

# JOHN RICHARD SCHUMACHER

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## OBJECTIVE

Passionate researcher with expertise in experimental design and causal statistical inference modeling seeking a quantitative researcher/scientist (e.g., Data, UX) internship/position.

## EDUCATION

### ***Ph.D. - Experimental Psychology: Cognition & Cognitive Neuroscience***

Texas Tech University

**Dissertation Topic:** The effects of cognitions on self-paced reading of moral vignettes.

**Advisor:** Dr. Roman Taraban

**GPA:** 4.0

### ***M.A. - Experimental Psychology: Cognition***

Texas Tech University | 2014

### ***B.S. - Psychology***

Colorado State University | 2012

## STATISTICAL CONSULTING

**Position:** Primary Statistical & Research Design Consultant

TTU Psychological Sciences Dept. | Spring 2017 - Fall 2017

**Responsibilities:** Assisted psychology graduate students and faculty with all personal research questions about research design, procedures, statistical modeling, and interpretation of results.

**Position:** Lead Statistical & Methodological Consultant

TTU Graduate School | 2019

**Responsibilities:** Provide guidance and assistance to TTU graduate students from all departments seeking help with design, procedures, statistical modeling, and interpretation of results.

## RELEVANT COURSES TAUGHT

- |  |   |
|--|---|
| ♦ <b>Experimental Design/ANOVA</b> (Graduate Lab)                        | ♦ <b>Categorical Data Analysis</b> (Graduate Lab)         |
| ♦ <b>Hierarchical Linear Modeling/Multilevel Modeling</b> (Graduate Lab) | ♦ <b>Statistical Methods</b> (Undergraduate Course & Lab) |
|  | ♦ <b>Research Methods</b> (Undergraduate Lab)             |

## SELECTED PROJECTS

### **Using Cluster Analysis & ANOVA to Determine Types of NBA PLAYERS and Their Effectiveness**

- ♦ Ran hierarchical cluster analysis on player stats. 5 groups were found. Players were then grouped into five categories using K-means cluster analysis. Small forwards and guards clustered together; point guards, centers, and power forwards formed distinct clusters; and cluster 5 consisted of players from all positions. Using these groups as the IV, an ANOVA was run on 0-1 Euclidean scores, derived from the game stats. From this, the power forward and point guard groups were found to be the most productive.

### **Determining Global Study Strategies and Their Effectiveness of Engineering Students**

\*Nominated for Best Paper at ASEE Conference

- ♦ Worked as the lead analyst on a multi-department study aimed at unearthing global study strategies of engineering students. Survey data that probed study strategy use of students in engineering courses was assessed. First, performed Categorical EFA on 1/2 of the data. This indicated 3 factors best described the data. Next, the results were confirmed with a CFA using the other 1/2 of the data. Last, path analyses and regressions were run to determine which of the 3 study strategy factors are predictive of course grades.

### **Refining the ESPN Mobile App Fantasy Football Free Agent Acquisition Process**

- ♦ Determined strengths and pain points of ESPN's player transaction process, employing talk-aloud and surveys. From this, a prototype was created and tested against the original application using paper prototypes task analyses. Data included survey responses, recorded voices, # of errors, and completion time. Qualitative and quantitative (e.g., descriptive & inferential) methods were used to determine the benefits of the prototype over ESPN's original design.

## SELECTED PUBLICATIONS & PRESENTATIONS

- Schumacher, J.R.,** Akers, E., & Taraban, R. (2016, April 1). Unskilled and Unaware: A Metacognitive Bias [Web blog post]. <https://www.improvewithmetacognition.com/unskilled-unaware-metacognitive-bias/>
- Schumacher, J. R.,** & Levulis, S. J. (2016, June). The Relationship between State-wide Handheld Cell Phone Bans and Fatal Motor Vehicle Accident Rates: An Epidemiological Study Using Hierarchical Linear Modelling. Poster presented at the annual Human Factors and Ergonomic Society meeting, Houston, TX.
- Schumacher, J. R.,** & Taraban, R., (2017, April). Sound design and reliable implementation: Keys to worthwhile and generalizable research. Society of Clinical Research Associates (SoCRA). Texas Tech University Health Sciences Center. Lubbock, TX.
- Taraban, R., **Schumacher, J. R.,** Dulli, H., Lamp, D., & Anderson, E. E. (2019). Assessing problem-solving strategy use by engineering undergraduates. Proceedings of the American Society of Engineering Education (ASEE) Annual Conference, Tampa, FL.
- \*Nominated for Best Paper

## RELEVANT GRADUATE COURSES TAKEN

- ♦ Experimental Design/ANOVA
- ♦ Advanced Correlation Methods & Factor Analysis/Regression
- ♦ Categorical Data Analysis
- ♦ Hierarchical Linear Modeling/ Multilevel Modeling
- ♦ Cognitive Ergonomics
- ♦ Multivariate Statistics
- ♦ Structural Equation Modeling
- ♦ Usability Testing & Research
- ♦ Psychometric Theories/ Information Response Theory

## AWARDS

**Helen Devit Jones Excellence in Graduate Teaching**  
Texas Tech University | 2016

**Excellence in Teaching an Undergraduate Lab**  
Psychological Sciences Department at Texas Tech | 2016

**Excellence in Teaching a Graduate Lab**  
Psychological Sciences Department at Texas Tech | 2019

## REFERENCES

- |  |   |
|--|---|
| <b>Roman Taraban, PhD</b><br>Research Advisor (Cognition)<br><a href="mailto:roman.taraban@ttu.edu">roman.taraban@ttu.edu</a><br>(806) 834-0450                  | <b>Martina Klein, PhD</b><br>Teaching Advisor (ANOVA)<br><a href="mailto:martina.klein@ttu.edu">martina.klein@ttu.edu</a><br>(806) 834-4745 |
| <b>Andrew Littlefield, PhD</b><br>Teaching Advisor (Categorical)<br><a href="mailto:andrew.littlefield@ttu.edu">andrew.littlefield@ttu.edu</a><br>(806) 834-3746 | <b>Amelia Talley, PhD</b><br>Teaching Advisor (HLM)<br><a href="mailto:amelia.Talley@ttu.edu">amelia.Talley@ttu.edu</a><br>(806) 834-3937   |

## DATA ANALYSIS - Proficient

- ♦ ANOVA/MANOVA
- ♦ Linear Regression
- ♦ Non-Linear Modeling
- ♦ Multilevel Modeling
- ♦ Categorical Analysis
- ♦ SEM
- ♦ Factor Analysis
- ♦ Non-Parametric Analyses
- ♦ Longitudinal Design
- ♦ IRT
- ♦ Cluster Analysis
- ♦ Power/Monte Carlo
- ♦ Missing Data Analysis
- ♦ Bootstrapping
- ♦ Permutation Testing
- ♦ Data Visualization

## DESIGN/METHOD - Proficient

- ♦ Literature Review
- ♦ Experimental/Inferential
- ♦ Qualitative
- ♦ Survey
- ♦ Counterbalancing/Randomizing
- ♦ Data Collection, Handling, & Prepping
- ♦ Cognitive Task Analysis
- ♦ Card Sorting
- ♦ Journey Mapping
- ♦ Iterative Testing
- ♦ Paper Prototyping

## SOFTWARE - Proficient

- |             |          |
|-------------|----------|
| ♦ R         | ♦ SAS    |
| ♦ SPSS      | ♦ MPlus  |
| ♦ Excel     | ♦ GPower |
| ♦ Qualtrics | ♦ EPrime |

## SOFTWARE - Learning

- |          |       |
|----------|-------|
| ♦ Python | ♦ SQL |
|----------|-------|