Replication of Gender-Inclusive Design Sense of Belonging and Bias in Web Interfaces by Danaë Metaxa-Kakavouli, Kelly Wang, James A. Landay, Jeff Hancock (CHI 2018)

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##Introduction

In this study, the authors examine the perception of introductory Computer Science course sites, specifically the sense of community belonging by young women when shown websites coded as neutral and masculine (between subjects). Beyond an interest in HCI broadly, I am interested in this study for its focus on gendered bias in digital artifacts and introductory computer science education, both of which I am interested in as research fields, although I've never explored them quantitatively. The format of this study as a survey of a digital artifact with accompanying questions is also very standard among HCI researchers, and so felt like a natural place to start as someone who is new to quantitative work.

Participants review one of two course sites (either neutral or masculine conditions) and take a survey about the website afterwards, which includes both multiple choice and open response questions. The survey proper is preceded by verification questions to ensure that participants have reviewed the site, and concludes with a demographic survey. I have already located the original websites used for the study, and plan on hosting them myself for the replication. Besides this project being fairly different than research I've done before, I don't forsee any specific challenges associated with this study.

The original paper and the repository

##Methods

###Power Analysis

Original effect size, power analysis for samples to achieve 80%, 90%, 95% power to detect that effect size. Considerations of feasibility for selecting planned sample size.

###Planned Sample

Planned sample size and/or termination rule, sampling frame, known demographics if any, preselection rules if any.

###Materials

All materials - can quote directly from original article - just put the text in quotations and note that this was followed precisely. Or, quote directly and just point out exceptions to what was described in the original

article.

###Procedure

Can quote directly from original article - just put the text in quotations and note that this was followed precisely. Or, quote directly and just point out exceptions to what was described in the original article.

###Analysis Plan

Can also quote directly, though it is less often spelled out effectively for an analysis strategy section. The key is to report an analysis strategy that is as close to the original - data cleaning rules, data exclusion rules, covariates, etc. - as possible.

Clarify key analysis of interest here You can also pre-specify additional analyses you plan to do.

###Differences from Original Study

Explicitly describe known differences in sample, setting, procedure, and analysis plan from original study. The goal, of course, is to minimize those differences, but differences will inevitably occur. Also, note whether such differences are anticipated to make a difference based on claims in the original article or subsequent published research on the conditions for obtaining the effect.

Methods Addendum (Post Data Collection)

You can comment this section out prior to final report with data collection.

Actual Sample Sample size, demographics, data exclusions based on rules spelled out in analysis plan

Differences from pre-data collection methods plan Any differences from what was described as the original plan, or "none".

##Results

Data preparation

Data preparation following the analysis plan.

Confirmatory analysis

The analyses as specified in the analysis plan.

Side-by-side graph with original graph is ideal here

###Exploratory analyses

Any follow-up analyses desired (not required).

Discussion

Summary of Replication Attempt

Open the discussion section with a paragraph summarizing the primary result from the confirmatory analysis and the assessment of whether it replicated, partially replicated, or failed to replicate the original result.

Commentary

Add open-ended commentary (if any) reflecting (a) insights from follow-up exploratory analysis, (b) assessment of the meaning of the replication (or not) - e.g., for a failure to replicate, are the differences between original and present study ones that definitely, plausibly, or are unlikely to have been moderators of the result, and (c) discussion of any objections or challenges raised by the current and original authors about the replication attempt. None of these need to be long.