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Does Method Matter?

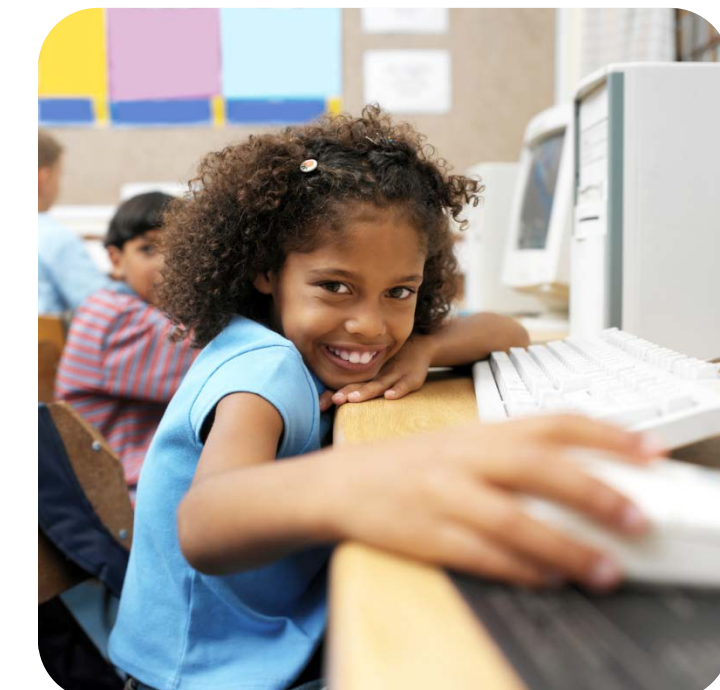
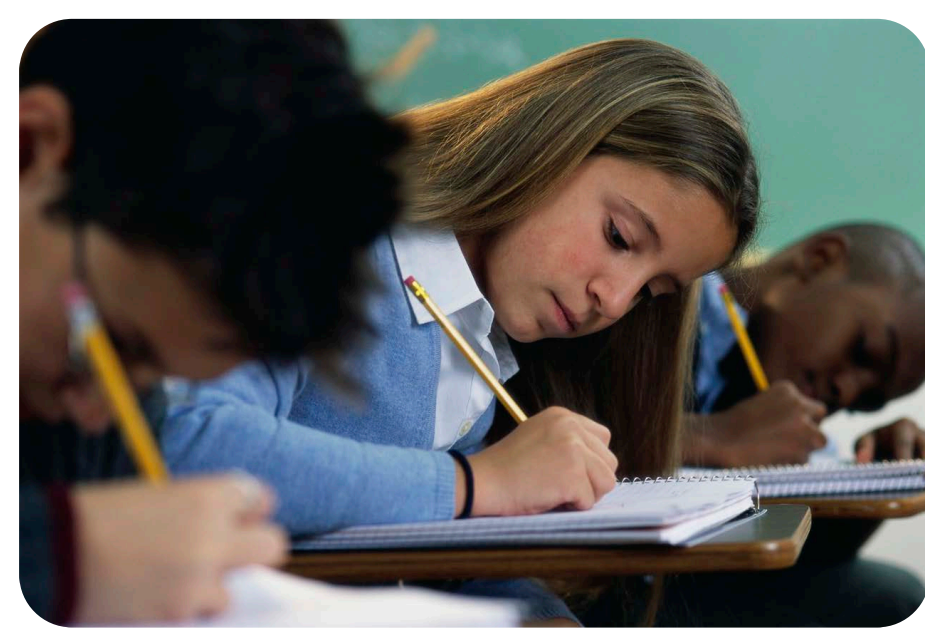
Open-Ended Responses and Early Adolescents

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Methods of Surveying

- ❖ Research examining the relationship between survey delivery mode (i.e., paper v. electronic) and response length is still emerging.
- Some have found that response length does not vary by mode (e.g., Denscombe, 2008; Dybdahl, Shaw, & Balhous, 1997). Others have noted that responses on computerized surveys are longer and more elaborate (Smyth, Dillman, Christian, & McBride, 2009).
- Few studies have examined mode differences with child and adolescent respondents.



Purpose of the Study

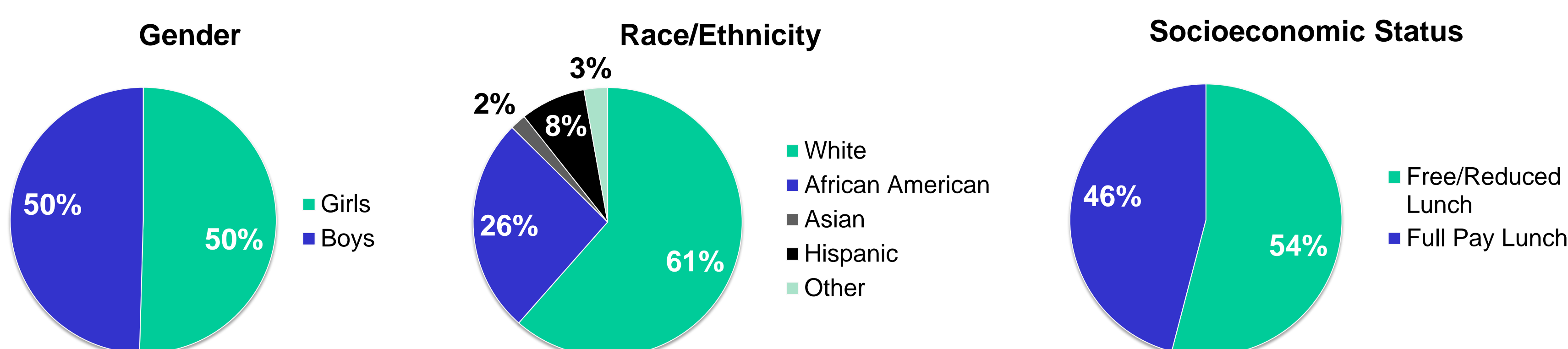
- ❖ In this study, we compare the length of students' responses to computerized and paper survey questions related to motivation in mathematics and reading.

How will students' response lengths on a computerized survey compare to those on a paper-and-pencil survey?

Method

Participants

- ❖ Students in Grades 4-6 in the Southeastern United States
- Sample 1 ($n = 329$): Completed paper survey in Spring 2011
- Sample 2 ($n = 452$): Completed computerized survey in Spring 2012



Measures

- ❖ Participants completed surveys to assess their motivation in mathematics and reading.
- ❖ We examined students' responses to two open-ended prompts:
 - "In the space provided below, write something that has happened that made you feel MORE confident about yourself in [mathematics, reading]."

Analyses

- ❖ Responses from the paper survey were entered into a spreadsheet exactly as written by the student.
- ❖ Character counts were calculated using a formula in Microsoft Excel.
- ❖ Mann-Whitney U tests were conducted to determine if there was a significant difference in character output between groups.
- ❖ Mean differences were compared by grade level to account for possible developmental differences in students' response length.

Results

- ❖ Students wrote **longer responses on the computerized survey** than on the paper and pencil survey. In all cases, the difference in means was found to be statistically significant (see Table 1).

Table 1

Average Word Counts of Open-Ended Responses by Survey Format

	Mathematics								
	Paper Survey Word Count ($n = 328$)			Computer Survey Word Count ($n = 440$)			U	Z	PS_{est}
	n	M	SD	n	M	SD			
Grade 4	60	8.28	5.15	115	27.61	30.71	1216.00**	7.03	.18
Grade 5	83	9.10	6.31	93	19.68	20.85	2134.00**	5.12	.28
Grade 6	185	10.52	5.90	232	20.38	19.75	14151.00**	5.99	.33

	Reading								
	Paper Survey Word Count ($n = 329$)			Computer Survey Word Count ($n = 452$)			U	Z	PS_{est}
	n	M	SD	n	M	SD			
Grade 4	66	10.62	6.54	119	22.72	26.75	2148.50**	5.10	.27
Grade 5	91	12.78	6.77	95	19.11	15.74	3553.00*	2.10	.41
Grade 6	172	9.69	5.40	238	26.26	20.77	7825.50**	10.69	.19

Note. p values represent asymptotic significance (1-tailed). Effect sizes in the form of probability of superiority estimates were calculated using the following formula: ($PS_{est} = U / (n_{paper} * n_{computer})$).
* $p < .05$, ** $p < .001$

Key Findings and Conclusions

- ❖ Computerized surveys increased response length by a statistically significant amount in both reading and mathematics domains with early adolescent students.
- ❖ Many of the computerized responses were quite rich in terms of the depth of explanation from the student. For example, one student wrote:

In elementary school I was in the advanced reading class, and people always said that we were the smart reading class. And every time we were not in class with the smart readers they would always call on us to read. Also, we always got A's on reading in her advanced reading class, and that makes me feel more confident about reading out loud. So here at [school] I always volunteer to read in Latin class and in science because those are two of my favorite subjects so that some stuff that has made me feel very more confident in raising my hand to read in classes. I used to be very scared to raise my hand and read in class because I thought the students would laugh at me if I made a mistake on reading or call me a nerd if I did not mess up, but now I realize there was nothing to be afraid of. That's why I feel a lot more confident when I raise my hand to read in the classroom.



Boy, Grade 6

- ❖ These findings contribute to the mode effect literature (e.g., MacElroy, Micucki, & McDowell, 2002) by examining the effect of mode on younger participants and emerging writers.
- ❖ Researchers should take into account contextual factors when deciding which mode of inquiry to use.
 - Students with little access to technology (e.g., students from lower socioeconomic households or schools) may have more difficulty with this method compared to others, such as paper and pencil surveys or in-person interviews.
 - In environments that are increasingly reliant upon computer technology, it is imperative that researchers ask their questions and solicit answers from participants in a way that is convenient and familiar.

References

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Students in paper-pencil survey condition.



Students in computerized survey condition.