Examining the job relevance of graduate-level statistical training in I-O psychology

Panel Discussion
Saturday, April 30, 2022, 8:00 AM - 9:20 AM in Room 612

Agenda

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Panel Discussion

Q&A

Closing

Industrial and Organizational Psychology

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Abstract

Are descriptive statistics ignored, and if so, who cares?

Three reasons for concern with the relative emphasis on inferential versus descriptive statistics

In praise of Table 1: The importance of making better use of descriptive statistics

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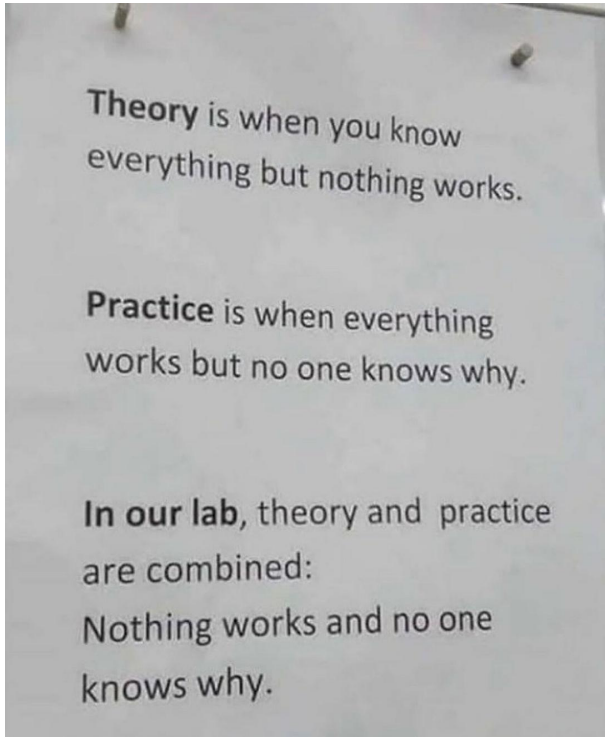
Abstract

As data analytic methods in the managerial sciences become more sophisticated, the gap between the descriptive data typically presented in Table 1 and the analyses used to test the principal hypotheses advanced has become increasingly large. This contributes to several problems including: (1) the increasing likelihood that analyses presented in published research will be performed and/or interpreted incorrectly, (2) an increasing reliance on statistical significance as the principal criterion for evaluating results, and (3) the increasing difficulty of describing our research and explaining our findings to non-specialists. A set of simple methods for assessing whether hypotheses about interventions, moderator relationships and mediation, are plausible that are based on the simplest possible examination of descriptive statistics are proposed.

The Scientist-Practitioner Gap



… the education-practitioner gap?

A Quick Survey of Practitioners:

Software	Masters	PhD
Tableau (Data Visualization)	44	37
Excel	39	40
SPSS	25	20
R	24	24
STATA	18	19
Other	10	10

A Quick Survey of Practitioners (MA)

Technique	Not at all	A little	Some	More	A lot	Median
Correlation	0	2	5	14	30	**A lot**
Data Visualization	1	2	7	14	28	**A lot**
Regression	5	3	15	9	20	**More**
T-test	5	7	10	11	19	**More**
ANOVA	7	9	16	8	11	**Some**
Chi-squared	9	13	14	9	7	**Some**
Z-test	13	14	8	5	10	**A little**
Structural	13	15	12	5	7	**A little**
Longitudinal	17	12	11	8	4	**A little**
Multivariate	18	12	13	2	6	**A little**

A Quick Survey of Practitioners (PhD)

Technique	Not at all	A little	Some	More	A lot	Median
Correlation	0	1	5	10	32	**A lot**
Regression	3	0	9	7	29	**A lot**
Data Visualization	1	3	4	13	27	**A lot**
Structural	5	4	13	13	13	**More**
T-test	2	2	15	7	22	**More**
ANOVA	5	6	14	7	16	**Some**
Z-test	11	10	14	2	11	**Some**
Longitudinal	6	7	14	14	7	**Some**
Multivariate	8	9	13	7	11	**Some**
Chi-squared	6	8	18	8	8	**Some**

Today's Panel

What is being taught in graduate statistics curricula, and what is required in applied data analytics jobs? Are the two aligned?

We will discuss some pre-set questions, but there will be plenty of time for questions from the audience! During the session, please submit your questions at the link below:

https://bit.ly/StatsEdPanel

Keep your phones out! We'll have some live interactive surveys throughout the session.

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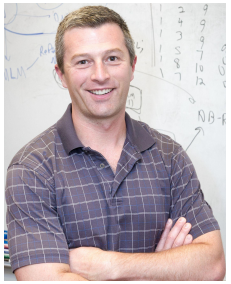
Panelists

Bharati Belwalkar, Ph.D.
Industrial-Organizational Researcher at the *American Institutes for Research*

John Christopher, Ph.D.
Assistant Professor of Psychology and Director of the Master of Arts in Industrial Organizational Psychology program at *Wesleyan College*



Shawn Bergman, Ph.D.
Kulynych/Cline Distinguished Professor of Psychology and HR Science Research Team Co-Director at *Appalachian State University*

Jenna Eagleson, M.A.
Director of Talent Analytics & Engagement at *Evolent Health*

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Panelists

Daniel Simonet, Ph.D.
Associate Professor of Psychology and Director of the MA and PhD programs at *Montclair State University*

Ashleigh Wilson, B.A.
Master's student in I-O psychology at *Valdosta State University*

Afra Ahmad, Ph.D. (Moderator)
Director of the Master's in Professional Studies in I-O Psychology program at *George Mason University*

Steven Zhou, M.A. (Co-Moderator)
Ph.D. student in I-O psychology at *George Mason University*

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If you identify primarily as an educator... what are the most important methods taught in your stats curricula? You may respond more than once.

- Descriptive stats
- Correlation
- Regression
- T-tests and ANOVAs
- SEM
- Factor analysis
- Multilevel or longitudinal models
- Cluster analysis or finite mixture models
- Machine learning
- Missing data analysis
- Social network analysis
- Meta analysis
- Data visualization

Question 1

What are some analytical methods that are currently being taught in most curricula, *but* are not very relevant for most applied data analytics jobs?

Question 2

Can you describe some analytical methods that are required in most applied jobs, *but* are not taught or covered in most curricula?

If you identify primarily as an practitioner... what are the most important methods used in your everyday work? You may respond more than once.

- Descriptive stats
- Correlation
- Regression
- T-tests and ANOVAs
- SEM
- Factor analysis
- Multilevel or longitudinal models
- Cluster analysis or finite mixture models
- Machine learning
- Missing data analysis
- Social network analysis
- Meta analysis
- Data visualization

Question 3

What softwares and tools are used in most curricula, *but* are not used in most applied data analytics jobs?

Question 4

What softwares and tools are required in most applied data analytics jobs, *but* are not taught or covered in most curricula?

If you identify primarily as an educator... what are the most important softwares/tools taught in your stats curricula? You may respond more than once.

SPSS	A
STATA	B
SAS	C
Matlab	D
Excel	E
R	F
Tableau or PowerBI	G
Mplus	H
Python	I

If you identify primarily as a practitioner... what are the most important softwares/tools you use in your everyday work? You may respond more than once.

- SPSS
- STATA
- SAS
- Matlab
- Excel
- R
- Tableau or PowerBI
- Mplus
- Python

Question 5

What are some other topics, methods, or techniques that might demonstrate the gap between education and practitioners?

What are some other topics, methods, or techniques that might demonstrate the gap between education and practitioners?

Question 6

What can be done about some of these education-practitioner gaps? How can SIOP, program directors, and faculty change curriculum and teaching, and how can students pursue education or training to fill in the gaps?

What can be done about some of these education-practitioner gaps? How can program directors and faculty change curriculum and teaching, and how can students pursue education or training to fill in the gaps?

Q&A

Please feel free to submit questions below!

https://bit.ly/StatsEdPanel

Got more questions or want to follow up with a panelist to discuss more ideas or thoughts? Contact Steven at szhou9@gmu.edu or Twitter @szzhou4!

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