

# 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

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	PC	Mac	Smart Phone	Tablet	Total
<b>Completion Status</b>					
Complete	87.0%	85.4%	57.6%	83.8%	83.4%
Partial complete	12.9%	14.6%	42.4%	16.2%	16.6%
<b>Device Switching Status</b>					
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%

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# 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

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	PC	Mac	Smart Phone	Tablet	Total
<b>Straight-lining (First set)</b>					
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%
<b>Straight-lining (Second set)</b>					
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%

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# Results: Continuous Variables

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

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	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

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# Results: Continuous Variables

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

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

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F	6.448
Sign	0.000

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# 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

