Dare to Think Scientifically: Learning Experiences and Dispositions in Psychology Students

Introduction

Scientific thinking, the thinking involved in any scientific reasoning, is a paramount prerequisite for scientific inquiry (Kuhn & Pearsall, 2000), yet little is known about the ways it is acquired particularly by psychology students as potential future researchers. The present research is, therefore, aimed at fathoming the role learning experiences and personal dispositions play in first-year psychology students’ development of scientific thinking.

Objectives

- To examine the contribution of formal and informal learning to psychology students’ development of ST
- To contribute information for designing university environment to optimize the development of ST
- To identify relevant learning experiences and pinpoint the most prevalent among successful scientific thinkers
- To examine the interrelations in the development of SR and EC and the contribution of both learning experiences to this development
- To establish the circumstances under which potential future researchers are able to develop their ST as early as possible

Methodology

Sample: First year Psychology students, eight countries, eleven universities, assessed twice either in class or online, at beginning and end of second semester. Cohorts vary between 40 and 700.

Demographics: Age, gender, former university education, career aspirations, grades in high school, the grade of first university examination and family socioeconomic status.

Epistemic and Ontological Cognition Questionnaire (Greene et al., 2010): Three subscales for simple and certain knowledge, justification by authority and personal justification, 6-point response scale.


Additional analysis: Network modeling, Latent Class Analysis (Epistemic Cognition & Statistics Misconceptions), Prediction of career aspirations (would you like to become a researcher?)

Proposed Analysis

Bayesian latent variable modeling (SEM). Structural models:

Cross-sectional (beginning of second semester):

- SES
- FL
- IL
- NFC
- SSE
- EC

Longitudinal (beginning to end of second semester):

- SES
- FL
- IL
- NFC
- SSE
- EC

Longitudinal (beginning to end of second semester):

- SES
- FL
- IL
- NFC
- SSE
- EC

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Contact

Webpage: bit.ly/JRPST

References


Next Steps...

- preregistrations of confirmatory analysis on the Open Science Framework.
- ...further organization and conduct of further analyses.
- ...generate the perfect questions. Writing, writing, writing.

Anticipated Results

Our main expectation is that Informal Learning Experiences contribute to students’ development of epistemic cognition and scientific reasoning beyond other variables (mainly formal learning experiences, see H1 and H2 depicted in the graphical representation in the analysis). We expect this pattern to emerge in both cross-sectional and longitudinal models.

Open responses added to SIS and SMQ will provide us with insight into what types of errors are most common among psychology students. Together with detailed information about individual learning experiences, this might be helpful to design better informed university environment to tackle specific misunderstandings of scientific concepts covered by those two scales.
Objectives

The objective of this study is to:

• consider the contributions of formal and informal learning experiences to psychology students’ development of scientific thinking during their first year of study.
  • to identify learning experiences related to the development of scientific thinking in the first year of higher education as well as to pinpoint those that are most prevalent among successful scientific thinkers.
  • to examine interrelations in the development of scientific reasoning and epistemic cognition during the semester, and the contribution of students’ engagement in both types of learning experiences to this development.
• contribute information for designing university environments to optimise the development of students’ scientific thinking.
  • to establish the circumstances under which potential future researchers in psychological science are able to develop scientific thinking during the early stages of their studies.
Objectives version 2

PS: I made mind map in pp and now I can not put it here unless I save it as a picture.

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