario*

Average Time-on-Task per Scenario					
	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Average Time-on-Task (MIN : SEC)	1:40	5:40	2:36	2:15	0:36

*Note.* Table 1 shows the average amount of time all five participants collectively spent attempting to complete each scenario. Note that the average time for Scenario 5 is taken only from P2, P3, P4 and P5; P1 did not complete Scenario 5 due to time constraints.

**Table 2** indicates the participants' ratings of the difficulty of each task on a scale of 1 to 5, with 1 being *very difficult* and 5 being *very easy*.

**Table 2**

*User Ratings of Difficulty by Scenario*

Scenario #	P1	P2	P3	P4	P5	Average Rating
Scenario 1	5	3	4	5	4	4.2
Scenario 2	2	2	1	1	1	1.4
Scenario 3	3	2	3	1	2	2.2
Scenario 4	4	4	4	3	3	3.6
Scenario 5	NO DATA*	5	5	5	5	5

*Note.* Table 2 shows the difficulty rating each participant assigned to each Scenario. Average ratings for each scenario can be seen under the “Average Rating” column. Note that P1 did not complete Scenario 5 due to time constraints.

**Table 2 Key:** Very Difficult ①–②–③–④–⑤ Very Easy

**Very Difficult** **Difficult** **Slightly Difficult** **Easy** **Very Easy**

**Table 3** provides a summary of quantitative data gathered throughout testing. This includes the time each participant spent on-task for each scenario (“Duration”) and the difficulty rating they assigned each scenario.

**Table 3:** *Quantitative Data, Summary*

Session	Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5	
	Duration (mins)	Post-Task Rating	Duration (mins)	Post-Task Rating	Duration (mins)	Post-Task Rating	Duration (mins)	Post-Task Rating	Duration (mins)	Post-Task Rating
Participant 1	1:46	5	6:07	2	1:31	3	0:57	4	NO DATA	NO DATA*
Participant 2	1:27	3	1:59	2	1:17	2	1:17	4	0:24	5
Participant 3	0:45	4	6:12	1	1:52	3	1:23	4	0:21	5
Participant 4	1:46	5	7:00	1	3:10	1	3:28	3	1:12	5
Participant 5	2:35	4	6:24	1	5:10	2	4:10	3	0:30	5
AVERAGE	1:40	4.2	5:40	1.4	2:36	2.2	2:15	3.6	0:36	5
RANGE (Max - Min)	1:50	2	5:37	1	3:53	2	3:13	1	0:51	0

*Note.* Table 3 offers a summary of the quantitative data gathered during testing, including the time spent on-task for each scenario (“Duration”) and the post-task rating given by participants for each scenario, with 1 being very difficult and 5 being very easy. Average duration for time-on-task and average post-task ratings are offered for each scenario, as well as the range for each. \*Note that there is no Participant 1 data for Scenario 5, because they did not complete the scenario due to time constraints.

## Appendix C: Usability Test, Qualitative Data (Debriefing Interviews and Post-Task Questions)

### Debriefing Interview Responses

When all task scenarios were completed, our moderator asked a series of questions to assess the overall reaction from the participants' perspective. Below are the debriefing interview questions along with a summary of participant responses:

1. What was your impression of the site when you first started to use it?
  - a. Participant 1: Very visually unappealing, very boring.
  - b. Participant 2: I didn't know what to do at first. I was stuck, I just started looking through all of the sections of the Menu. The website has all the info you need, but it's not organized well.
  - c. Participant 3: I liked the color scheme, it wasn't super aggressive or busy. I thought it felt fairly easy to use, at first.
  - d. Participant 4: "When I first started to use [the website], I was thinking, 'oh, it's not going to be that hard, because it's only the tabs, that's it.' But as the questions got more specific, then I realized, 'oh, this is going to be hard, because I *only* have the tabs and they're asking me to look for specific things.'" And upon discovering that she could add another view, she felt that it was not as simple of a website as it seems at first.
  - e. Participant 5: A little bit confusing. Not to the point where I would give up, but it was cumbersome to find what I needed.
2. How did your impression change as you continued to use the website?
  - a. Participant 1: In some sense it didn't really change, but it got more overwhelming. I already wasn't excited to look through it, and having to look for specific information amplified those feelings.
  - b. Participant 2: Impression didn't change; they had useful information and stuff I would want to know, but I wish it was organized better so it was easy to understand.
  - c. Participant 3: I was surprised that the left menu didn't stay more generic in language. Some Menu tabs feel like they should be report filters. It feels like the Menu was written with plain English, but this changed in the report pages.
  - d. Participant 4: It slowly became more difficult, and I thought the website was actually horrible. They need to redesign almost everything, especially the color; some things [elements like search bars, the +Add another view button, etc.] weren't visible. I hate the website.
  - e. Participant 5: It started to make more sense. It wasn't intuitive, but once I understood how to use each piece, I could get through it.
3. Please rate the ease and/or difficulty of these tasks on a scale of 1 to 5, with 5 being very easy.
  - a. Figure out how to find reports (i.e., use menu)

- Participant 1: **3**
  - Participant 2: **1**
    - Comment: This was the hardest part.
  - Participant 3: **5**
  - Participant 4: **1**
    - Comment: It depends on what the question is. If the Menu tab ties back to what my questions is, it's really helpful, like with fiscal transparency. But when you can't find a word you're looking for, it's hard.
  - Participant 5: **3**
- b. Figure out how to look at data by different student groups (i.e., use filters)
- Participant 1: **4**
    - Comment: Likes the use of boxes for data filters.
  - Participant 2: **2**
    - Comments: I don't think the icon matches the filter function.
  - Participant 3: **2**
  - Participant 4: **3**
  - Participant 5: **4**
- c. Figure out where to find specific reports (i.e., menu labels are not clear)
- Participant 1: **1**
  - Participant 2: **1**
  - Participant 3: **4**
  - Participant 4: **2**
    - Comment: It felt like [material] was hidden.
  - Participant 5: **3**
- d. Knowing what you're looking at and where you are located in the site (e.g., where filter labels do/do not show up, where the overall headings align on the page)
- Participant 1: **1**
    - Comments: Felt like they "needed a magnifying glass" to see the headings.
  - Participant 2: **No rating given.**
    - Comments: Liked that the Menu tabs change color when selected to indicate where they're located in the site.
  - Participant 3: **2**
  - Participant 4: **4**
  - Participant 5: **2**

4. Did you find the navigation system easy to use?
  - a. Participant 1: No; there were so many different drop-downs that weren't clear.
  - b. Participant 2: No; that's the most confusing part of the website.
  - c. Participant 3: It's all mouse-driven, which was nice. It wasn't horrible, but it should have been more intuitive [especially Scenario 2].
  - d. Participant 4: Not really.
  - e. Participant 5: The Menu descriptions and how people relate to it isn't.
5. What are your thoughts on the language settings? Was it easy to find? Did it look how you expected?
  - a. Participant 1: "What language settings? I didn't see any. So were they easy to find? No."
  - b. Participant 2: Yes, it was the easiest part. I could see it right at the top, and I expect important things to be in the top-right corner. I expected the Menu to be there too.
  - c. Participant 3: Yes, it was easy.
  - d. Participant 4: Yes, it was easy to find.
  - e. Participant 5: Very easy, self-explanatory and intuitive.
6. What were the biggest difficulties you encountered when using the site, if any? What was most frustrating?
  - a. Participant 1: Headings were a struggle. It would have been a lot of help if the headings were clear, big different color....but I was just lost. Getting my way around and figuring out where I needed to be was challenging.
  - b. Participant 2: Figuring out what the sections for the menu meant. They were just big umbrella [questions] for different things that might not be related to each other.
  - c. Participant 3: I know they have information on how to get familiar with the report card. If I were struggling, I would have gone to use that help but that wasn't part of the scenario. Aesthetics and Menu were good, data-digging was tough.
  - d. Participant 4: Search engines and refreshing. Usually if I'm confused on a website, I would just refresh.
  - e. Participant 5: The search function for the reports. Figuring out how that piece worked. A description leading the user on how to use it would be helpful.
7. What are the strengths of the website, if any? What was the best part of the experience using the site?
  - a. Participant 1: It was very fast [when loading pages].
  - b. Participant 2: Once you figure out that the magnifying glass is a data filter, it's easy to navigate. The language settings button was also obvious.
  - c. Participant 3: Doing a lot of it through clicks was nice, I like that the schools pre-populated as I typed [hot-keyed].
  - d. Participant 4: Has a lot of good information. But the difficulty accessing it, and the information overload...it feels like things are hiding in plain sight.



- e. Participant 5: It feels trustworthy and useful because there's so much information provided. It presents reliable information for people. It just wasn't intuitive to use. The websites I'm used to everyday are a little different, so it was hard for me.
8. If you could make any changes you wanted to the website, what would they be?
- a. Participant 1: Just make it easier to look at. Throw color in there....sprucen up the place, more inviting and friendly. It's cold and gray, uninviting.
  - b. Participant 2: Make the menu easy to understand. Less words...figuring out what sections make sense and what ones need to be split up. I don't think suspensions should be under safety. Also, changing the data filter icon, and moving the menu navigation to the top bar because that's where they usually are on a website.
  - c. Participant 3: So many Menu tabs. I change the label and location of the "Done" button, because it implies you're done filling out the filters, not that you need to select it in order to generate data.
  - d. Participant 4: Change the color of headings. Headers for text boxes are the same for clickable search functions, so you think the search boxes are just headers. I would put indents on the subtabs in the Menu
  - e. Participant 5: The Menu descriptions, and a user-friendly explanation on how to use the website.
9. Do you feel this site would benefit from a Homepage or navigation bar?
- a. Participant 1: Yes, "100% yes."
  - b. Participant 2: Yes, definitely a navigation bar. And making sure the Homepage is more obvious. When I saw the search bar on "My School"...what if I don't want to search by school?.... Also just making sure the content is in the right hierarchy.
  - c. Participant 3: Probably. A top-line Menu bar is something people are probably more used to, and you could link things out of it [like the main Department of Ed website].
  - d. Participant 4: Yes, definitely. There is no Homepage...I was struggling with that.
  - e. Participant 5: A navigation bar at top with more options would help, because that's what I'm used to. I kept getting stuck in the side Menu with no other options. A search bar at the top of the website would be nice when I can't find what I need in the menu.
10. Any other thoughts or comments you would like to share with us today?
- a. Participant 1: I can't imagine if I had to find something on this website if I were a school [administrator].
  - b. Participant 2: No additional comments.
  - c. Participant 3: No additional comments.
  - d. Participant 4: Usually, the very bottom of a webpage has helpful links and info, but this site doesn't have any. I don't know if this is a fake website or a real one, but it should have more stuff [at the bottom of the page].
  - e. Participant 5: Overall a helpful tool, it was just hard to figure out how to navigate.

## Post-Task Questions

Below are paraphrased participant responses to post-task questions from each scenario.

### Scenario 1:

Below are the additional post-task questions for Scenario 1 along with paraphrased participant responses:

1. What is your first impression of the website?
  - a. Participant 1: I thought it was kind of boring, devoid of color; when I'm launched into a site that is devoid of any personality, I'm disinterested in looking at it. The font was readable. I can't see any language settings, it would be cool if there were different language options.  
*Note:* There are language settings on the website, but the user did not notice them.
  - b. Participant 2: I'm not really sure what the main purpose of the website is. When I hear "report card," I think about grades. It's not obvious what the site is for.\*
    - i. *Note:* The participant was briefed on the purpose of the site prior to testing.
  - c. Participant 3: I think the layout is nice. I think the [language] on the Menu is written using plain-language, which is good.
  - d. Participant 4: Very boring, very gray. I don't like how there's nothing at first, and everything is on the left-hand side. I guess that makes it easier to access things, but it's just a waste of space.
  - e. Participant 5: My first instinct on a website is to look for a Menu, and eventually it made sense that I was looking for the spending. But when I got to the report, I didn't know if I should search for what I was looking for, or scroll down [through the report-panes].
2. What did you find challenging about navigating the website for the first time? What did you like about it?
  - a. Participant 1: No challenges described.
  - b. Participant 2: When I first got to it, I just didn't know what to do. Thought something would happen when clicking the three-line icon. They liked the clean look of the My School page, with just the search bar.
  - c. Participant 3: There are a lot of choices in the Menu, and I have to scroll pretty far to see all of them. It might be nice to have two separate columns so that all of the Menu is contained on one screen. I also think the language assistance could be moved closer to the Menu.
  - d. Participant 4: I think it was very easy.
  - e. Participant 5: I liked the clear Menu to the side. I think everything is in a generic, basic font, which is helpful.

3. Are there any other comments or thoughts you'd like to share at this time?
  - a. Participant 1: There was a lot of information. It felt jumbled up. If it was more spread out, that would be easier to look at.
  - b. Participant 2: The page was a little confusing.
  - c. Participant 3: No additional comments provided.
  - d. Participant 4: No additional comments provided.
  - e. Participant 5: No additional comments.

## Scenario 2:

Below are the additional post-task questions for Scenario 2 along with paraphrased participant responses:

1. What frustrated you when trying to complete this task?
  - a. Participant 1: I just thought the menu on the left was annoying. There were so many tabs, I got lost in them. I felt like there was no clear directory. Getting to where I needed to go...I felt like it was hidden in a random menu, which was hidden in itself. I was lost in information.
  - b. Participant 2: I just think the website in general doesn't make it obvious what something is for. The descriptions they use for the Menu is not straight-forward. I couldn't figure out if the information about the schools is within [a specific] tab....If I came onto this website and wanted to know more about where my child is going, I would have to look through and guess where everything is at. That was kind of frustrating.
  - c. Participant 3: The vocabulary for PSEO and IB should all show in the same chart. If I could have done a side-by-side between the schools instead of having to search one at a time, that would have been nice.
    - i. *Note:* Users can generate two reports side-by-side by using the "+Add Another View" button on a report page.
  - d. Participant 4: It's not cohesive at all. The search bar on a report is the same color as the whole report tab, so I didn't realize that you could click on it to search for stuff. They should be able to put Anoka and Southwest High next to each other to compare them directly. The most frustrating thing is that I didn't know what I was doing...I was going based on where I think it would be, I don't even know where to find IB test scores from 2018. I was completely lost.
  - e. Participant 5: Having never used the website, I assume that "How students are doing?" would include exams. As a parent I understand that IB and AP are more rigorous and intense, but I would have liked something related directly to IB in the Menu.
2. Did this page look the way you expected? Why or why not?

- a. Participant 1: Yes, because it was the same as Scenario 1. The graph was helpful.
  - b. Participant 2: I don't think so. I think it would be better if there was a page with a drop-down and you could select the school, and the year, and it would tell you everything [for the school]. The font was really small on my laptop. I didn't get what the graphics meant.
  - c. Participant 3: No. The way that data was separated was confusing; most of the data filters I use at my work are more dynamic, and show all of the data in one place, instead of having to scroll through different tables and report-panes.
  - d. Participant 4: No, not at all. The graphs, like about test scores, made sense. But where was the search bar? [The website] needs some changes.
  - e. Participant 5: "No.... I'd like a little more details on the left [Menu], just for someone, you know, digging around for something very specific. Sometimes I know that a website can have a second pull-down menu, or take me to a second tree that would allow me to choose IB or AP courses...For me that would have helped me get to [the right report page]."
3. Are there any other comments or thoughts you'd like to share at this time?
- a. Participant 1: It was just hidden. The site was kind of annoying. It was inconvenient to go through all of the Menu tabs.
  - b. Participant 2: On the website, for both of the tasks, I couldn't figure out how to get back to the homepage, so I kept reusing [the provided] link.
  - c. Participant 3: No additional comments provided.
  - d. Participant 4: I would just say that if you want me to be able to find the IB exams, there should be a smaller tab for it.
  - e. Participant 5: No. More details in the Menu would be helpful. "As a parent, I would be looking specifically for something related to IB [in the Menu]."

**Scenario 3:**

Below are the additional post-task questions for Scenario 3 along with paraphrased participant responses:

1. Are there any comments or thoughts you'd like to share at this time?
  - a. Participant 1: They wanted more reassurance they were doing the right thing. More "hand-holding" would have been preferable; a clear indication that they were in the reading category would have been helpful.
  - b. Participant 2: I didn't know which [Menu tab] to pick. I kind of got lucky [by choosing the right Menu tab]. The data filters are "wordy," and some of the data filters were drop-downs while others were box selections, which was confusing. It would be easier if they were all the same. It doesn't occur to me that the "done"

button doesn't stand out as a button. A lot of these things don't look the way that I'm used to, so I'm just clicking on anything at this point.

- c. Participant 3: I was surprised that the school carried over from my last search [instead of starting with statewide data]. If I don't know what some of the data filters mean, it's not very helpful. It feels like it's designed for people who understand [the academic terms]. The "Done" button is also confusing; I feel like it should say "Apply" or "Apply filters." It also blocks the data. Also, the subtabs for North Star Academic Achievement and Progress, respectively, feel like they should be data filters in a report page instead of Menu tabs. Keep the Menu tabs more generic, and put the specifics in the search criteria.
- d. Participant 4: How do you refresh the website from the absolute start? Everything feels like it's connected to Southwest Senior High. So I just gave up.
- e. Participant 5: Trying to get rid of the reports [you had opened] before to find what you need is frustrating. I think it would be easier if people weren't watching me. I tend to use websites with more pull-down menus with multiple trees, but I understand that state websites can be cumbersome. This isn't user-friendly.

#### **Scenario 4:**

Below are the additional post-task questions for Scenario 4 along with paraphrased participant responses:

- 1. Having completed these four tasks, what is your general impression of the website?
  - a. Participant 1: I think it's kind of clunky, really boring, really confusing. It does what it needs to do, but that's the bare minimum. There could be improvements...for example, there's so much unused space. That space could be used for more beneficial things. It does the bare minimum and that's it.
  - b. Participant 2: It's okay. If you really need information, I guess it could work. "I would try to find my information somewhere else, just because I don't know what some of the [Menu] tabs mean....like I don't understand why the suspension section is under "Are students safe and engaged?" I feel like suspensions don't really have anything to do with safety. I just feel like a lot of the sections and buttons I'm seeing [on the site] are things I'm not familiar with usually."
  - c. Participant 3: The website is attractive. It's not the worst I've ever seen, but it's not as intuitive as it could be. The Menu bar isn't bad, but the report pages are not intuitive. I also didn't notice the "+Add Another View" option until now. The text on the reports are really small too. I can't imagine doing this on a mobile device.
  - d. Participant 4: It's really bad. It's horrible for someone older than me....or younger than me.... I'm used to websites that are colorful, are cohesive...I don't know, I'm not used to this type of website. It looks like a government website.

- e. Participant 5: With a little time and fumbling around, people can find what they need. But for me, in this scenario, feeling under pressure, it's a little bit difficult to translate the information on the left-hand Menu and what is being asked of me [in the Scenarios]. The Menu bars could be more detailed.
2. What features were most helpful? Most challenging?
- a. Participant 1: What was most challenging was how much stuff they threw at you at once. It was kind of overwhelming, the amount of text. The Menu was uncommon. It's usually helpful if large menus like that are reminiscent of other websites. Something I thought was helpful was the interface speed...it didn't take a long time for pages to load.
  - b. Participant 2: The filter was helpful, but it should be more clear that it's a filter. "The Menu sections were very vague...I've never seen a Menu with [tabs formatted as] questions. Usually they're one-word descriptions of what's under that section. That was challenging."
  - c. Participant 3: I think it's relatively easy to navigate. I like the +/- icons [for opening and closing report-panes]. In data tables, usually the percentage would be included in the same row as the count, instead of in a separate row like it is in Minnesota Report Card.
  - d. Participant 4: The search and data filter functions on reports are confusing; usually search functions are in the upper-right corner of a webpage. The gray color makes it easy to skip. It just looks like a header.
  - e. Participant 5: The Menu bar is helpful, but not detailed enough. The challenge was working with the reports...There could be text near the header telling people how to use the search function for reports.
3. Are there any other comments or thoughts you'd like to share at this time?
- a. Participant 1: One thing that would be helpful is a clear indicator of how to get rid of Menus or bring them back. On websites, the three lines in the corner, or a drop-down menu to open and close. Also, a reload button that completely refreshes the site would be nice to restart.
  - b. Participant 2: No additional comments.
  - c. Participant 3: Having six subtabs under "Are students safe and engaged?" feels like a lot; you could break it down into two different sections.
  - d. Participant 4: No additional comments.
  - e. Participant 5: More information on how to navigate the website, how to search, how to generate reports, etc.
4. If you could change anything about the website, what would it be?
- a. For Participant 1, the moderator accidentally skipped this question; no data.
  - b. Participant 2: Would change the data filter button. Would also change the Menu and make it easier to understand.

- c. Participant 3: Nothing that I haven't said already.
- d. Participant 4: I would change the search bar, but also the Menu. It doesn't feel like the Menu reorients you to a different page [because you forget to select a subtab.] The subtabs should be indented so it doesn't look like more main tabs.
- e. Participant 5: The Menu descriptions could be more detailed. A user guide up-top would be nice. The website is reminiscent of government websites and that it looks how it should.

**Scenario 5:**

Below are the additional post-task questions for Scenario 5 along with paraphrased participant responses:

1. Did you find it easy or difficult to switch languages?
  - a. Participant 2: Yes, it was easy.
  - b. Participant 3: Pretty easy.
  - c. Participant 4: It was pretty easy, but I didn't think to look in the right part of the screen because everything else on the website is to the left.
  - d. Participant 5: Very easy.
2. Was the language setting where you expected it to be?
  - a. Participant 2: Yes, I'm used to [language settings] being in the upper-right corner of the screen. Like the Google Chrome pop-up for translation.
  - b. Participant 3: No, I would move it closer to where most of the words and choices are. Between the Menu and report card label.
  - c. Participant 4: Was looking for it on the left, by the menu, because that's where everything else was.
  - d. Participant 5: Yes.
3. Are there any comments or thoughts you'd like to share at this time?
  - a. Participant 2: I noticed that the translation for the "Done" button was wrong in Somali. That's not how you say "Done" in Somali.
    - i. *Note:* The participant speaks Somali.
  - b. Participant 3: I'm surprised there aren't more languages provided.
  - c. Participant 4: No additional comments.
  - d. Participant 5: The upper-right corner of the site seems like a good place to put more information because the language settings were easy to find.

## Appendix D: Product Reaction Card Responses

**Chart 3** shows the words participants selected to describe their experience using the Minnesota Report Card website.

**Chart 3**

### *Product Reaction Card Responses*

Stressful	Reliable	Poor quality	Slow
Satisfying	Easy to Use	Insufficient	Straightforward
Unpredictable	Efficient	Intuitive	Time-Consuming
Simple	Familiar	Jargon-Filled	Simplistic
Complicated	Fast	Difficult	Technical
Confusing	Frustrating	Dated	Trustworthy
Engaging	Hard to Use	Outdated	Unhelpful
Complex	Inconsistent	Overwhelming	Useful
Distracting	Informative	Usable	Wordy

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*Note.* The Product Reaction Card chart shown above was provided to users during the debriefing interview following testing. Users each chose five words from the chart that best described their experience using Minnesota Report Card. Their selected words are shown above.



**Chart 3 Key:** The chart is color-coded according to how many users selected each word. **Yellow** boxes are words that were selected by three users. **Blue** boxes are words that were selected by two users. **Green** boxes are words that were selected by at least one user. Uncolored boxes are words that were not selected by any of the users.

## Appendix E: Heuristic Evaluations

Prior to conducting usability testing, each member of Team MIBA completed an independent heuristic evaluation of the Minnesota Report Card website. A heuristic evaluation is an informal method to assess a product or service against recognized usability principles, and serves to identify major problems in a website or system (Nielsen 1994).

These evaluations may offer additional insights that the Minnesota Report Card Workgroup may find to be of interest. Each team member's evaluation is linked below:

- Mollie Barnes: <https://z.umn.edu/MBheuristicevaluation>
- Annisa Mohamed: <https://z.umn.edu/AMheuristicevaluation>
- Brandon Wetterlin: <https://z.umn.edu/BWheuristic>
- Israa Mohamed: <https://z.umn.edu/IMheuristicevaluation>

**Appendix F: Usability Test Scenarios and Answer Key****Scenario 1: You want to know how finances are used by school districts statewide in Minnesota.****Tasks, Scenario 1**

1. Go to <https://rc.education.mn.gov/#mySchool/p--3>
2. Find out how much money in both federal and state/local funds were spent per student statewide for 2021.
3. When you believe you have found the right information, tell us how much money was spent per student in federal funds and in state/local funds, and say, "I'm done."

**Post-Task Questions, Scenario 1**

Please rate the ease and/or difficulty of this task on a scale of 1 to 5, with 5 being very easy.

Very Difficult ①–②–③–④–⑤ Very Easy

Additional Post-task Questions:

- What is your first impression of the website?
- What did you find challenging about navigating the website for the first time? What did you like about it?
- Are there any other comments or thoughts you'd like to share at this time?

**ANSWER:**

\$12,314 per student in state/local funds

\$952 per student in federal funds

**NAVIGATION:**

How is money spent? > Fiscal Transparency > Filter: 2021 > First Pane, Graph Estimations OR 2nd and 4th line.

**Scenario 2: You have a child enrolled in Anoka High School. You are considering transferring them to Southwest High. You want to know what kind of options your child will have to take advanced courses. Your child is male and Black.**

### **Tasks, Scenario 2**

1. Figure out what percentage of students from each school respectively participated in an IB exam in 2018 that are of the same demographic as your child.
2. When you believe you have found the percentage of students from each school, say it out loud and say, "I'm done."

### **Post-Task Questions, Scenario 2**

Please rate the ease and/or difficulty of this task on a scale of 1 to 5, with 5 being very easy.

Very Difficult ①—②—③—④—⑤ Very Easy

Additional Post-task Questions:

- What frustrated you when trying to complete this task?
- Did this page look the way you expected? Why or why not?
- Are there any other comments or thoughts you'd like to share at this time?

### **ANSWER:**

14% for Anoka High School vs. 13% for Southwest High

### **NAVIGATION:**

What challenging classes are taken? > Rigorous Course Taking > Open Two Report Panes, one for each school > Search for Anoka High School and Southwest Senior High > Filters: 2018, Black, Male > 2nd Report-pane "Rigorous Course Exams" > "Percent participating" for first line of Anoka and Southwest High School, respectively

**Scenario 3: You want to know what percentage of students in Minnesota are proficient in reading.**

### **Tasks, Scenario 3**

1. Find the percent of students who scored proficient in reading tests statewide in 2023.
2. When you believe you have found the right information, tell us the percent of students out loud and say, "I'm done."

### Post-Task Questions, Scenario 3

Please rate the ease and/or difficulty of this task on a scale of 1 to 5, with 5 being very easy.

Very Difficult ①–②–③–④–⑤ Very Easy

Additional Post-task Question:

- Are there any comments or thoughts you'd like to share at this time?

**ANSWER: 50.5% of students statewide scored “proficient” in reading tests OR 36.1% of students statewide scored “proficient” in reading tests.**

- *Note:* The correct answer(s) for this scenario has been modified due to user interpretation of scenario instructions. The official correct answer for this task is 50.5%, which accounts for students who met *and* exceeded standards in reading as being considered “proficient”; retrieving this answer requires the user to scroll down to a report-pane (“2023 Proficiency”) towards the bottom of the page. Instead, some users chose to use the report graph to determine the percentage of students who *only* met the standards but did not exceed, yielding a result of 36.1%. We consider this to be a technically correct answer in the context of the scenario presented, and consider both 50.5% and 36.1% to be correct answers resulting in successful completion of Scenario 3.

### NAVIGATION:

Are students mastering standards? > Test Achievement Levels, Test Results and Participation > Filter: Statewide, Reading, and 2023 > 2nd report-pane, “2023 Proficiency”

### Scenario 4: You want to look at reports for student suspensions in Minnesota.

#### Tasks, Scenario 4

1. Look for data on school suspensions.
2. Find the total number of students who received 1 or more in-school suspensions statewide in 2019. When you have found the number, tell us and say out loud, “I’m done.”

### Post-Task Questions, Scenario 4

Please rate the ease and/or difficulty of this task on a scale of 1 to 5, with 5 being very easy.

Additional Post-task Questions:

- Having completed these four tasks, what is your general impression of the website?
- What features were most helpful? Most challenging?
- Are there any other comments or thoughts you'd like to share at this time?

- If you could change anything about the website, what would it be?

ANSWER: 15,582 students

NAVIGATION: Are students safe and engaged? > Suspensions > Filter: 2019 > First report-pane  
“In-School Suspensions” > Total: 15,582

**Scenario 5: You want to change the language settings of the website from English to your native language.**

#### **Tasks, Scenario 5**

1. Change the language setting of the website to Somali.
2. Once you have successfully changed the language to Somali, say out loud, “I’ve changed the language to Somali.”
3. Change the language back to English.
4. When you have successfully changed the language back to English, say “I’m done.”

#### **Post-Task Questions, Scenario 5**

Please rate the ease and/or difficulty of this task on a scale of 1 to 5, with 5 being very easy.

Additional Post-task Questions:

- Did you find it easy or difficult to switch languages?
- Was the language setting where you expected it to be?
- Are there any comments or thoughts you’d like to share at this time?

ANSWER: No correct answer; feedback was collected and time to completion was noted.

NAVIGATION: Language Assistance drop-down in upper-right corner of the website.