

Nonresponse Effect in Large Scale Student Assessment



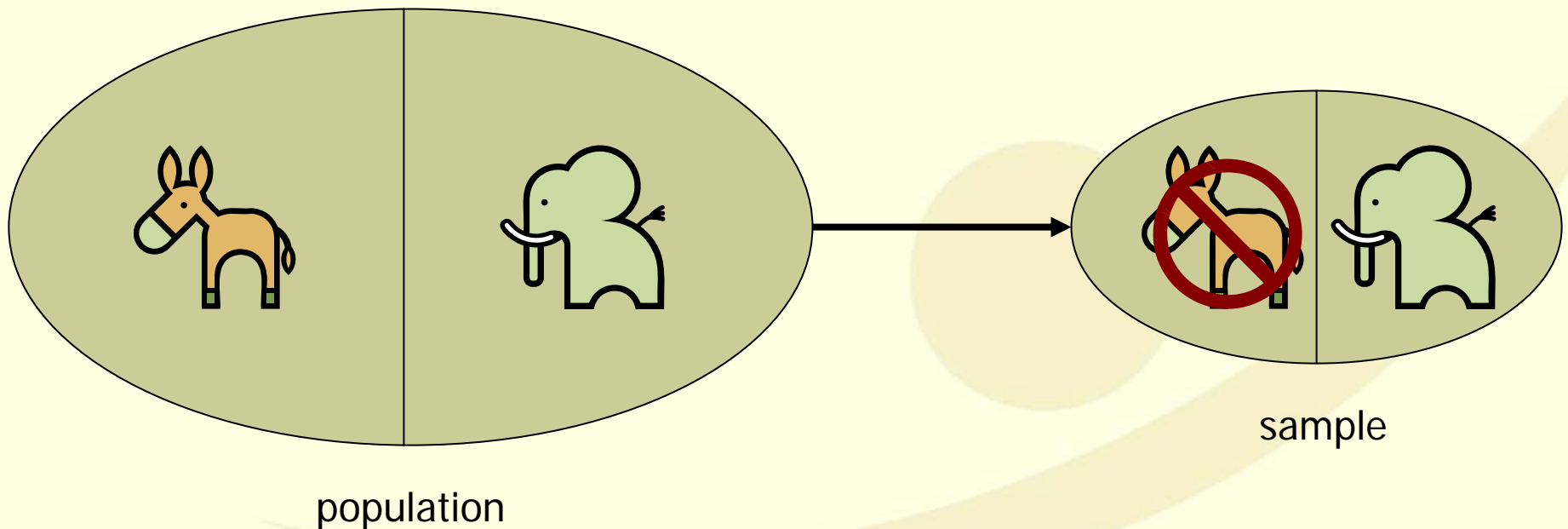
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Introduction

- ◆ What is nonresponse effect?
- ◆ Causes of nonresponse
- ◆ How to handle nonresponse?
- ◆ How to study nonresponse effect?

What is Nonresponse Effect?

- ◆ Nonresponse effect occurs when the individuals responding to a survey differ from nonrespondents on variables relevant to the survey topic



What is Nonresponse Bias?

- ◆ Nonresponse bias

$$\textit{bias} = (1 - r)(\bar{x}_R - \bar{x}_{NR})$$

If $r = 1$, $\textit{bias} = 0$

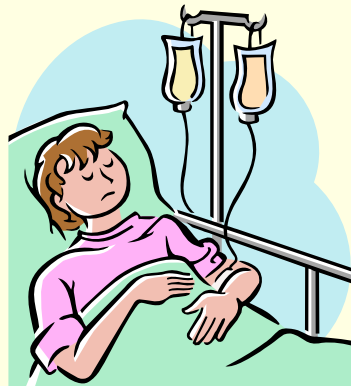
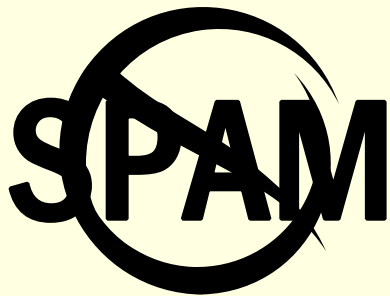
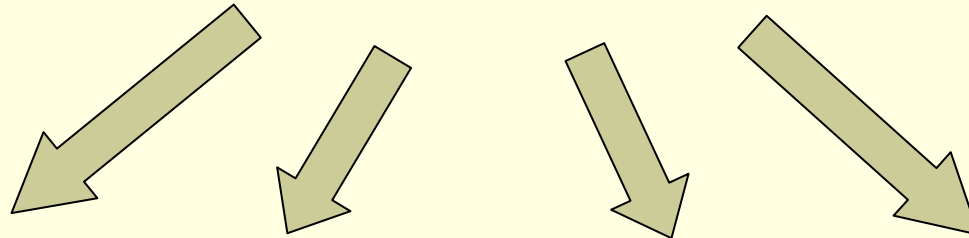
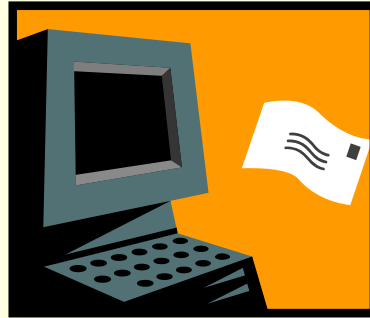
If $r \approx 0$, $\textit{bias} \approx (\bar{x}_R - \bar{x}_{NR})$



National Survey of Student Engagement (NSSE)

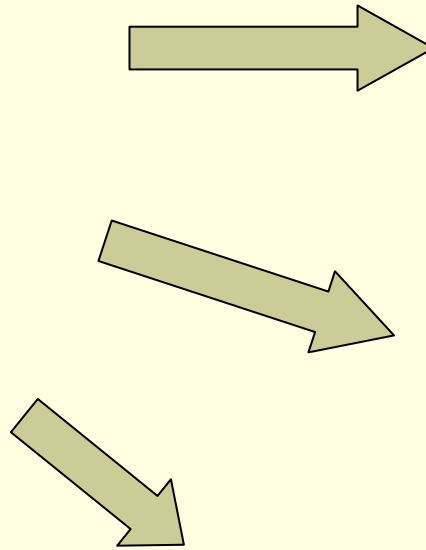
- ◆ Measure effective educational practices
- ◆ Began in 2000
- ◆ Surveyed more than 1000 four-year colleges and universities
- ◆ More than 560 colleges and universities participated in 2006
- ◆ Average response rate ~40%

Causes of Nonresponse

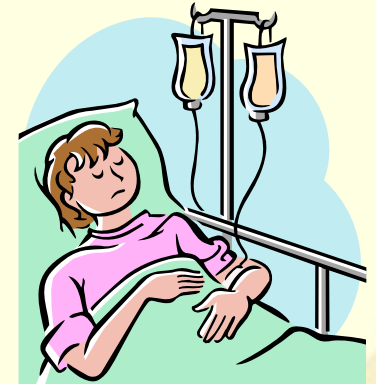


Causes of Nonresponse

- ◆ Inaccessibility
- ◆ Inability
- ◆ Carelessness
- ◆ Noncompliance



~~SPAM~~



NSSE Nonrespondents

- ◆ Male
- ◆ Minority students
- ◆ Part-time students
- ◆ Students who drop out before survey administration

How to handle Nonresponse?

- ◆ Compare respondents to population on characteristics known before the study
- ◆ Compare respondents to nonrespondents on characteristics known before the study
- ◆ Compare early to late respondents
- ◆ Double-dip – sample nonrespondents
- ◆ Ignore nonrespondents

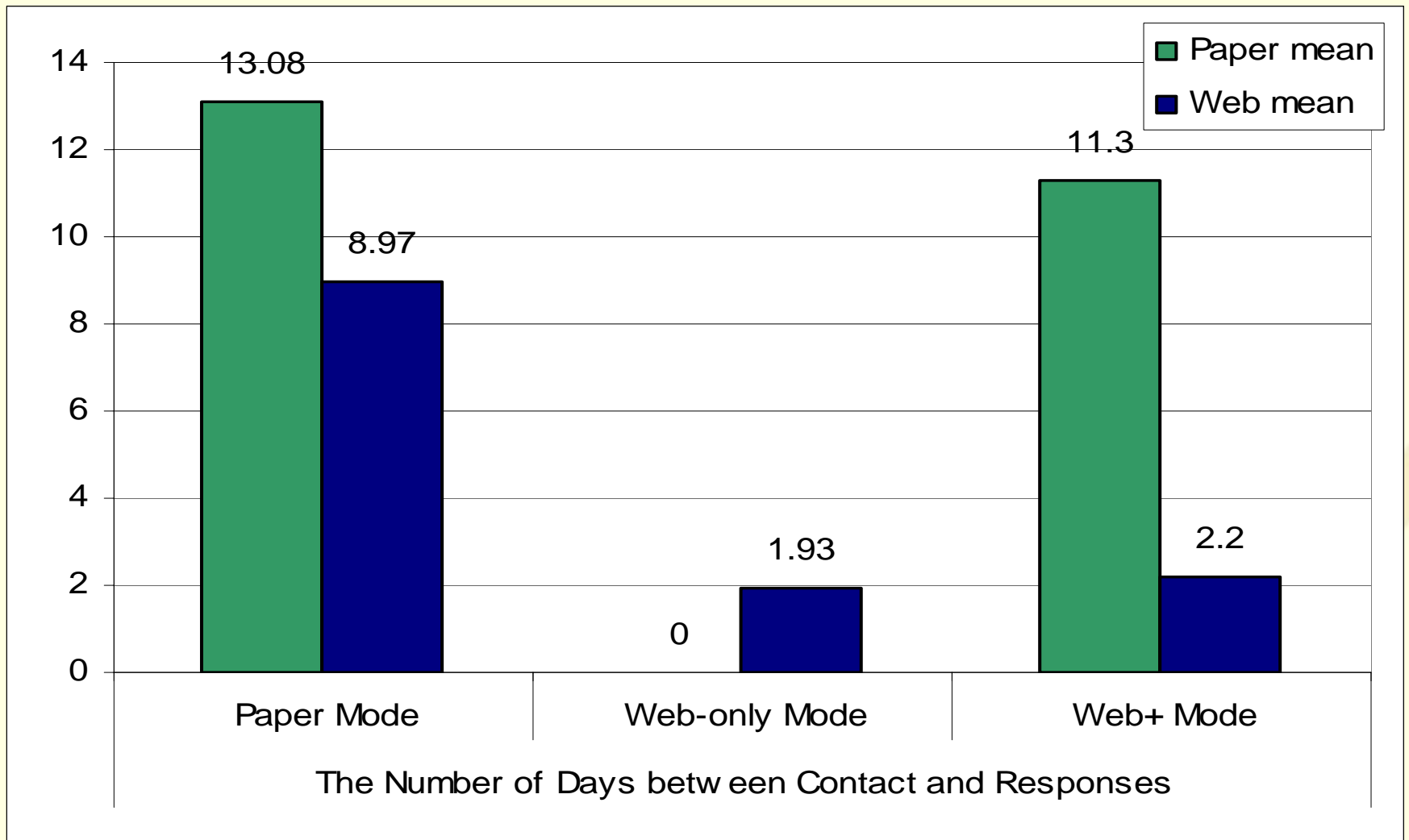
NSSE Survey Administration

- ◆ Web, Paper, Web+
- ◆ Web: Everything through the Internet
- ◆ Paper: Contact students by mail, students can choose to reply by mail or web
- ◆ Web+: Hardcopy paper survey is used to supplement web survey
- ◆ A student may be contacted 5 times at most

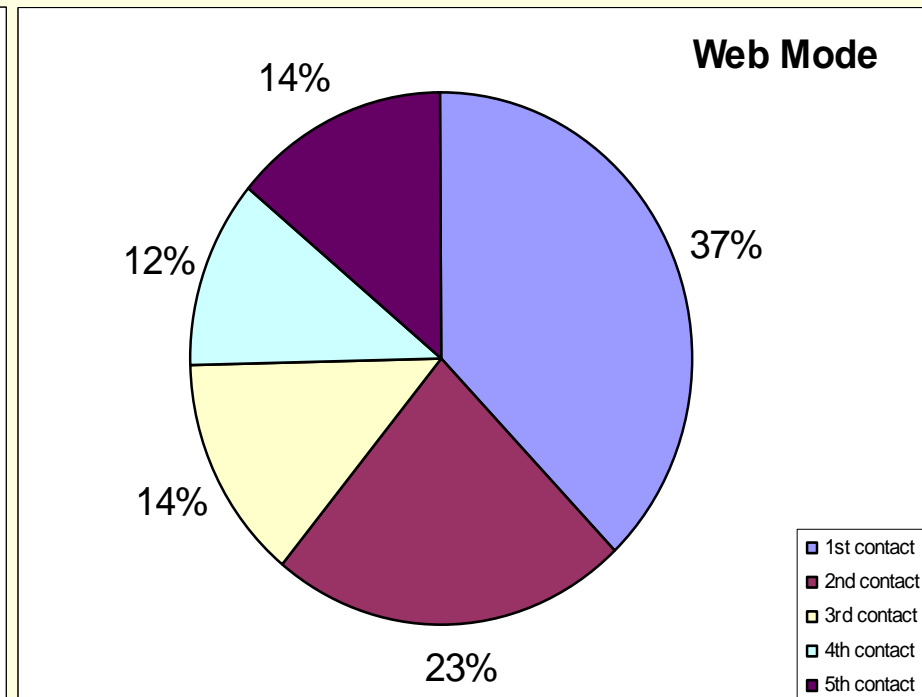
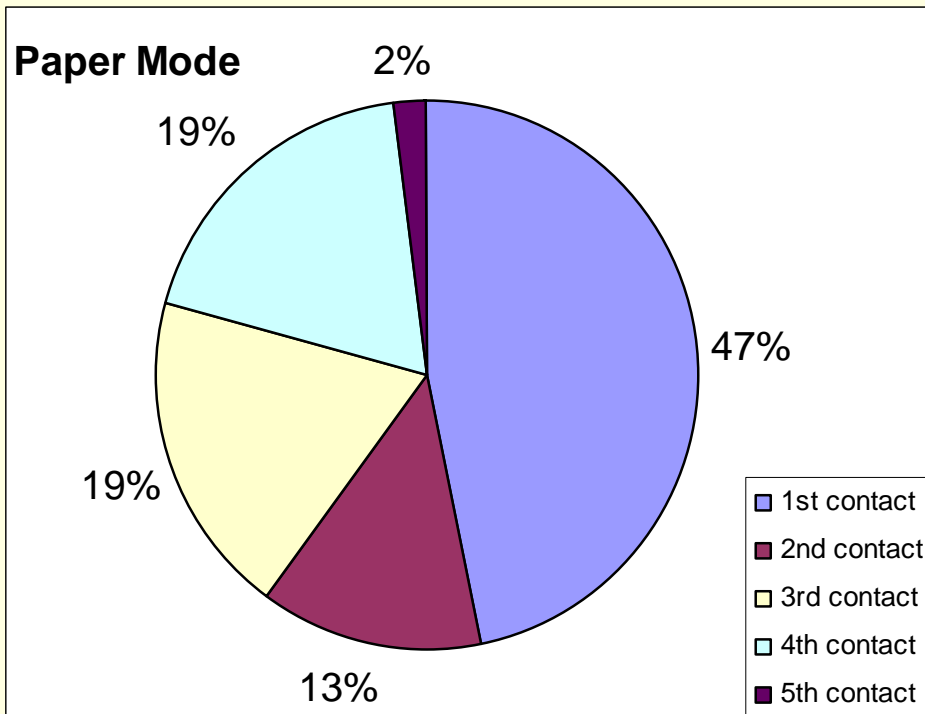
NSSE Survey Administration Modes:

http://nsse.iub.edu/html/survey_modes.cfm

Time is the Key



Response to the Wave of Contact



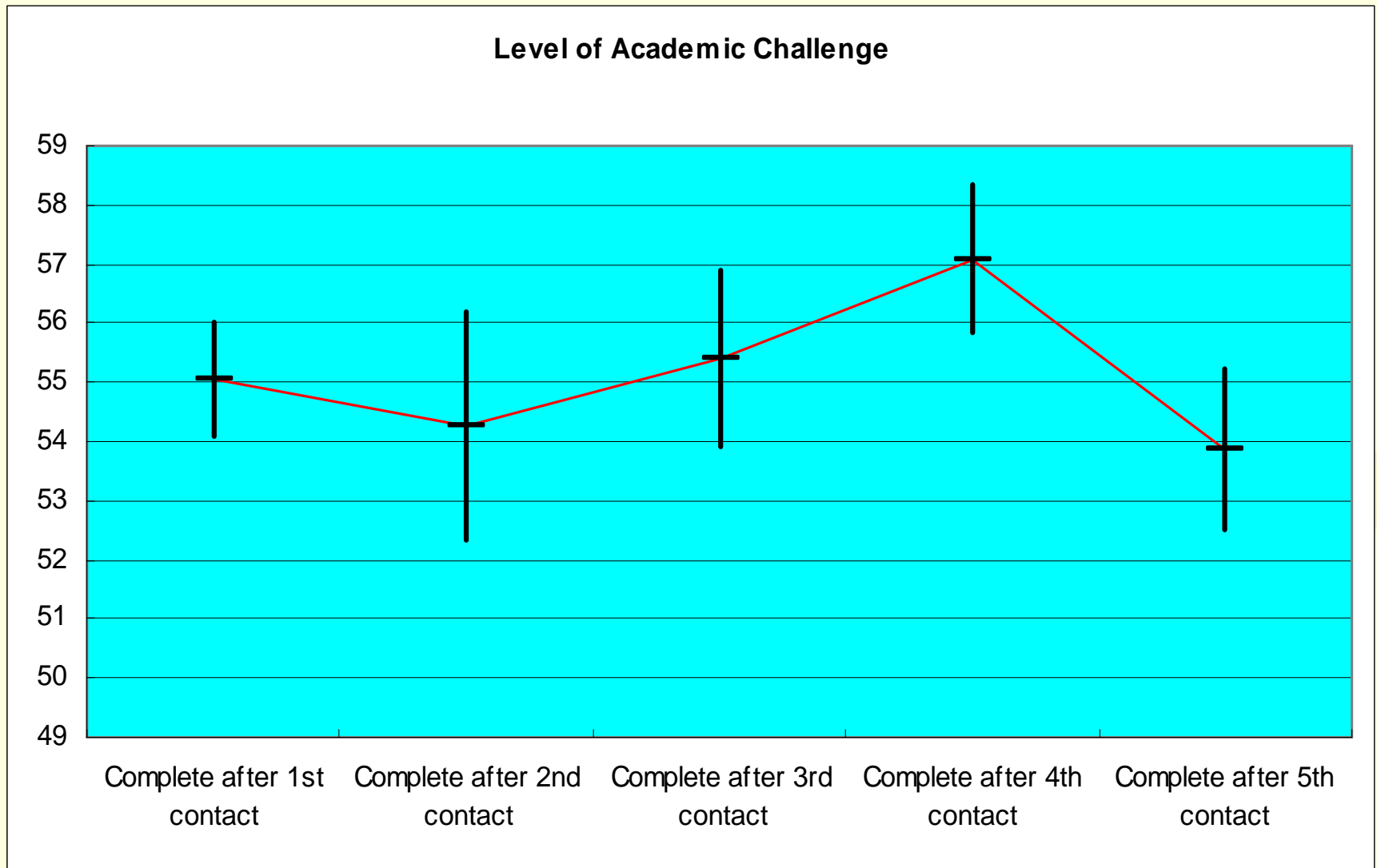
Compare Early to Late Respondents

- ◆ Correlations between response time, contact wave, individual items, and NSSE benchmarks
- ◆ Multivariate Analysis of Covariance (MANCOVA)
- ◆ Descriptive statistics (charts)

Results

- ◆ No significant correlations between response time, contact wave, and survey items
- ◆ MANCOVA showed that wave of contact is not a factor that affects NSSE benchmarks ($p = .256$)

Descriptive Statistics



What Have We Learned?

- ◆ Improve Survey Response Rate
 - ◆ Remove roadblocks (SPAM filter...etc.)
 - ◆ Inform students about the survey beforehand
 - ◆ Avoid bad timing (Mid-term exam, Final week...etc.)
 - ◆ Provide incentives
- ◆ Study Nonresponse Effect
 - ◆ Do not ignore nonresponse effect
 - ◆ Study nonresponse effect

What to do if Nonresponse Bias exist?

- ◆ Nonresponse Bias

$$bias = (1 - r)(\bar{x}_R - \bar{x}_{NR})$$

- ◆ Increase Response Rate
- ◆ Report the possibility of nonresponse bias
- ◆ Oversample student populations that is known to have low response rate
- ◆ Consider other research or sampling methods

Discussion and Comments

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