Changes of epistemological beliefs in the context of information literacy instruction

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Overview

1. Development of epistemological beliefs
2. Epistemological beliefs and information literacy instruction
3. Empirical study: Methods and results
4. Discussion
Epistemological beliefs

• Defined as individuals’ conceptions about knowledge and knowing (Hofer, 2001)

• E.g. certainty of knowledge – is knowledge conceptualized rather to be certain or uncertain?

• Target of research due to the significance e.g.
  – for information processing (Kardash & Howell, 2000),
  – learning (e.g. Cano, 2005), and
  – information behavior (Bråten & Strømsø, 2010)
Development of EB

• Basis of recent research: Framework by Perry (1970)

Absolute beliefs:
• Right/wrong
• Truth/untruth

Relativistic beliefs:
• Opinions equally valid
• Nothing is certain

Commitment with relativism:
• Opinions differently valid
• Certain to different degrees

Is there an existing truth?

Should relativism be relativized?
• Epistemological beliefs play a crucial role e.g. in understanding/integrating information (e.g. Bråten & Strømsø, 2010; Schommer, 1990)

• Changes in epistemological beliefs in the context of
  – information-seeking, e.g. when subjects deal with conflicting information (Kienhues, Stadler & Bromme, 2011)
  – epistemological challenging short-time interventions (refutational texts; Kienhues, Bromme & Stahl, 2008)
EB and information literacy instruction

- Information literacy instruction for students
  → another type of epistemological challenging intervention?

- Information literacy is defined as the abilities
  - to define an information problem,
  - to find and to access information,
  - to evaluate information, and
  - to process information (ACRL, 2010).
Scope

• Information literacy instruction
  – might induce reflection about knowledge and knowing
  – directs the attention to the diversity of (scientific) information
  – might promote reflection about evaluation criteria (e.g. bibliometrics)
Information literacy training

• Blended-learning training:
  – Online learning for the preparation of the contents (approx. 7 h)
  – Face-to-face learning for questions, discussions and exercises (approx. 3 h)

• Contents:
  – Background knowledge (e.g. databases, scientific procedures)
  – Applied knowledge (e.g. sophisticated use of search interfaces)
• Participants
  – $N = 67$ undergraduate psychology students ($n = 34$ first year; $n = 33$ second year)
  – Sample split into two groups (randomization)

• Procedure
Assessment of epistemological beliefs

• Epistemological statement + Likert scale (Peter, 2014)
  – Absolute statement: “If views held by two researchers in this discipline are contradictory, one of the views must be wrong.” [1 = disagree; 5 = agree]
  – Relativistic statement: “In this subject, what is regarded as correct by researchers, changes permanently.” [1 = disagree; 5 = agree]

→ Absolute and relativistic scale
Assessment of epistemological beliefs

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<th>Relativistic beliefs</th>
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<tr>
<td>Absolute statements</td>
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<td>Relativistic statements</td>
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- 🍀 → agreement
- 🍂 → disagreement

- Absolute and relativistic items refer to different factors
- Only marginal relationships between the two scales can be assumed (Peter et al., 2014)
Results

• Internal consistency
  – Absolute scale: $\alpha(T1) = .72$; $\alpha(T2) = .75$; $\alpha(T3) = .67$
  – Relativistic scale: $\alpha(T1) = .56$; $\alpha(T2) = .66$; $\alpha(T3) = .70$

• Re-test

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<tr>
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<td>-0.19</td>
<td>0.66***</td>
<td>0.77***</td>
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Results

• Repeated measures ANOVAs (controlled for study progress and gender)
  • Absolute beliefs:
    – Within: $F(62, 2) = 1.16; \text{ns}; \text{part. } \eta^2 = .04$
    – Between: $F(63, 1) = 2.70; \text{ns}; \text{part. } \eta^2 = .04$
    – Interaction: $F(62, 2) = 6.52; p < .01; \text{part. } \eta^2 = .17$
  • Relativistic beliefs
    – Within: $F(62, 2) = 1.54; \text{ns}; \text{part. } \eta^2 = .05$
    – Between: $F(63, 1) = 0.31; \text{ns}; \text{part. } \eta^2 = .01$
    – Interaction: $F(62, 2) = 0.00; \text{ns}; \text{part. } \eta^2 = .00$
Results

Change in absolute beliefs

Group 1: Training between t1 and t2
Group 2: Training between t2 and t3
• Agreement to absolute statements significantly increases
• Agreement to relativistic statements is not affected by the training
  → Epistemological confusion?

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<td><strong>Relativistic scale</strong></td>
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Discussion

• The short-term effect might have been caused by the epistemological nature (cf. Bromme, 2010) of the learning contents:
  – Instruction of clear methods and strategies to search for literature
  – Manuals for the usage of search interfaces
  – Bibliometrics (although their limitations were discussed)

• Results reveal that information literacy instructions are epistemologically challenging

• Long-term changes?
Literature


