# 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

***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

- **Experimental Design/ANOVA** (Graduate Lab)
- **Hierarchical Linear Modeling/ Multilevel Modeling** (Graduate Lab)
- **Categorical Data Analysis** (Graduate Lab)
- **Statistical Methods** (Undergraduate Course & Lab)
- **Research Methods** (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

**Roman Taraban, PhD**
Research Advisor (Cognition)
roman.taraban@ttu.edu
(806) 834-0450

**Martina Klein, PhD**
Teaching Advisor (ANOVA)
martina.klein@ttu.edu
(806) 834-4745

**Andrew Littlefield, PhD**
Teaching Advisor (Categorical)
andrew.littlefield@ttu.edu
(806) 834-3746

**Amelia Talley, PhD**
Teaching Advisor (HLM)
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(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
- SPSS
- Excel
- Qualtrics
- SAS
- MPlus
- GPower
- EPrime

## SOFTWARE - Learning

- Python
- SQL