Exploring Epistemological Beliefs and Conceptual Change in Undergraduate Psychology Students

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Projects

- Developing Professional Information Literacy in Psychology

  Development of blended learning modules adaptive to
  - Level of domain knowledge
  - Level of information literacy

- Conceptual Change in Undergraduates

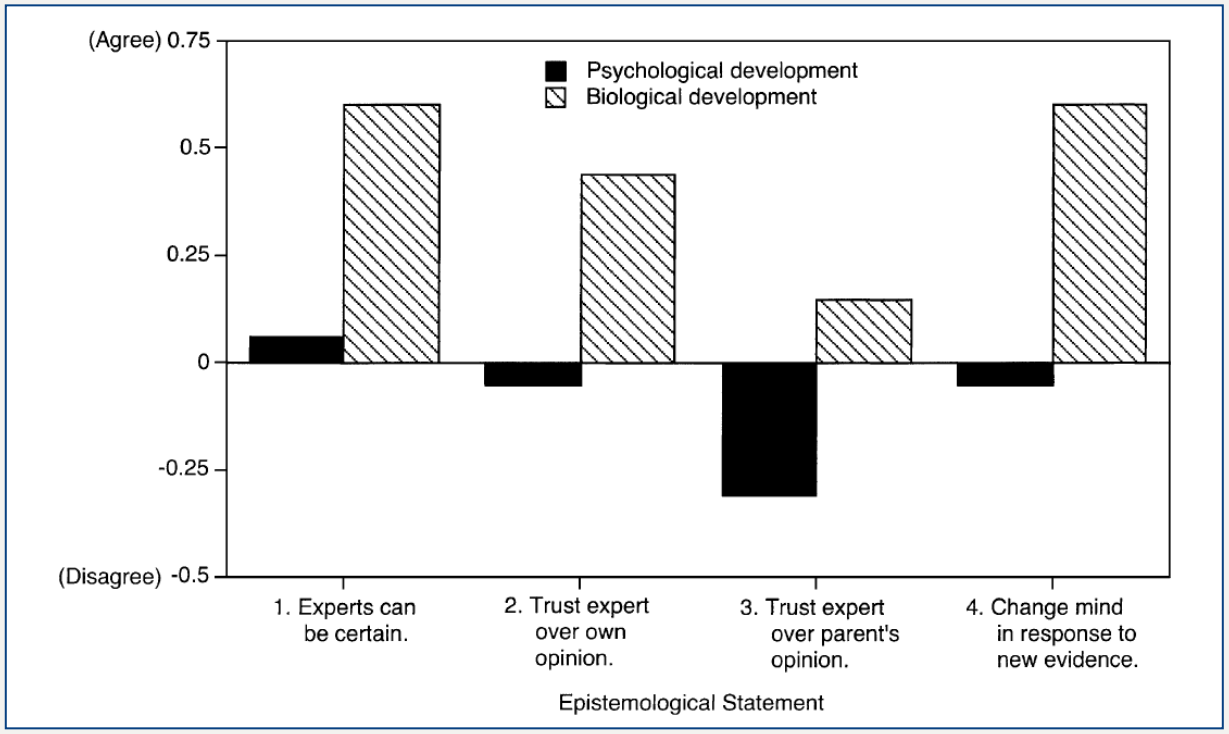
  Longitudinal study of psychology and computer business majors
  - Domain knowledge
  - Epistemological beliefs
  - Information literacy

„Learning Psychology“ – Levels of Conceptual Change

Level 1: Domain knowledge
Changing psychological concepts: *What is „intelligence“, „personality“, „phobia“, „accommodation“…?*

Level 2: Domain-specific epistemological beliefs
Changing the concept of psychology as a science: *What kind of knowledge is attainable in psychology?*

Domain Specific Epistemological Beliefs

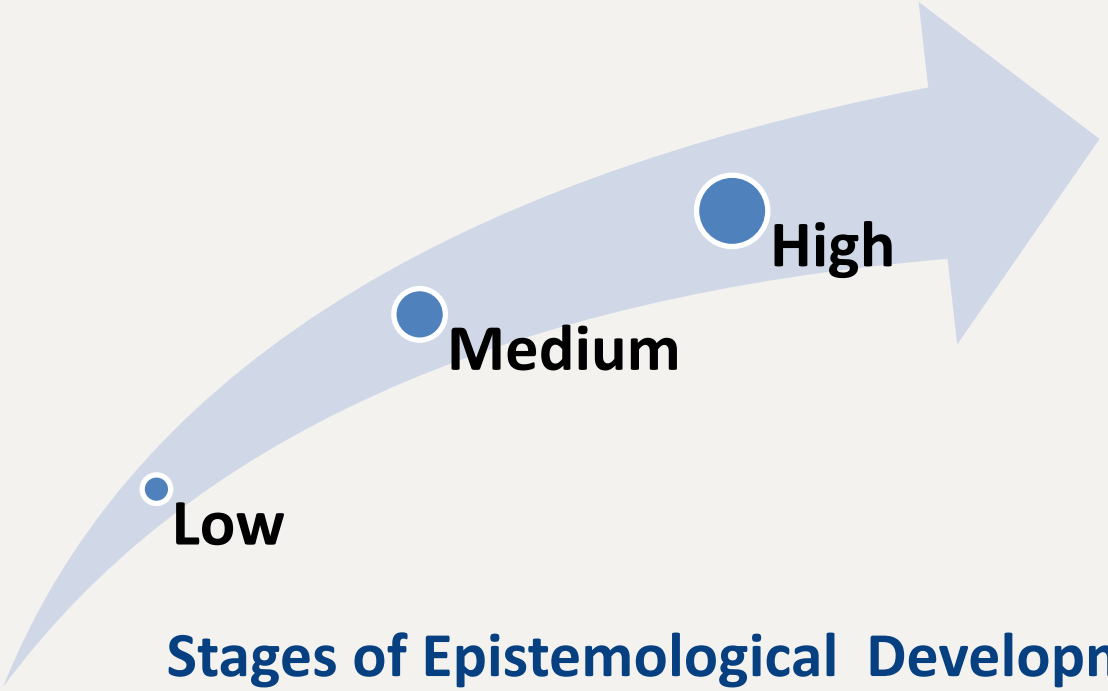


Mean agreement with epistemological statements about research on psychological and biological development

From: Estes, Chandler, Horvath, & Backus (2003). American and British college students' epistemological beliefs about research on psychological and biological development. *Applied Developmental Psychology, 23,* 632.

Model of Universal Developmental Stages

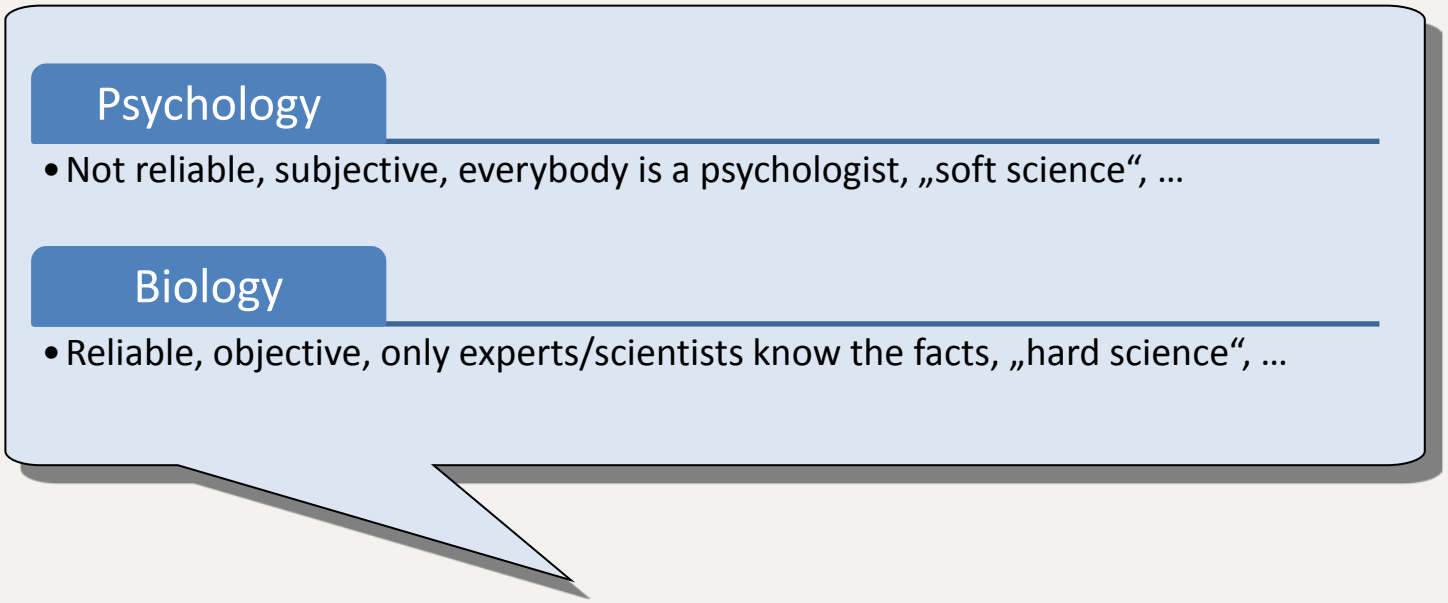
On what stage of epistemological development do people think about the nature of knowledge and knowing?



Stages of Epistemological Development

Model of Domain Specific Epistemological Appraisal

What do people think about the nature of knowledge and knowing in a specific domain?



Teaching the "Science of Psychology"

APA Guidelines for the Undergraduate Psychology Major

GOAL 1: Knowledge Base of Psychology

Demonstrate familiarity with the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology.

Suggested Learning Outcomes

1.1 Characterize the nature of psychology as a discipline.

a. Explain why psychology is a science

b. Identify and explain the primary objectives of psychology: describing, understanding, predicting, and controlling behavior and mental processes

c. Compare and contrast the assumptions and methods of psychology with those of other disciplines

Suggestions for Research [1/2]

1. Researching conceptual change in psychology undergraduates should not be restricted to psychological concepts (domain knowledge), but also include the concept of psychology as a science (domain-specific epistemological beliefs).

2. The epistemological concept of psychology may be significantly different between novices (undergraduates) and experts (scientists, teachers). More research is needed how students and teachers cope with this difference.

Suggestions for Research [2/2]

3. The „Model of Universal Developmental Stages“ is not appropriate for studying changes in undergraduates‘ epistemological beliefs about the nature of psychological knowledge.

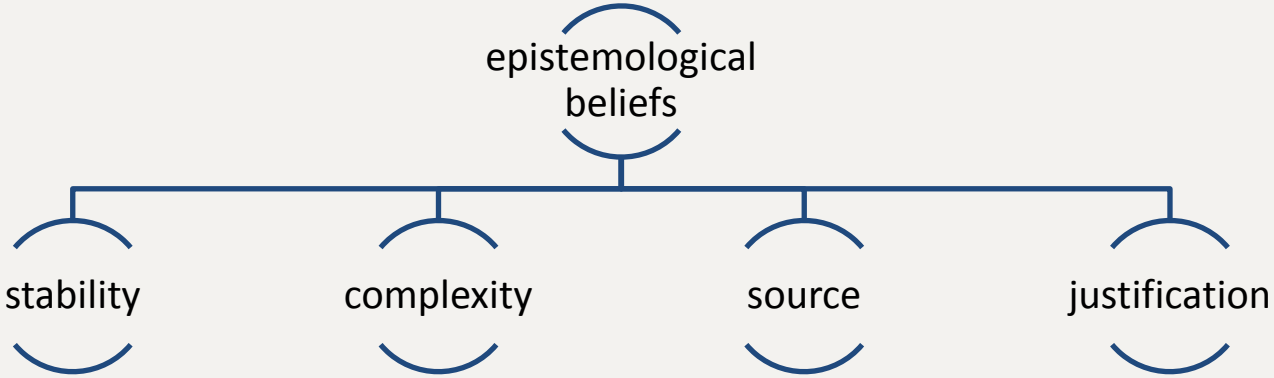
Changes of Epistemological Beliefs of Psychology Students

Impressions From a Pilot Study

Theory

- Perry (1970): Developmental model

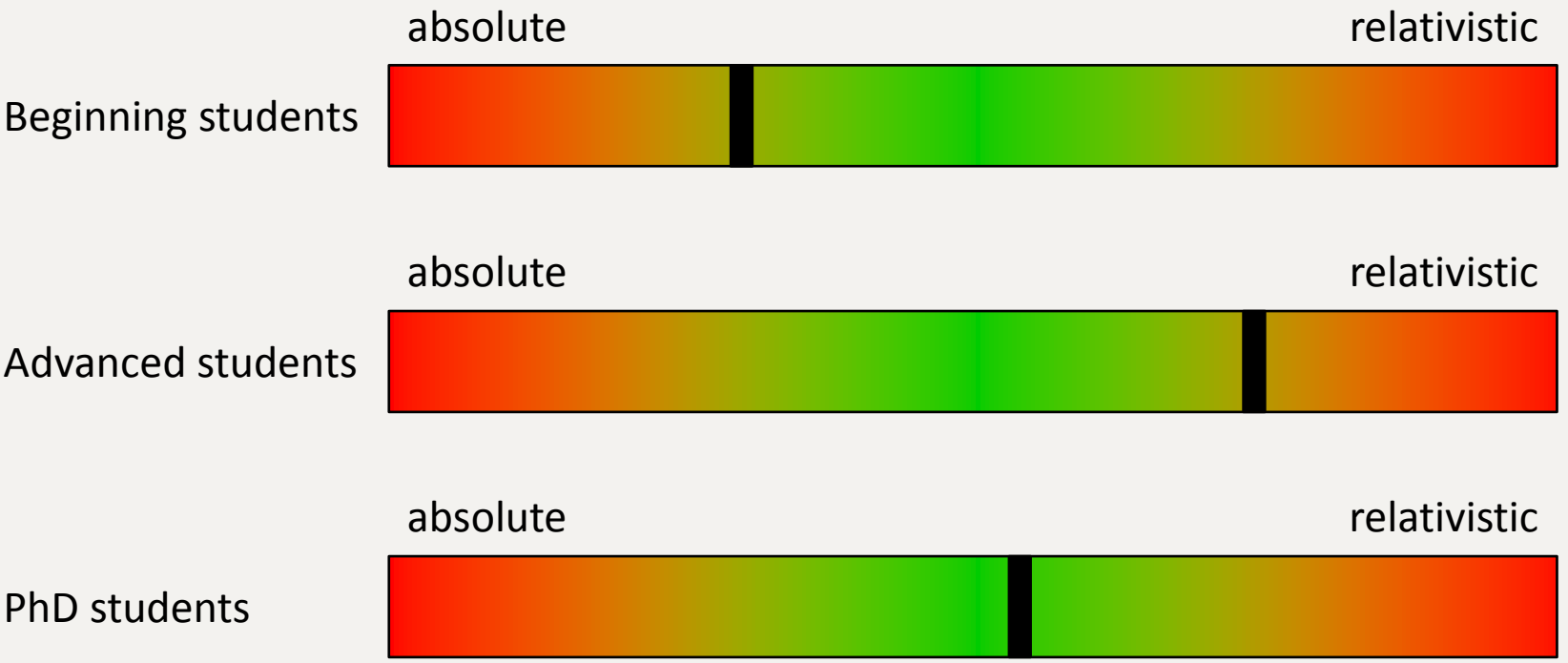
- Hofer (2000): Dimensionality of e.b.



Theory

- Perry (1970) describes the development of epistemological beliefs as a sequence of successive stages.
- Hofer (2000) distinguishes between four sub-dimensions of epistemological beliefs.
- The development, decribed by Perry (1970) might be observable in each of Hofer´s (2000) dimensions.

Hypothetical Shifts



Methods

- 3 groups of psychology students:
  - 1st year students (n = 22),
  - 3rd year students (n = 21),
  - PhD students (n = 21)

- Questionnaire: k = 46, rating of agreement (1-7),
  23 absolute, 23 relative statements

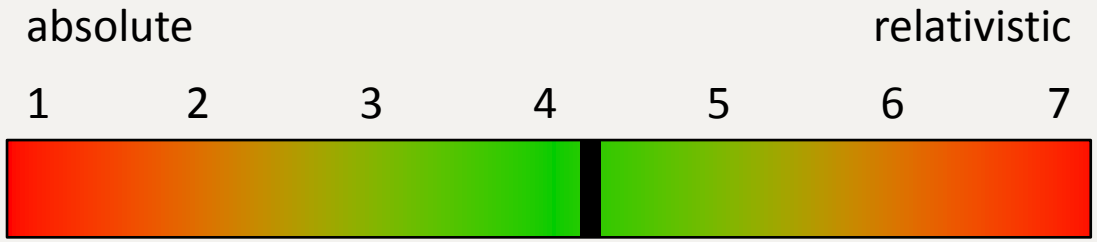
- Cronbach´s alphas of the four scales: .69 - .74

Results

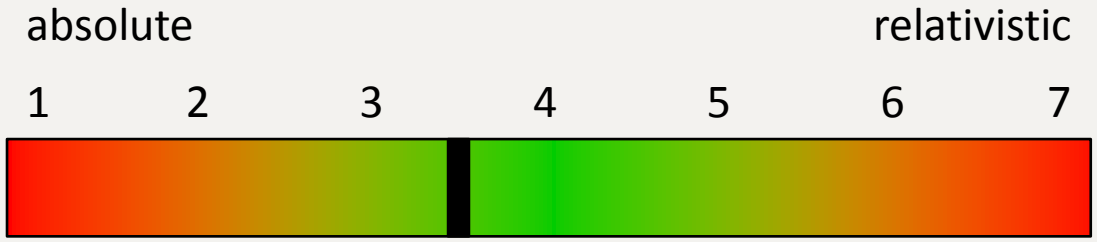
- ANOVA:
  - no significant group differences on the scales “stability“, “complexity“, “source“
  - significant differences on the scale “justification“ ($F = 7.07$, df 2/55, $p < .01$)

Mean Differences „Justification“

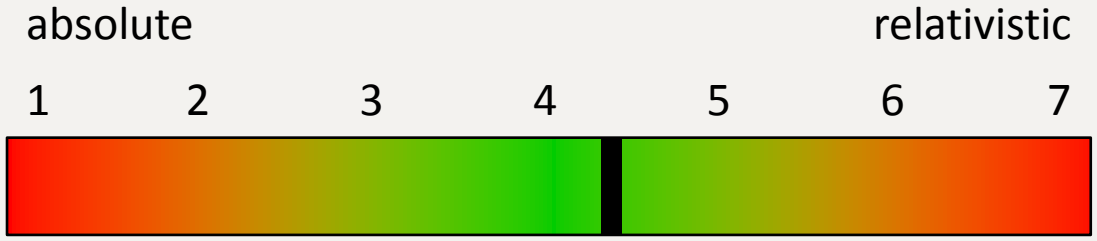
1st year students
Mean (SE): 4.25 (.15)



>= 3rd year students
Mean (SE): 3.57 (.17)



PhD students
Mean (SE): 4.36 (.17)



Conclusions

- Results do not support the hypothesis (hypothetical shifts).
- Possible reasons:
  - “relativistic shift“ might occur earlier,
  - Conceptions in a postrelativistic stage might lie outside of the absolute-relativistic dimension.
- Mean differences on “justification“:
  - Study of psychology contains a broad education of methods and criteria.
  - 3rd year students have low research experience.

Literature

- Estes, D., Chandler, M., Horvath, K. J., & Backus, D. W. (2003). American and British college students' epistemological beliefs about research on psychological and biological development. *Applied Developmental Psychology, 23*(6), 625-642.
- Hofer, B. K. (2000). Dimensionality and Disciplinary Differences in Personal Epistemology. *Contemporary Educational Psychology*, *25*(4), 378–405.
- Perry, W. G. (1970). *Forms of Intellectual and Ethical Development in the College Years: A Scheme*. New York: Holt Rinehart & Winston.