



## Technology Plan Digital Literacy Survey Report for 2015-16

### Key Findings

1. In spring 2016, students and staff reported stronger positive attitudes about digital tools than in fall 2015.
2. In spring 2016, students and staff reported more use of digital tools than in fall 2015.
3. Fall to spring changes in student and staff responses are moderately consistent across school levels.
4. Student responses in spring 2016 show minor demographic differences, particularly with respect to students with disabilities and students of color.

### Background

One principal outcome of the Madison Metropolitan School District (MMSD) [Technology Plan](#) is improved student digital literacy. The Technology Plan states that “[d]igital literacy is the ability to use technology strategically to find and evaluate information, connect and collaborate with others, and produce and share original content.” The 2015-16 school year was the first year of 1:1 technology implementation in the district. Six schools (Gompers, Sandburg, Shorewood, Huegel, Whitehorse, and Sennett) implemented technology during this year. These schools were called the “GI cohort.” MMSD designed both a student and a staff survey to measure beliefs about the effectiveness of the instructional and learning technology in improving digital literacy. The survey was administered to the GI cohort at the end of the fall 2015 semester and again at the end of the spring 2016 semester. Students in grades three through eight received the survey.

### Survey Information and Analysis Methods

The student survey consisted of 10 multiple choice questions. These questions asked about students’ beliefs about how well and how often they use digital tools. Key findings (including graphs and tables) are organized according to the research question each finding answers. Data are disaggregated by question cluster, question, school level, student demographic, and semester. Refer to Appendix B for a full list of the student survey questions.

The staff survey consisted of nine multiple choice questions. These questions asked about staff members’ beliefs about their students’ knowledge about using digital tools, the effectiveness of digital tools in improving instruction, and how often these tools are used. Key findings (including graphs and tables) are organized according to the research question each finding answers. Data are disaggregated by question cluster, school level, and semester. Refer to Appendix B for a full list of the staff survey questions.

### Sample Size and Response Rates

Participation varied between the two student survey administrations. The survey was administered to 2,623 students in the six GI schools. There was a 58% response rate in the fall of 2015 with 1,510 respondents. The spring 2016 administration had a 54% response rate with 1,411 respondents.

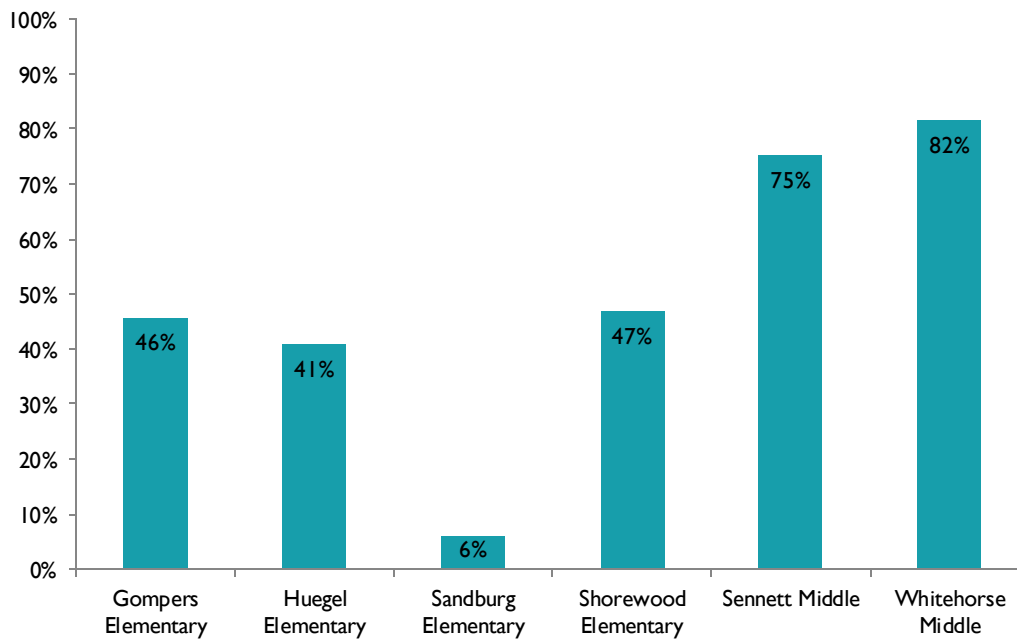
Due to incomplete student record information, 191 respondents from the fall and 53 from the spring could not be used in these analyses. This brought the fall and spring totals down to 1,319 and 1,358 students, respectively. Following this, students’ responses from the fall and spring were matched. This required matching only students who participated in both the fall and spring administrations. 964 students participated in both the fall and spring. However, it was decided to keep all useable data from the spring semester to obtain a more accurate gauge of spring responses. As a result, the spring total was left at 1,358 students. In total, 964 fall 2015 and 1,358 spring 2016 respondents were used. Table 1 displays the fall and spring student sample sizes for each demographic and school level after data cleaning and matching students’ responses. Figure 1 displays the spring 2016 response rates disaggregated school. Not all students’ schools could be identified; thus, these response rates are approximate figures.



Table I: Student Survey Sample Sizes				
Overall (Fall n: 964; Spring n: 1358)				
Demographic	<u>Female</u>	<u>Male</u>	<u>Am. Ind.*</u>	<u>Asian</u>
	(490; 666)	(474; 692)	(5; 5)	(76; 114)
	<u>Black/A.A.</u>	<u>Hisp./Lat.</u>	<u>Multiracial</u>	<u>White</u>
	(159; 237)	(190; 295)	(100; 142)	(434; 565)
	<u>Low-income</u>	<u>Not Low-income</u>	<u>ELL</u>	<u>Not ELL</u>
	(442; 699)	(522; 659)	(240; 395)	(724; 963)
School Level	<u>SwD</u>	<u>SwoD</u>	<u>Adv. Learn.</u>	<u>Not Adv. Learn.</u>
	(111; 172)	(853; 1186)	(165; 202)	(799; 1156)
	<u>Middle</u>		<u>Elementary</u>	
(638; 841)		(326; 517)		

\*Due to this disproportionately small sample, these students' data will appear inconsistent with other data

Figure I: Spring 2016 Student Response Rates by School

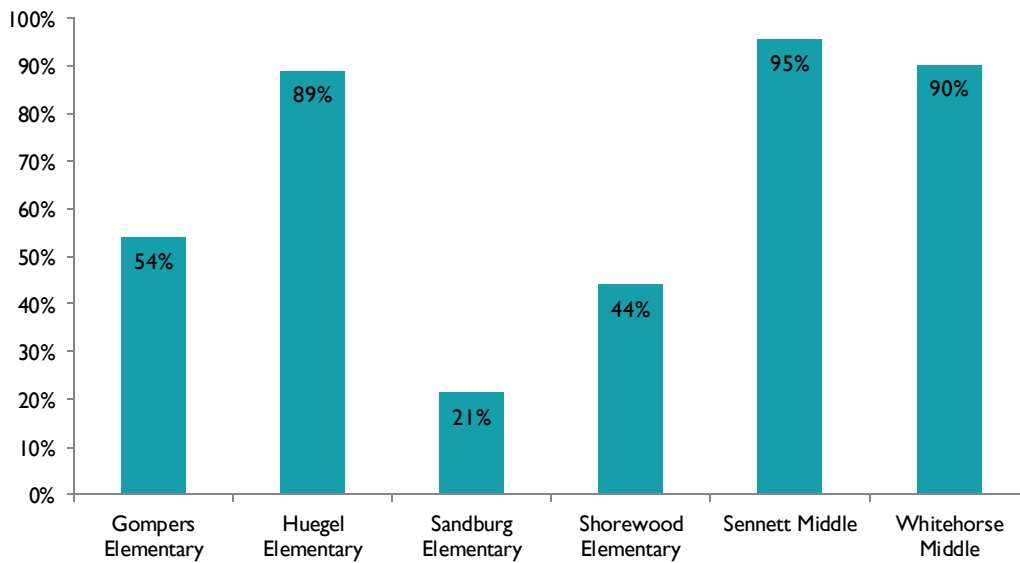


The staff survey was administered to approximately 265 staff members at the middle and elementary school levels. Participation varied between the fall and spring staff survey administrations: 147 staff participated in the survey in fall 2015, and 181 participated in spring 2016. Spring 2016 responses were not matched to fall 2015 responses due to limited respondent information. Table 2 shows the response rates and sample size for each school level in the fall and the spring used for the analyses. Figure 2 displays the response rates disaggregated by school.



		Semester	
		Fall	Spring
Response Rate	Overall	55%	68%
	Middle	82%	93%
	Elementary	38%	52%
Sample Size	Overall	147	181
	Middle	87	99
	Elementary	60	82

**Figure 2: Spring 2016 Staff Response Rates by School**



There are a number of limitations to these data. First, two schools had extremely low response rates in fall 2015. This contributed to a smaller fall staff response rate and staff sample size. The fall student response rate was still higher than the spring despite specific schools with lower response rates in the fall. However, there were more unusable student data from the fall than the spring. This partly contributed to differences in fall and spring sample sizes. Moreover, keeping more spring than fall student respondents led to unequal sample sizes. These differences in sample size may have contributed in part to differences in the distribution of responses in fall and spring. Furthermore, demographic groups have widely ranging sample sizes, as shown in Table 1. As a result, differences between demographics with significantly unequal sample sizes should be interpreted cautiously.

**Questions**

The following research questions guide the analyses in this report:

1. Did digital literacy increase from fall 2015 to spring 2016?
2. Were there student demographic differences in changes from fall to spring?
3. Did student and staff use of digital tools increase from fall to spring?
4. Did changes from fall to spring in student use of digital tools fall along demographic lines?



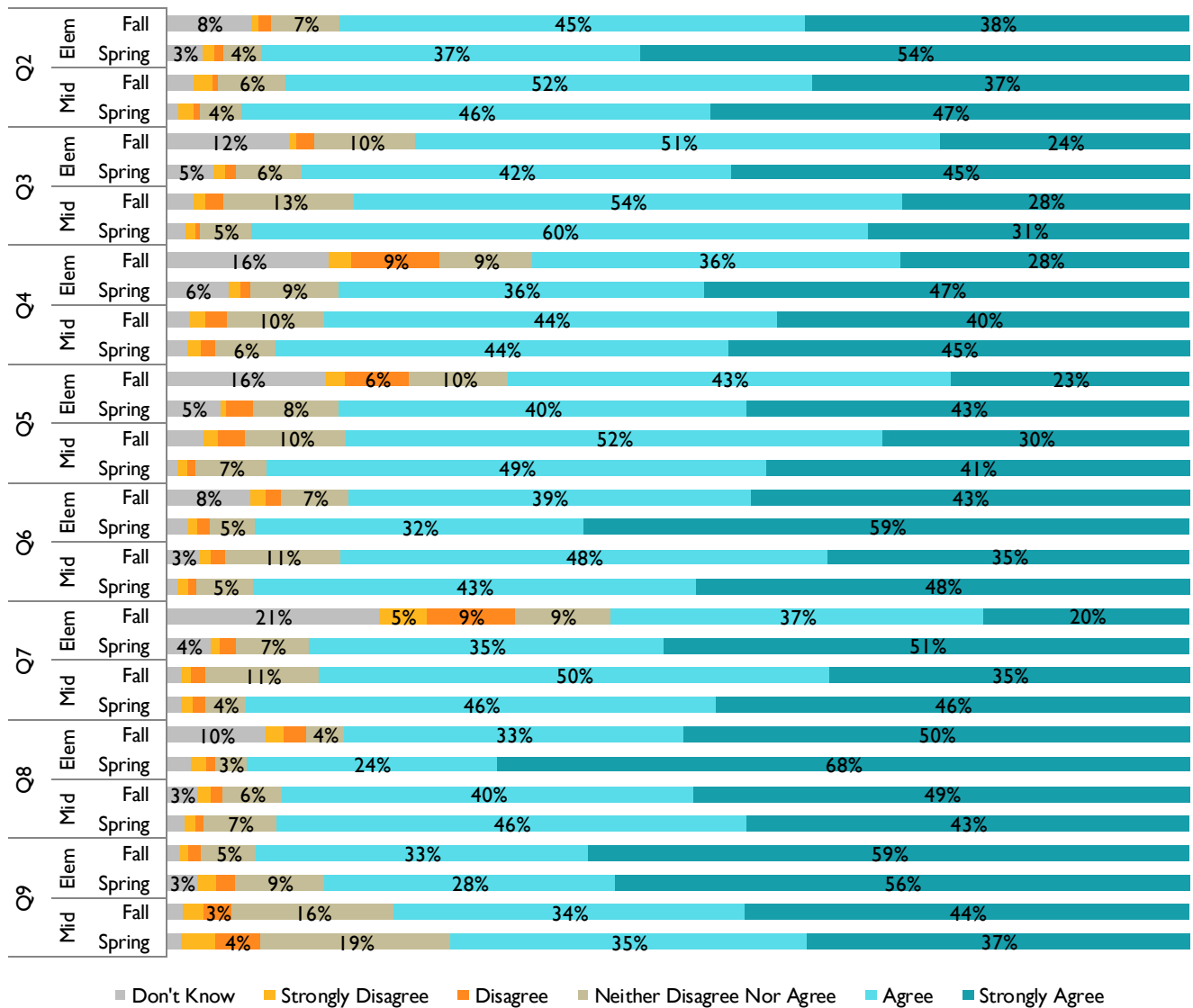
**Key Findings**

Student and staff responses are represented under the heading for each question. Some student and staff responses are represented together, depending on the appropriateness of the question. A question legend is shown above each visual figure.

**Question 1: Did digital literacy increase from fall to spring?**

Student Survey Questions 2-9	
2. I know how to use digital tools to find information.	3. I know how to use digital tools to understand information.
4. I know how to use digital tools to connect with others.	5. I know how to use digital tools to work with others.
6. I know how to use digital tools to create my work.	7. I know how to use digital tools to share my work.
8. I understand what it means to be a responsible digital citizen.	9. I like learning while using digital tools.

**Figure 3: Student Questions 2-9 by Grade Level**



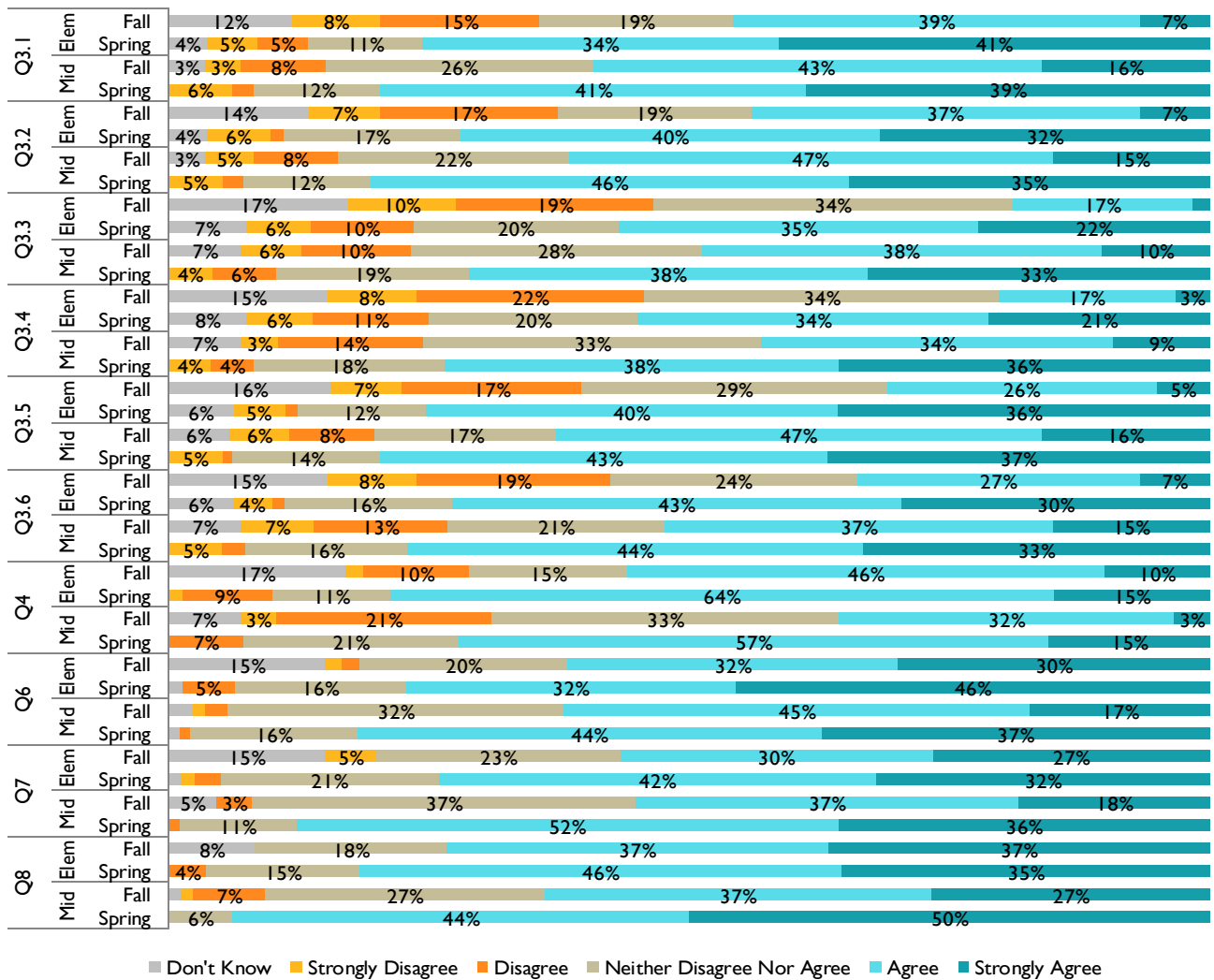
In spring 2016, students reported being more knowledgeable about using digital tools to enhance their learning than in fall 2015. The only exception to this is question nine (I like learning while using digital tools). Students reported enjoying



learning with digital tools less in the spring than in the fall. An implementation dip could have contributed to this trend. Implementation dips may occur as a result of requiring knowledge and skills that students and staff may not have to effectively utilize new resources. This process can cause decreases in satisfaction and effectiveness of the intended changes.

Staff Survey Questions 3, 4, 6, 7, 8	
Question 3: My students effectively use digital tools for learning to...	
3.1. Find information	3.2. Understand information
3.3. Connect with others	3.4. Collaborate with others
3.5. Create original content	3.6. Share original creations
Questions 4, 6, 7, 8	
4. My students understand what it means to be a responsible digital citizen.	6. My students are more engaged in school when using digital strategies and tools.
7. Digital tools help me teach all learners more effectively.	8. Digital tools help me do my work more efficiently.

Figure 4: Staff Questions 3, 4, 6, 7, and 8 by Grade Level





Staff at both the elementary and middle school levels reported greater effectiveness of digital tools in the spring than in the fall. Moreover, staff reported greater student digital literacy in the spring than in the fall. Staff increased positive beliefs at greater rates on some questions more so than others, and these increases vary slightly across school levels. However, since these differences are relatively small, they may not be meaningful differences.

**Question 2: Were there student demographic differences in changes from fall to spring?**

- |  |   |
|--|---|
| 2. I know how to use digital tools to find information.            | 3. I know how to use digital tools to understand information. |
| 4. I know how to use digital tools to connect with others.         | 5. I know how to use digital tools to work with others.       |
| 6. I know how to use digital tools to create my work.              | 7. I know how to use digital tools to share my work.          |
| 8. I understand what it means to be a responsible digital citizen. | 9. I like learning while using digital tools.                 |

**Table 3: Fall to Spring Change in Positive Responses by Demographic**

Group	Question								
	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8	Question 9	
Overall	5%	10%	9%	10%	9%	9%	4%	-5%	
Female	6%	13%	7%	12%	7%	14%	4%	-7%	
Male	5%	7%	11%	9%	11%	15%	3%	-5%	
Am. Ind.	0%	0%	0%	20%	25%	0%	0%	0%	
Asian	-2%	6%	6%	10%	5%	14%	-2%	4%	
Black/A.A.	8%	9%	14%	14%	14%	17%	10%	-9%	
Hisp./Lat.	6%	9%	4%	6%	8%	13%	-2%	-11%	
Multiracial	11%	13%	8%	12%	10%	20%	8%	-8%	
White	4%	12%	12%	11%	8%	14%	5%	-2%	
Low-income	4%	9%	7%	8%	10%	14%	3%	-7%	
Not Low-income	7%	12%	12%	13%	8%	15%	5%	-4%	
ELL	4%	8%	7%	9%	9%	15%	0%	-10%	
Not ELL	6%	11%	11%	11%	9%	14%	5%	-4%	
SwD	7%	14%	9%	15%	11%	20%	8%	-12%	
SwoD	5%	10%	10%	10%	9%	14%	3%	-4%	
Adv. Learn.	5%	12%	14%	17%	4%	13%	3%	-6%	
Not Adv. Learn.	5%	10%	9%	9%	10%	15%	4%	-5%	

Table 3 shows disaggregated fall to spring changes in percentages of students’ positive responses to each question (“Agree” and “Strongly agree”). For example, this means that 13% more female students in the spring than the fall agreed or strongly agreed that they know how to use digital tools to understand information. With some exceptions, students show gains in digital literacy from fall to spring. The extent of students’ gains varies between demographic groups, but these differences are scattered by demographic and question. Demographic differences do not seem to occur in a consistent manner.

The exception to these gains is question nine. Students reported enjoying learning with digital tools less in the spring than in the fall. Asian and American Indian/Alaskan Native students show a different trend, increasing enjoyment or not changing across the year, respectively. There are some clearer demographic differences in question nine than in other questions. Hispanic/Latino students, ELL students, and students with disabilities (SwD) show the largest fall to spring decreases in enjoying learning with digital tools. As aforementioned, an implementation dip may account for the negative changes students’ responses to question nine.

In spring 2016, students’ responses were mainly positive (refer to Appendix A for spring 2016 graphs disaggregated by survey question and demographics). Students responded the least positively to question nine, partly represented by Table 3. Although students’ demographics appear to have played some role in how they answered questions, the



significance of these differences is questionable. SwD consistently responded the least positively; however, SwD also responded more to “Neither Disagree Nor Agree” and “Don’t Know” than other students.

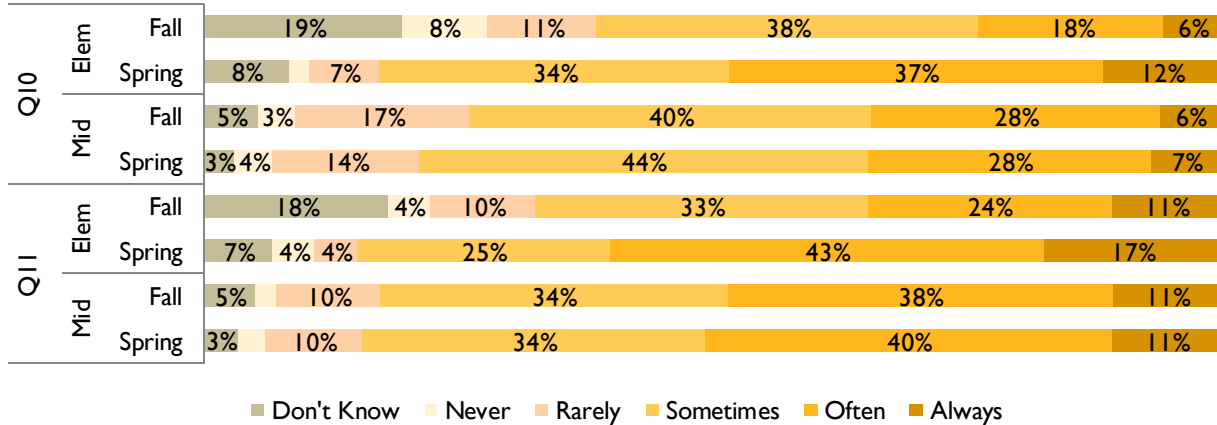
**Question 3: Did use of digital tools increase from fall to spring?**

**Student Survey Questions 10 and 11**

10. How often do you get to choose the way you learn? (ex: using books or internet, talking to experts, etc.)

11. How often can you choose different ways to show what you've learned? (ex: talking, writing, pictures, etc.)

**Figure 5: Student Question 10-11 by Grade Level**

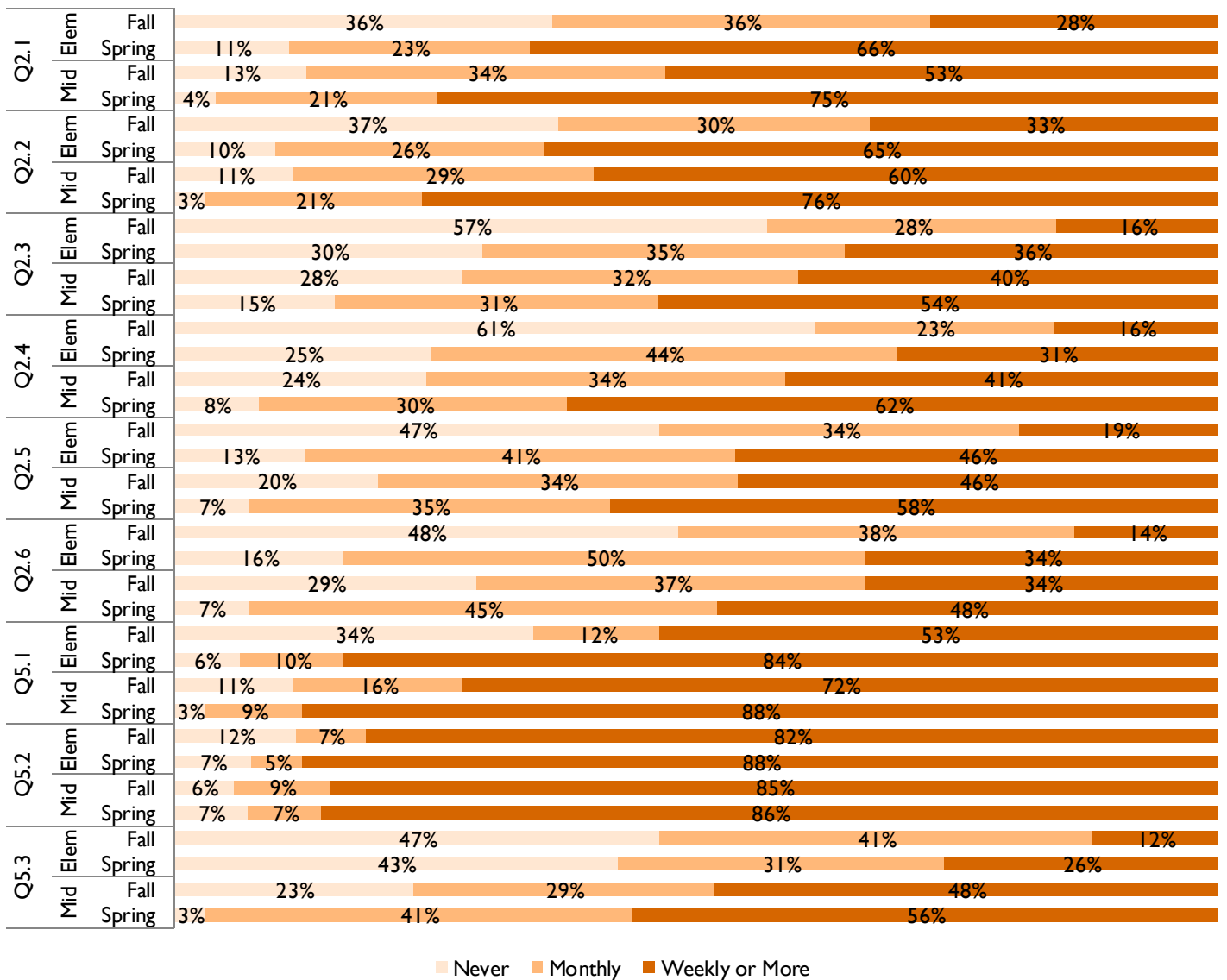


At both the elementary and middle school levels, students consistently increased from fall to spring in how often they perceived they can choose how they learn and share information. These increases are shown by “Sometimes,” “Often,” and “Always” responses. Although these two questions did not explicitly ask how often students use digital tools, one measure of progress in implementing instructional technology is the ability for students to have access to multiple modes of learning (e.g., using an internet resource in addition to a print encyclopedia).



Staff Survey Questions 2 and 5	
Question 2: How often do you ask the majority of your students to use digital tools for learning to...	
2.1. Find Information	2.2. Understand information
2.3 Connect with others	2.4. Collaborate with others
2.5 Create original content	2.6. Share original creations
Question 5: How often do you use the following digital tools in class:	
5.1. Student devices (tablets, laptops)?	5.2. Class display devices (interaction projector, large screen monitor)?
5.3. Formative assessment (polling, Kahoot, Google forms)?	

Figure 6: Staff Questions 2 and 5 by Grade Level



Staff reported more use of digital tools in spring 2016 than in fall 2015. Staff members' responses to question 5.3 show the smallest increases; however, staff members reported a lower frequency of use of formative assessment in general across both levels relative to student or class display devices. That said, elementary staff reported using formative assessments less frequently than middle school staff.



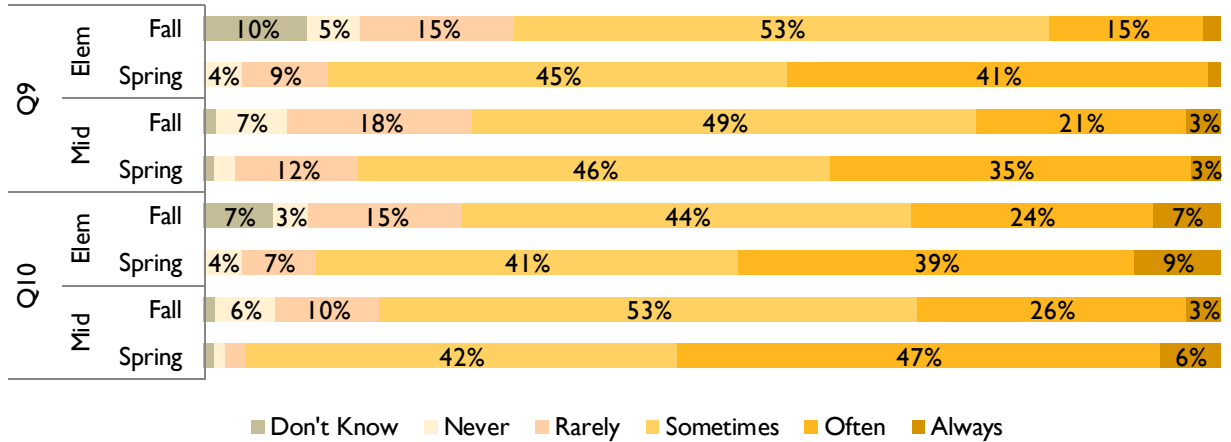


**Staff Survey Questions 9 and 10**

9. How often do your students get to choose the way they learn? (ex: using books or internet, talking to experts, etc.)

10. How often can your students choose different ways to show what they've learned? (ex: talking, writing, pictures, videos, etc.)

**Figure 7: Staff Question 9-10 by Grade Level**



Staff members reported that their students had more choice in how they learn and share information in spring 2016 than in fall 2015. These results are consistent across both levels. Additionally, these questions appeared on both the staff and student survey. Staff and student responses to these questions appear moderately consistent.



#### Question 4: Do changes from fall to spring in student use of digital tools fall along demographic lines?

##### Student Survey Questions 10 and 11

10. How often do you get to choose the way you learn? (ex: using books or internet, talking to experts, etc.)

11. How often can you choose different ways to show what you've learned? (ex: talking, writing, pictures, etc.)

**Table 4: Fall to Spring Change in Frequency of Use by Demographic**

Group	Question	
	Question 10	Question 11
Overall	11%	7%
Female	10%	7%
Male	12%	8%
Am. Ind.	100%	50%
Asian	28%	16%
Black/A.A.	6%	5%
Hisp./Lat.	14%	4%
Multiracial	9%	4%
White	8%	8%
Low-income	13%	6%
Not Low-income	8%	8%
ELL	17%	9%
Not ELL	8%	6%
SwD	9%	6%
SwoD	11%	7%
Adv. Learn.	14%	15%
Not Adv. Learn.	10%	6%

Table 4 shows disaggregated fall to spring changes in percentages of students' combined "Sometimes," "Often," and "Always" responses. All student groups increased in perceived frequency of choice across the GI year, though there is a significant amount of variability in these changes. Large discrepancies in how students responded to these questions could have been due to differences in classroom environment, teacher resources, and instructional techniques. Refer to Appendix A for spring 2016 responses to questions 10 and 11.

Despite the significant variability, there are some noticeable demographic differences. Black/African American students increased the least in how often they perceived they could choose how they learn, and Asian students increased significantly more than other students on this measure. Advanced Learners and Asian students show the largest gains across the year in how often they perceived they could choose how they shared their learning.

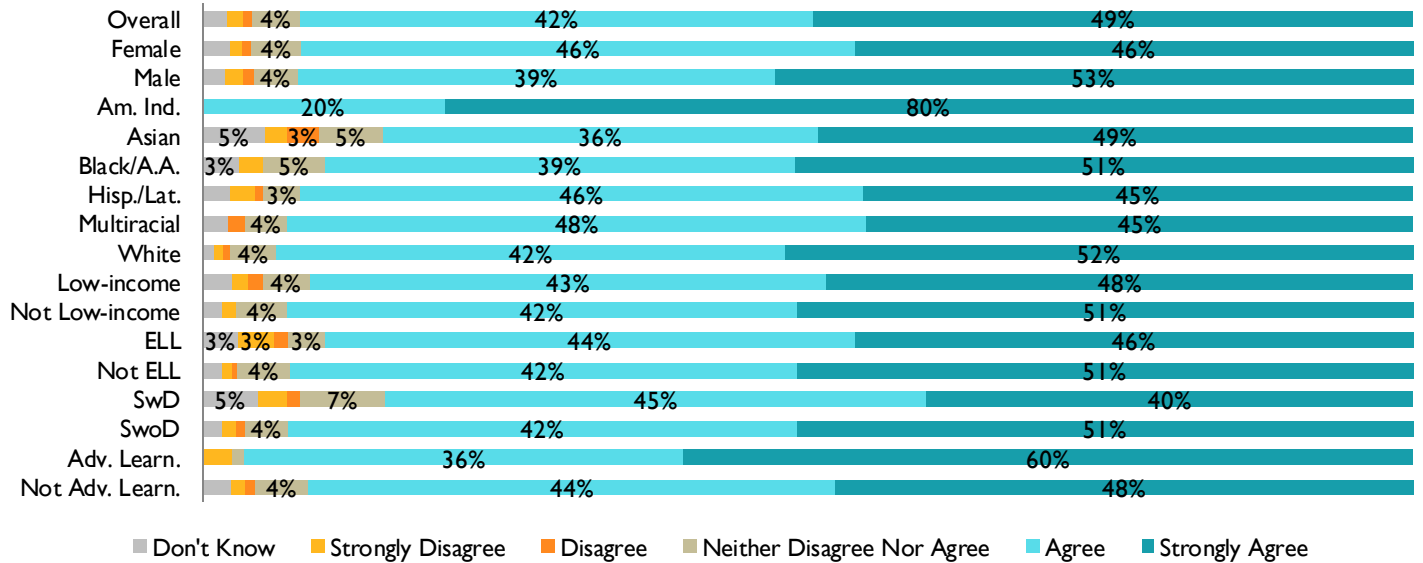
#### Conclusion

Student and staff responses suggest that digital literacy increased steadily across the GI implementation year. These positive changes appear moderately consistent across school level in both the student and staff surveys. Changes from fall to spring in students' positive beliefs show scattered demographic differences that vary significantly by demographic and question. When looking at just student responses in spring 2016, demographic differences are slightly more discernable, particularly with respect to students with disabilities. Nevertheless, these differences are minor. Staff reported using digital tools more frequently in the spring than the fall, and students reported they have more choice in how they learn and share what they have learned in the spring. In interpreting student and staff beliefs, it is important to consider the aforementioned limitations. These two digital literacy surveys measure of just one factor of success in the Information and Technology Plan. These data should be supplemented with other measures to provide a more holistic view of district-wide trends.

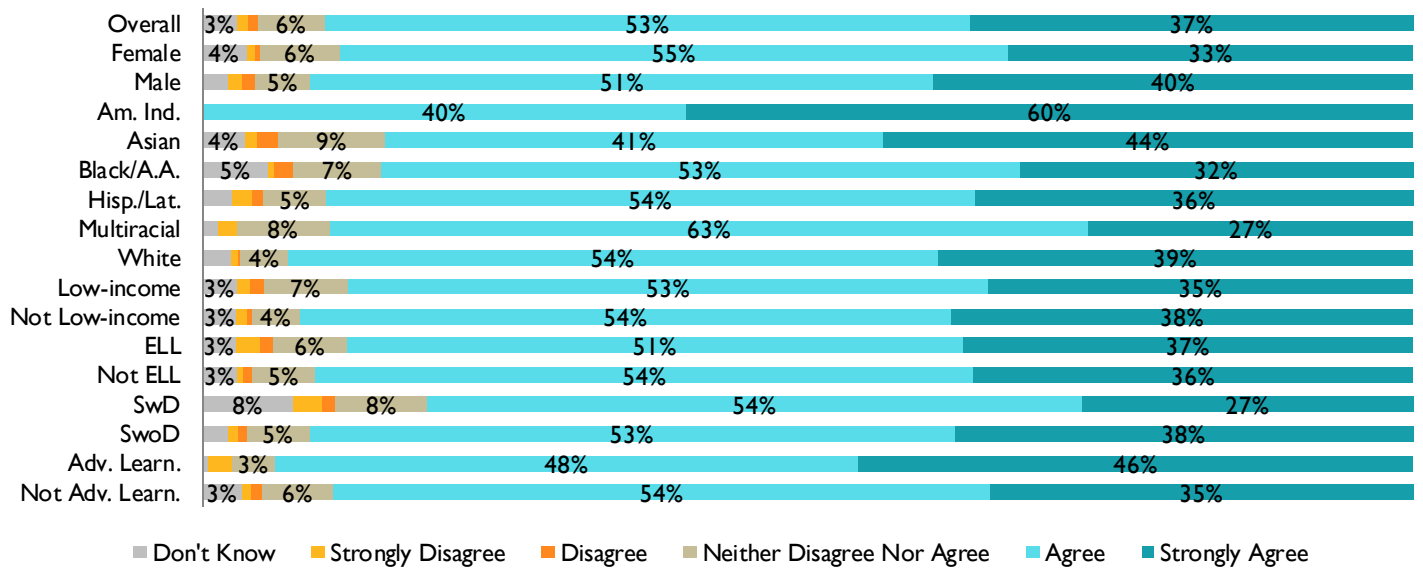


**Appendix A: Spring 2016 Student Responses by Demographic**

**Spring Question 2: I know how to use digital tools to find information**

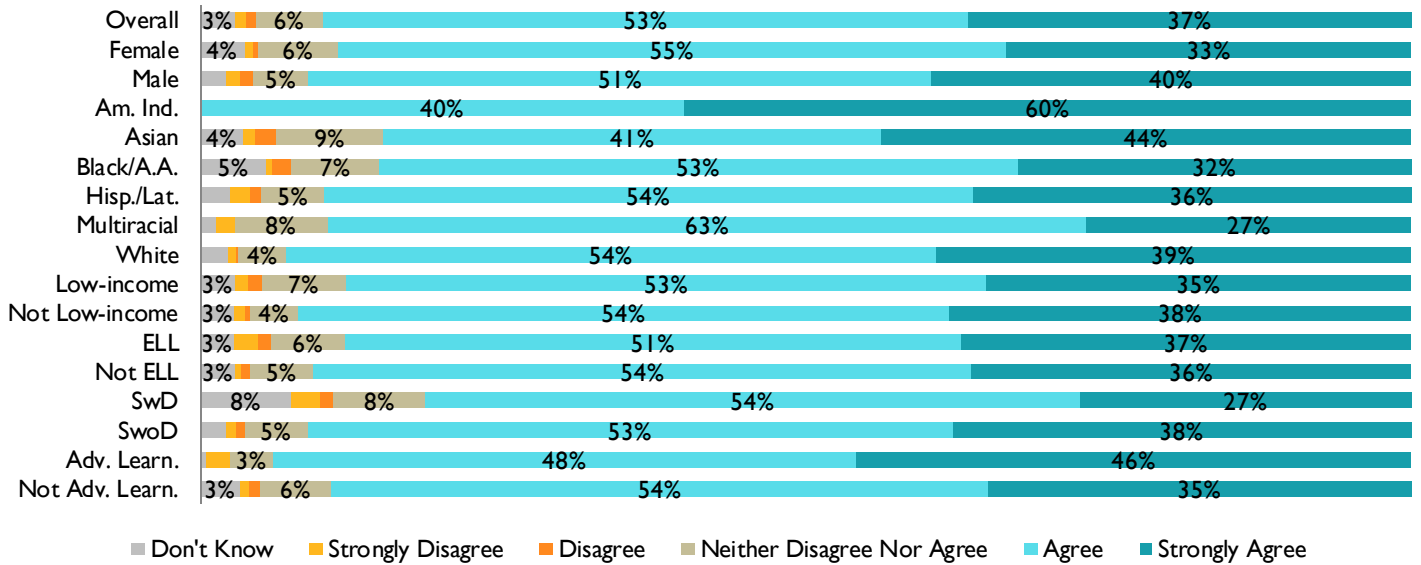


**Spring Question 3: I know how to use digital tools to understand information.**

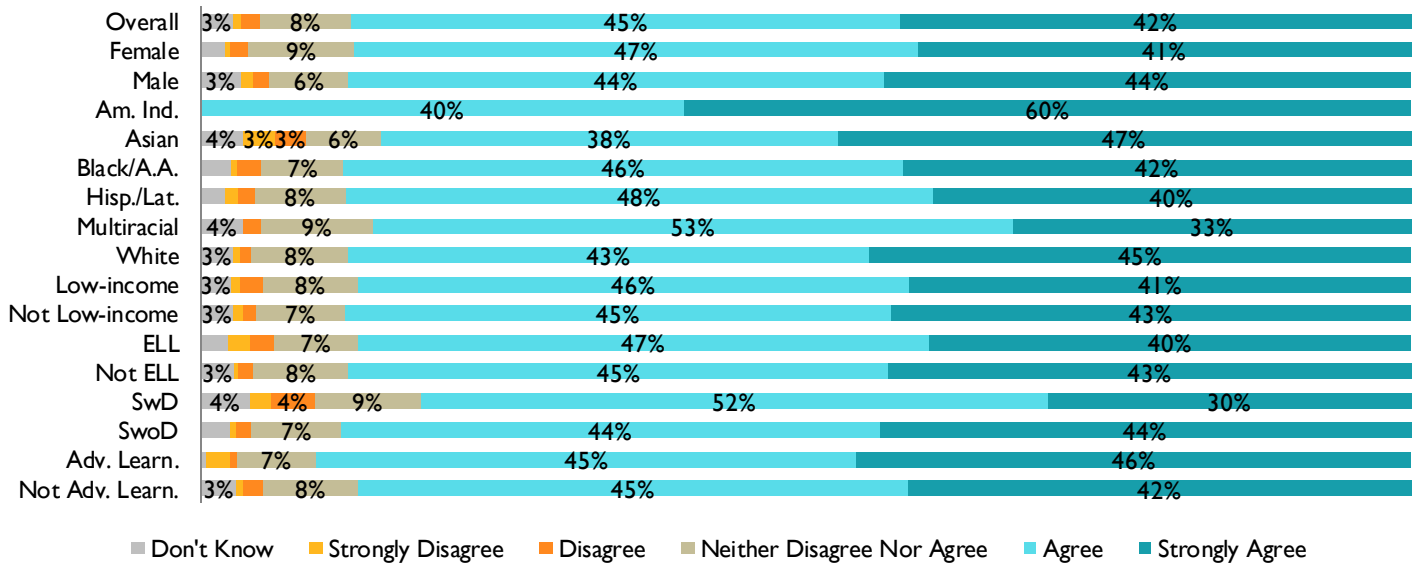




**Spring Question 3: I know how to use digital tools to understand information.**

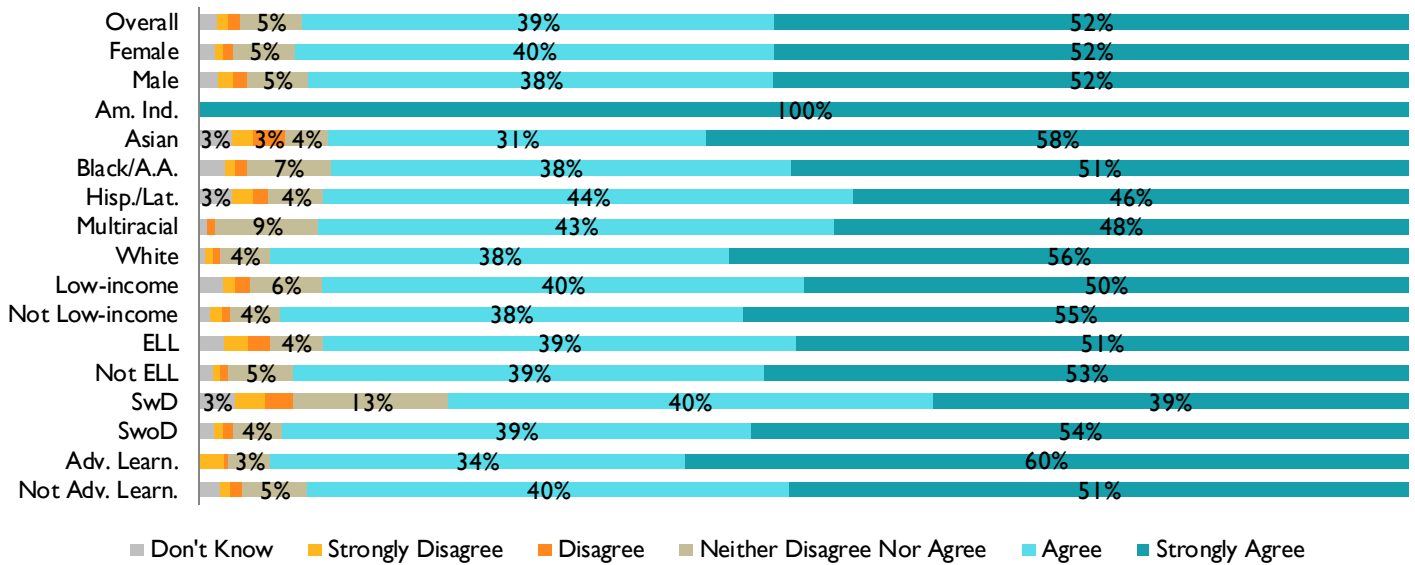


**Spring Question 5: I know how to use digital tools to work with others.**

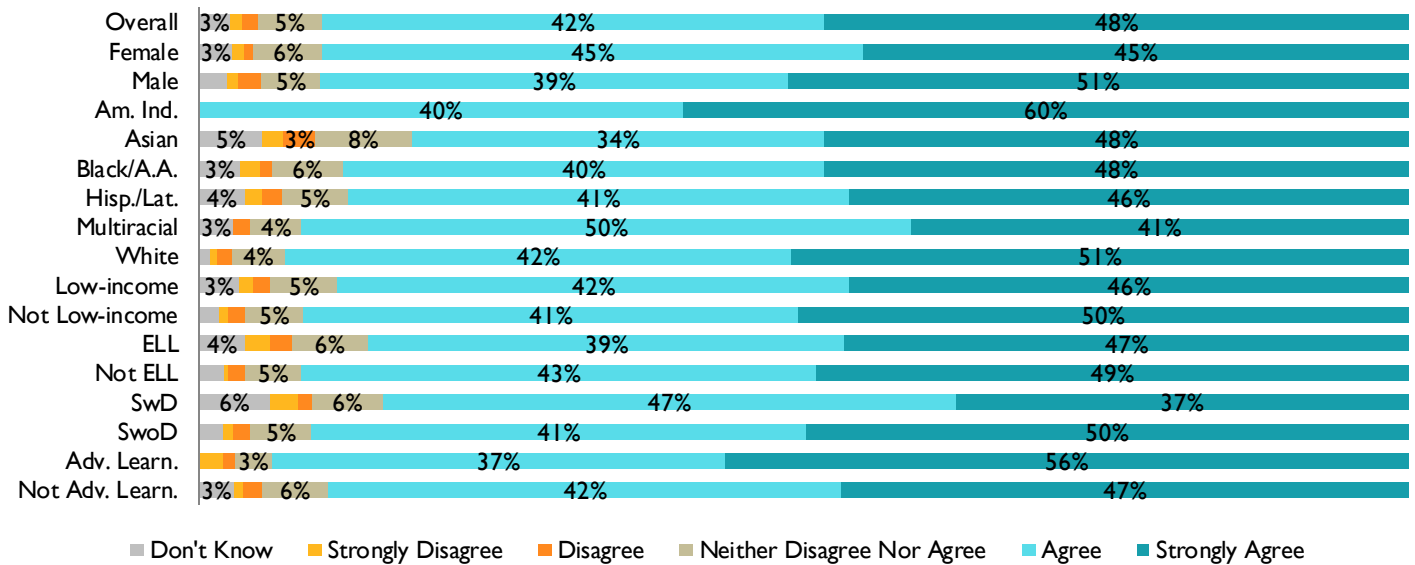




**Spring Question 6: I know how to use digital tools to create my work.**

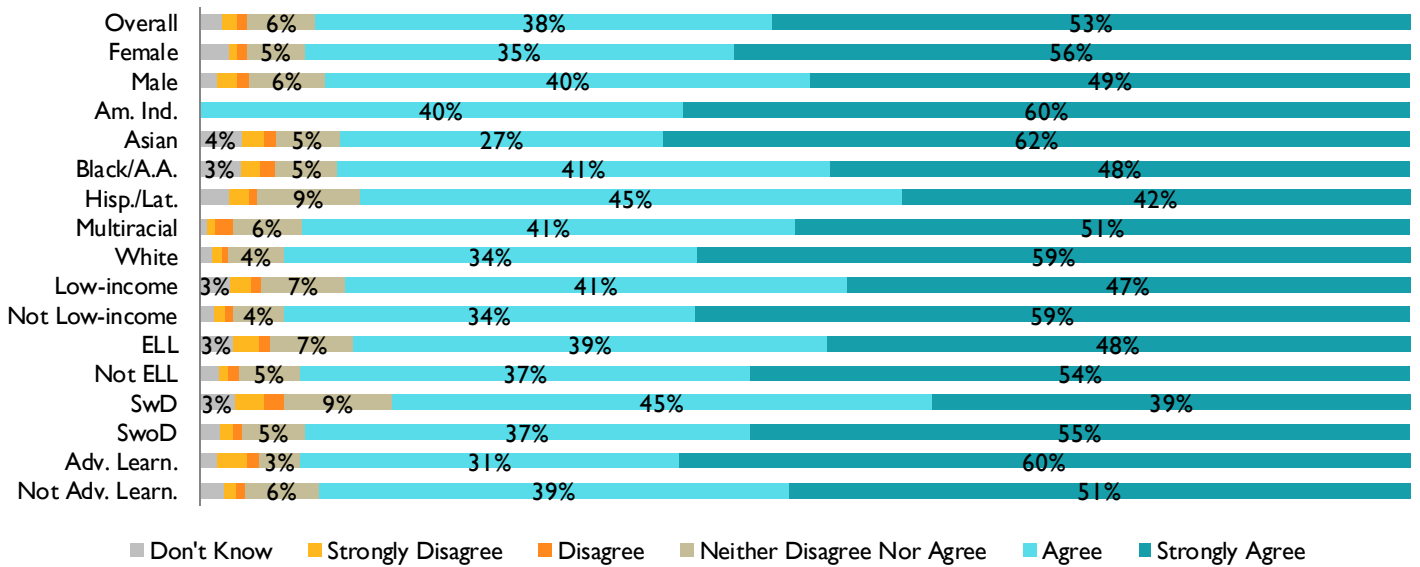


**Spring Question 7: I know how to use digital tools to share my work.**

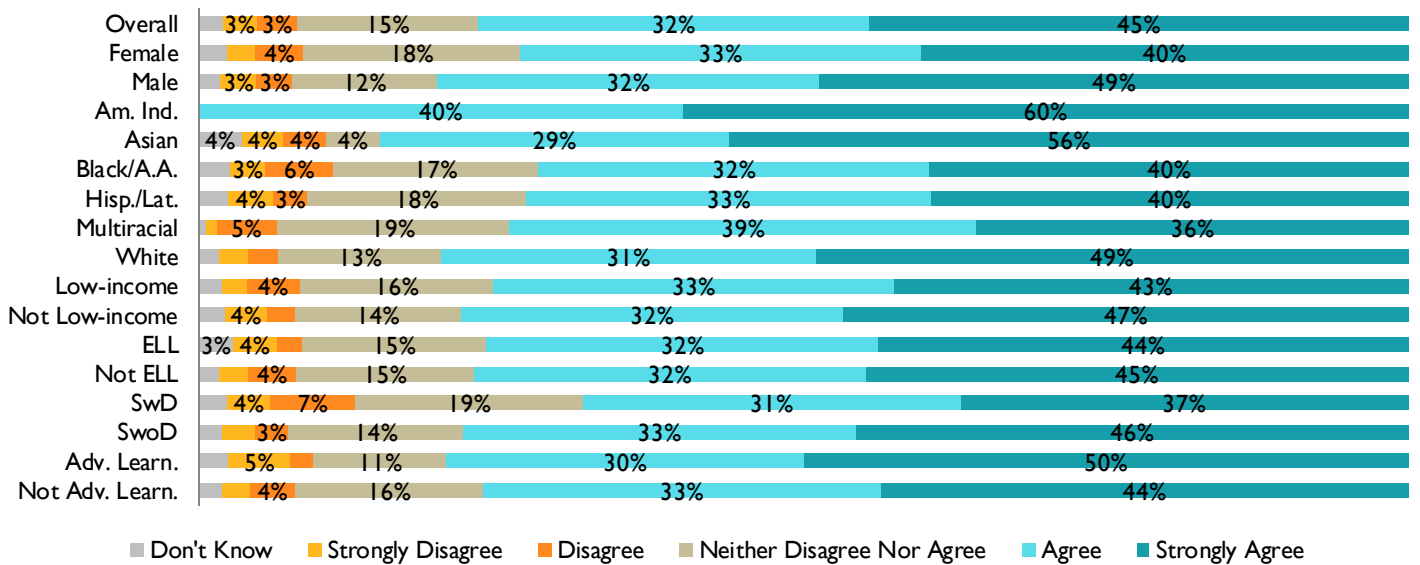




**Spring Question 8: I understand what it means to be a responsible digital citizen.**

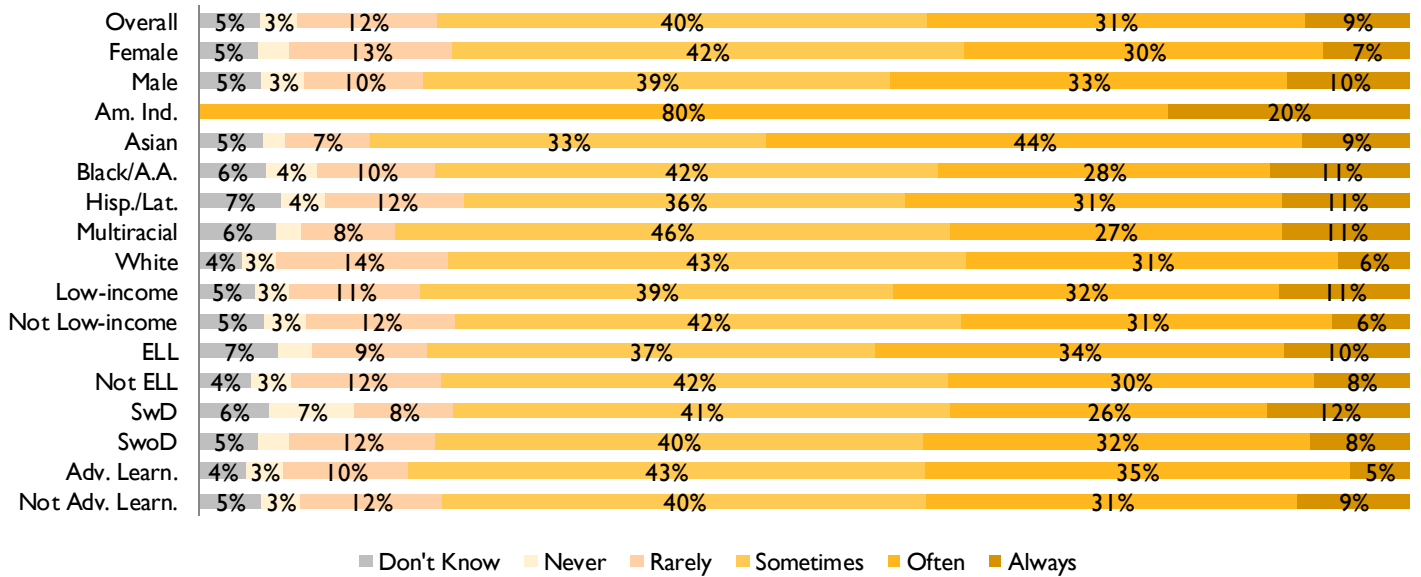


**Spring Question 9: I like learning while using digital tools.**

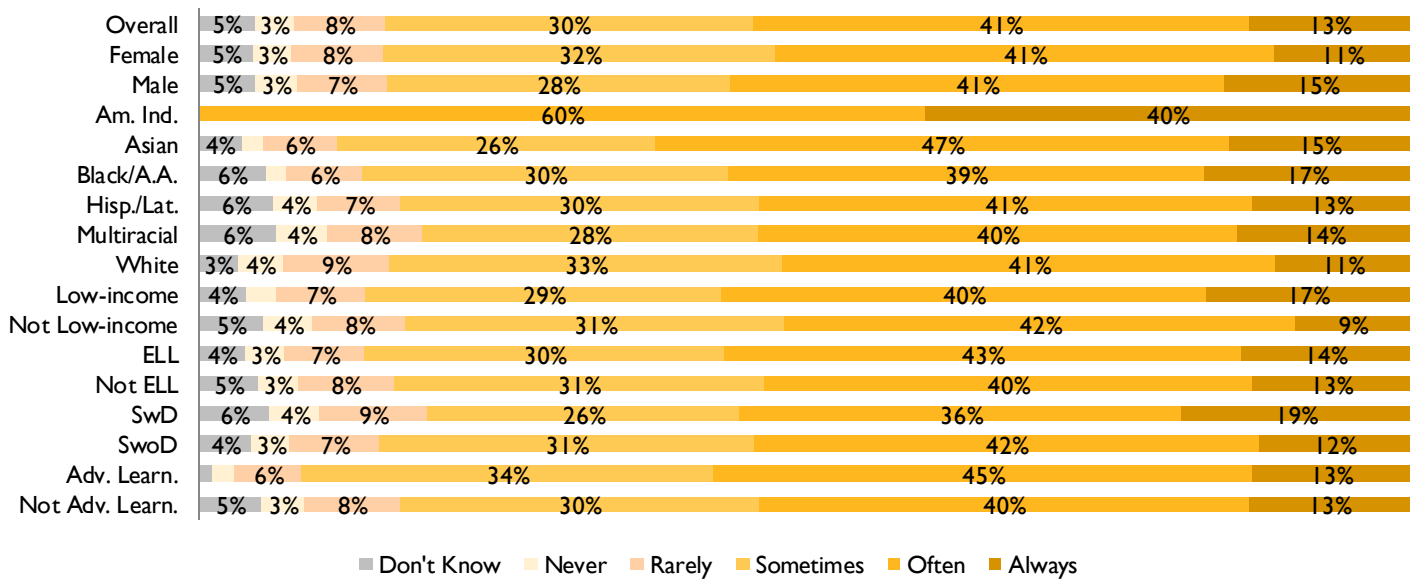




**Spring Question 10: How often do you get to choose the way you learn? (ex: using books or internet, talking to experts, etc.)**



**Spring Question 11: How often can you choose different ways to show what you've learned? (ex: talking, writing, pictures, video, etc.)**





## Appendix B: Student and Staff Survey Questions

### Student Survey

- |   |   |
|---|---|
| 2. I know how to use digital tools to find information.   | 3. I know how to use digital tools to understand information.   |
| 4. I know how to use digital tools to connect with others.  | 5. I know how to use digital tools to work with others.   |
| 6. I know how to use digital tools to create my work.   | 7. I know how to use digital tools to share my work.  |
| 8. I understand what it means to be a responsible digital citizen.  | 9. I like learning while using digital tools.   |
| 10. How often do you get to choose the way you learn? (ex: using books or internet, talking to experts, etc.) | 11. How often can you choose different ways to show what you've learned? (ex: talking, writing, pictures, etc.) |

### Staff Survey

Question 2: How often do you ask the majority of your students to use digital tools for learning to...

- |                             |                               |
|-----------------------------|-------------------------------|
| 2.1. Find Information       | 2.2. Understand information   |
| 2.3 Connect with others     | 2.4. Collaborate with others  |
| 2.5 Create original content | 2.6. Share original creations |

Question 3: My Students effective use digital tools for learning to...

- |                              |                               |
|------------------------------|-------------------------------|
| 3.1. Find information        | 3.2. Understand information   |
| 3.3. Connect with others     | 3.4. Collaborate with others  |
| 3.5. Create original content | 3.6. Share original creations |

Question 4: My students understand what it means to be a responsible digital citizen.

Question 5: How often do you use the following digital tools in class:

- |  |   |
|--|---|
| 5.1. Student devices (tablets, laptops)?   | 5.2. Class display devices (interaction projector, large screen |
| 5.3. Formative assessment (polling, Kahoot, Google forms)?   |   |
| 6. My students are more engaged in school when using digital strategies and tools.   |   |
| 7. Digital tools help me teach all learners more effectively.  |   |
| 8. Digital tools help me do my work more efficiently.  |   |
| 9. How often do your students get to choose the way they learn? (ex: using books or internet, talking to experts, etc.)            |   |
| 10. How often can your students choose different ways to show what they've learned? (ex: talking, writing, pictures, videos, etc.) |   |