

Get Off that Cellphone when Completing My Survey: Exploring Respondent Burden and Data Quality by Device Type

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**STRATEGIC
NATIONAL ARTS ALUMNI
PROJECT**

Literature Review

- In higher education, surveys are used frequently for collecting information to demonstrate effectiveness (Kuh & Ikenberry, 2009)
 - Example purposes: curriculum improvement, internal evaluation, accreditation, outcomes assessment, strategic planning
- Student surveys are most prominent, but surveys are also used to gather information from other stakeholders, including faculty, staff, and alumni (Cabrera et al., 2005; Kuh & Ewell, 2010)



Literature Review

- Research on web-based surveys now must shift away from laptops and desktops to smartphones and tablets
- Mobile devices offer internet access virtually anywhere, but touch screen functioning, truncated viewing area, and smaller keyboards can place additional burdens on survey respondents (Buskirk & Andrus, 2012; Peytchev & Hill, 2010)



Research Questions

- Goal of this study is to explore patterns in responses to a multi-institution alumni survey, looking at how type of completion device is related to a variety of other survey-taking characteristics:
 - Breaking off before completion
 - Patterns in breakoff “place”
 - Completion duration
 - Straight-lining response patterns
 - Patterns in switching between beginning device and completion device



Method: Participants

- Data from the 2012 and 2013 administrations of the Strategic National Arts Alumni Project (SNAAP)
- Participants were 58,768 alumni from 109 different arts high schools, arts colleges, or arts programs within larger universities
 - Sample consisted of 2% high school level, 76% undergraduate level, and 22% graduate level alumni
 - 41% male, 59% female, .2% transgender
 - Majority (85%) reported ethnicity as Caucasian
 - Average institutional response rate: 18%



What is SNAAP?

- On-line annual survey designed to assess and improve various aspects of arts-school education
- Investigates the educational experiences and career paths of arts graduates nationally
- Questionnaire topics include:
 - Formal education and degrees
 - Institutional experience and satisfaction
 - Postgraduate resources for artists
 - Career
 - Arts engagement
 - Income and debt
 - Demographics



Method: Paradata Measures

- **Completion device:** tracked through data collection platform- PC (42%), Mac (43%), Smartphone (9%), and Tablet (5%) (with an “other” .4% not traceable)
- **Beginning device:** did participants switch devices for multiple login sessions? (only 4% switched)
- **Straight-lining:** did the respondent use a single answer repeatedly for a set of “matrix layout” items?



Method: Paradata Measures

Example of “matrix layout” question sets:

How important are the following skills and abilities to perform effectively in your profession or work life?

	Very important	Somewhat important	Only a little important	Not at all important
Critical thinking and analysis of arguments and information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Broad knowledge and education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Listening and revising	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creative thinking and problem solving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clear writing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Persuasive speaking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Project management skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Method: Paradata Measures

- **Breakoff:** did respondents reach the end of the survey and hit the “submit” button?
- **Place of breakoff:** how far in the survey did respondents get before abandoning it?
- **Time duration:** how long (in minutes) did respondents spend with the survey open in their browser?



Analyses

- Series of chi-squared analyses was done for completion device and each of the categorical paradata variables
 - For breakoff status, item straight-lining response status (for two sets of matrix layouts), and device switching status
- ANOVA and Mann-Whitney tests for continuous paradata variables
 - For median duration (Mann-Whitney) and mean place of abandonment (ANOVA)



Results: Categorical Variables

- Smartphone users were far more likely to break off and switch devices
- Tablet users also more likely to switch, but to a lesser degree

	PC	Mac	Smart Phone	Tablet	Total
Completion Status					
Complete	87.0%	85.4%	57.6%	83.8%	83.4%
Partial complete	12.9%	14.6%	42.4%	16.2%	16.6%
Device Switching Status					
Did not switch device	98.7%	98.8%	78.5%	92.6%	95.6%
Did switch device	1.3%	1.2%	21.5%	7.4%	4.4%



Results: Categorical Variables

- Overall, more respondents straight-lined for the second set of matrix items
- Smartphone users were also more likely to straight-line for both sets of matrix items

	PC	Mac	Smart Phone	Tablet	Total
Straight-lining (First set)					
Did not straight-line	98.2%	98.5%	96.8%	98.5%	98.2%
Did straight-line	1.8%	1.5%	3.2%	1.5%	1.8%
Straight-lining (Second set)					
Did not straight-line	92.0%	90.2%	89.0%	92.6%	91.0%
Did straight-line	8.0%	9.8%	11.0%	7.4%	9.0%



Results: Continuous Variables

- Smartphone users took a significantly longer amount time (selecting only for those who completed the survey)

	Median	Std. Deviation
PC	27.62	244.61
Mac	27.60	297.08
Smart Phone	31.82	99.38
Tablet	28.48	119.46
Total	27.98	258.10
F		5.907
Sign		0.000



Results: Continuous Variables

- Smartphone users abandoned the survey significantly earlier (selecting only for those who did **not** complete the survey)

	Mean	SE
PC	24.152	.334
Mac	24.621	.309
Smart Phone	22.807	.392
Tablet	26.082	.840
Total	24.111	.191

F	6.448
Sign	0.000



Discussion

- Consistent with previous literature, smartphones do seem to increase respondent burden
 - Smartphone users more likely to abandon the survey, and sooner
 - Smartphone users who made it to the end required more time
- May be compromising data quality
 - More likely to reduce their burden with straight-lining
 - Switching devices to reduce burden risks losing respondents who intend to return but never actually do so



Conclusions

- Limitations of study: sample may not be completely representative of all survey takers (only arts alumni, lower response rates, and selective participation)
- When designing web-based surveys, need to take into account that respondents may use smartphones and tablets
 - May need to rely less heavily on complex layouts and long surveys
 - Incorporate “responsive design” that detects type of device and directs respondents to optimized versions



Questions or Comments?

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*Reference list available upon request or in full paper

