

# Using Cell Phone for Student Surveys

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# Outline

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- **Background**
- **Disadvantages of Web Surveys**
- **Description of Dongguk University Time Use Survey**
- **Results**
- **Conclusions**

# Background

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- Web surveys or traditional mail surveys have been widely used to survey a college population.
- They generally report fairly low response rates that may lead to nonresponse bias.
- For several years we have successfully conducted cell phone surveys for college students in Korea.
- We show that cell phone surveys may have high response rates.

# Disadvantage of Web Surveys

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- Web surveys do not appear to offer an antidote for the declining response rates affecting all modes of survey data collection.
- Web surveys appear to be at a disadvantage relative to other modes in a recent meta-analysis (Lozar Manfreda et al. 2008)
- Web respondents returned their questionnaire more quickly, but response rate of web survey is lower than mail survey (Kwak et al. 2002)

# Dongguk University Time Use Survey

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- Sponsor: Dongguk University, South Korea
- Collector: Survey & Health Policy Research Center, Dongguk University
- Purpose: To guide policy by investigating students' time use at home or school, and how this relates to their curriculum and classes
- Year Started: 2005
- Frequency: Conducted annually
- Target Population: Undergraduate students registered in the second semester
- Sampling Frame: A list of registered students

# Survey Schedule

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<b>Year</b>	<b>Survey Period</b>
<b>2009</b>	<b>2009.11.02~11.15 (14 days)</b>
<b>2010</b>	<b>2010.11.09~11.26 (18 days)</b>
<b>2011</b>	<b>2011.11.02~11.18 ( 17days)</b>

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# Survey Questions

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- Total number of questions: 48(2009), 49(2010), 52(2011)
- Categories
  - Student Information: Gender, grade, and age
  - School Life: Double major or minor, GPA, average hours for study per day, average hours of homework per day, secondary school certification program and graduate school
  - Personal Life: Type of residence, travel time to school, hours of sleep per night, average reading per month, expenditures, part-time jobs and club activities
  - Foreign Language: Attending private institutes for learning foreign languages, language studies abroad, foreign languages studied abroad
  - Satisfaction: Satisfaction with school, major, offered courses, consultation and courses taught in English
  - Others: Smoking, tuition, height and weight etc.

# Sampling and Contact Procedures

- **Response Rate (RR), Cooperation Rate (COOP) and Refusal Rate (REF)**

	2009	2010	2011
<b>Complete Interview (I)</b>	<b>290</b>	<b>403</b>	<b>223</b>
<b>Refusal and break off (R)</b>	<b>31</b>	<b>56</b>	<b>31</b>
<b>Noncontact (NC)</b>	<b>45</b>	<b>16</b>	<b>36</b>
<b>Partial Interview (P)</b>	<b>44</b>	<b>25</b>	<b>101</b>
<b>RR5</b>	<b>0.67</b>	<b>0.81</b>	<b>0.56</b>
<b>RR6</b>	<b>0.78</b>	<b>0.86</b>	<b>0.82</b>
<b>COOP3</b>	<b>0.79</b>	<b>0.83</b>	<b>0.63</b>
<b>COOP4</b>	<b>0.92</b>	<b>0.88</b>	<b>0.91</b>
<b>REF3</b>	<b>0.07</b>	<b>0.11</b>	<b>0.08</b>

**Complete Interview:** Interview without item nonresponse

**Refusal:** Refusal in cell phone or no answer in emails

**Noncontact:** Cell phone number not in service or not picking up the cell phone or dormant emails or email addresses with fatal errors

**Partial Interview:** Interview with at least one item nonresponse



# Completed Interviews and Margin of Error

	2009	2010	2011
<b>Number of Completed Interviews</b>	<b>334</b>	<b>428</b>	<b>324</b>
<b>Margin of Error (Satisfied with Major)</b>	<b>0.1</b>	<b>0.09</b>	<b>0.09</b>
<b>Margin of Error (Part-Time Jobs)</b>	<b>0.05</b>	<b>0.04</b>	<b>0.05</b>

# Population and Sample Distributions



- Gender

	2009		2010		2011	
	Population	Sample	Population	Sample	Population	Sample
Male	54.7	54.8	55.1	51.6	55.1	56.8
Female	45.3	45.2	44.9	48.4	44.9	43.2
Total	100	100	100	100	100	100

# Population and Sample Distributions (Cont.)

- **Grade**

	2009		2010		2011	
	Population	Sample	Population	Sample	Population	Sample
<b>Freshman</b>	24.5	23.1	22.5	20.7	22.8	22.8
<b>Sophomore</b>	24.6	25.4	23.2	27.2	22.4	21.9
<b>Junior</b>	25.7	26.9	26.1	25.0	24.7	21.0
<b>Senior</b>	25.2	24.6	28.2	27.1	30.1	34.3
<b>Total</b>	100	100	100	100	100	100

# Selected Examples

- **Double major of minor**

	2009		2010		2011	
	Frequency	%(True value)	Frequency	%(True value)	Frequency	%(True value)
<b>YES</b>	<b>66</b>	<b>19.3(20.8)</b>	<b>85</b>	<b>20.1(20.8)</b>	<b>52</b>	<b>16.6(19.5)</b>
<b>NO</b>	<b>268</b>	<b>80.7</b>	<b>343</b>	<b>79.9</b>	<b>272</b>	<b>83.4</b>
<b>Total</b>	<b>334</b>	<b>100</b>	<b>428</b>	<b>100</b>	<b>324</b>	<b>100</b>

- **Secondary school certification program**

	2009		2010		2011	
	Frequency	%(True value)	Frequency	%(True value)	Frequency	%(True value)
<b>YES</b>	<b>39</b>	<b>11(11.5)</b>	<b>42</b>	<b>11.1(10.7)</b>	<b>27</b>	<b>10.8(9.7)</b>
<b>NO</b>	<b>295</b>	<b>89</b>	<b>386</b>	<b>88.9</b>	<b>297</b>	<b>89.2</b>
<b>Total</b>	<b>334</b>	<b>100</b>	<b>428</b>	<b>100</b>	<b>324</b>	<b>100</b>

## Selected Examples (cont.)

- **Average study hour per day**

	2009		2010		2011	
	Frequency	%	Frequency	%	Frequency	%
Almost do not study	24	7.3	34	8.2	39	12.2
1	77	23	105	24.9	72	22.7
2	107	31.8	119	27.5	105	32.2
3	63	19	82	19	51	15.5
4	40	12	35	8.4	23	7.1
5	11	3.3	22	4.8	17	5.3
6 or more	12	3.6	31	7.2	17	5
<b>Total</b>	<b>334</b>	<b>100</b>	<b>428</b>	<b>100</b>	<b>324</b>	<b>100</b>

## Selected Examples (cont.)

- **Average reading per month (not for academic study)**

	2009		2010		2011	
	Frequency	%	Frequency	%	Frequency	%
Almost do not study	85	25.4	90	20.6	83	25.9
1	103	30.6	112	26	102	31.2
2	62	18.8	110	26.3	72	22.1
3	38	11.4	45	10.1	25	7.7
4	17	5.1	26	6.1	18	5.5
5	8	2.4	20	4.9	15	4.6
6 or more	21	6.3	25	6	9	3
<b>Total</b>	<b>334</b>	<b>100</b>	<b>428</b>	<b>100</b>	<b>324</b>	<b>100</b>

## Selected Examples (cont.)

- **Part-time jobs**

	2009		2010		2011	
	Frequency	%	Frequency	%	Frequency	%
<b>YES</b>	<b>87</b>	<b>26</b>	<b>131</b>	<b>30.9</b>	<b>92</b>	<b>28.6</b>
<b>NO</b>	<b>247</b>	<b>74</b>	<b>297</b>	<b>69.1</b>	<b>232</b>	<b>71.4</b>
<b>Total</b>	<b>334</b>	<b>100</b>	<b>428</b>	<b>100</b>	<b>324</b>	<b>100</b>

- **Smoking**

	2009		2010		2011	
	Frequency	%	Frequency	%	Frequency	%
<b>YES</b>	<b>73</b>	<b>22.2</b>	<b>87</b>	<b>20.4</b>	<b>59</b>	<b>18.6</b>
<b>NO</b>	<b>260</b>	<b>77.8</b>	<b>341</b>	<b>79.6</b>	<b>265</b>	<b>81.4</b>
<b>Total</b>	<b>333</b>	<b>100</b>	<b>428</b>	<b>100</b>	<b>324</b>	<b>100</b>

# Selected Examples (cont.)

- **Height**

	<b>2009</b>	<b>2010</b>	<b>2011</b>
	<b>Average</b>	<b>Average</b>	<b>Average</b>
<b>MALE</b>	<b>175.4</b>	<b>176.7</b>	<b>176.3</b>
<b>FEMALE</b>	<b>162.7</b>	<b>162.7</b>	<b>162.6</b>

- **Weight**

	<b>2009</b>	<b>2010</b>	<b>2011</b>
	<b>Average</b>	<b>Average</b>	<b>Average</b>
<b>MALE</b>	<b>67.4</b>	<b>69.8</b>	<b>68.6</b>
<b>FEMALE</b>	<b>51.7</b>	<b>51.7</b>	<b>50.9</b>



# Measurement Error

- **Secondary school certification program**

	2009		2010		2011	
	Frequency	%	Frequency	%	Frequency	%
<b>TRUE</b>	328	98.2	424	99.1	324	100
<b>FALSE</b>	6	1.8	4	0.9	0	0
<b>Total</b>	334	100	428	100	324	100

# Measurement Error (Cont.)

- **Double major or minor**

	2009		2010		2011	
	Frequency	%	Frequency	%	Frequency	%
<b>TRUE</b>	323	96.7	408	95.3	324	100
<b>FALSE</b>	11	3.3	20	4.7	0	0
<b>Total</b>	334	100	428	100	324	100

# Measurement Error (Cont.)

- GPA (to 2 decimal places)

	2009		2010		2011	
	Frequency	%	Frequency	%	Frequency	%
<b>TRUE</b>	<b>97</b>	<b>29.22</b>	<b>75</b>	<b>18.2</b>	<b>75</b>	<b>23.15</b>
<b>FALSE</b>	<b>235</b>	<b>70.78</b>	<b>337</b>	<b>81.8</b>	<b>249</b>	<b>76.85</b>
<b>Total</b>	<b>332</b>	<b>100</b>	<b>412</b>	<b>100</b>	<b>324</b>	<b>100</b>

# Measurement Error (Cont.)

- GPA (to 1 decimal places)

	2009		2010		2011	
	Frequency	%	Frequency	%	Frequency	%
<b>TRUE</b>	147	44.28	187	45.4	131	40.43
<b>FALSE</b>	185	55.72	225	54.6	193	59.57
<b>Total</b>	332	100	412	100	324	100

# Measurement Error (Cont.)

- GPA (without decimal)

	2009		2010		2011	
	Frequency	%	Frequency	%	Frequency	%
<b>TRUE</b>	<b>260</b>	<b>78.31</b>	<b>346</b>	<b>84</b>	<b>242</b>	<b>74.69</b>
<b>FALSE</b>	<b>72</b>	<b>21.69</b>	<b>66</b>	<b>16</b>	<b>82</b>	<b>25.31</b>
<b>Total</b>	<b>332</b>	<b>100</b>	<b>412</b>	<b>100</b>	<b>324</b>	<b>100</b>

# Item Nonresponse

- **Open-Ended Questions**

	<i>No. of Item Nonresponse</i>					
	2009		2010		2011	
<b>GPA</b>	7	(2.1%)	11	(2.6%)	25	(6.2%)
<i>Height</i>	1	(0.3%)	3	(0.7%)	4	(1.2%)
<i>Weight</i>	4	(1.2%)	17	(4.0%)	20	(6.2%)
<b>Total</b>	<b>334</b>	<b>100</b>	<b>428</b>	<b>100</b>	<b>324</b>	<b>100</b>

- **Closed-Ended Questions**

There were very few missing data in the 2009 and 2010, but there were 10 items missed in the 2011 survey.

# Conclusions

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- We confirmed that cell phone surveys for students may have high response rates.
- The distributions between population and sample for some variables are very similar during the three years.
- We showed that they have some advantages in terms of coverage of domains and measurement error.
- Cell phone surveys would be one of the most efficient data collection modes.



**THANK YOU!**

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