Investigating Metacognitive Biases

Connections Between Fluency Effects and Beliefs in Individualized Learning Styles

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Introduction

Metacognitive illusions

Judgments of learning

Rhodes & Castel, 2008 and 2009

Introduction

Learning styles: auditory, visual, kinesthetic, none

Pashler et al., 2008

Fixed versus malleable intelligence

Miele, Finn, & Molden, 2011

Current Study

Investigating the connection between an already-established illusion - dubbed the “font size effect” - and its connection to another potential metacognitive illusion: individuals’ belief in visual, auditory, and kinesthetic learning styles

Hypothesis: belief in metacognitive biases may be pervasive -- that is, belief in one (e.g., learning styles) may be related to belief in another (fluency effects on JOLs)

Secondary hypothesis: metacognitive beliefs may be related to overall beliefs about intelligence (i.e., fixed versus malleable)

Method

Participants

Materials

- Learning Style Questionnaire
- Learning phase, JOLs, Distraction, Recall test
- Theories of Intelligence Questionnaire

Questionnaires

Learning Style Questionnaire

Which of the following options is closest to *your* learning style?

- o Visual learning style
- o Auditory learning style
- o Kinesthetic learning style
- o None of the above

How confident are you in the answer you just provided? Please use a scale from 0 to 100, where 0 indicates "not confident at all" and 100 indicates "certain."

Theories of Intelligence Questionnaire

You have a certain amount of intelligence, and you can't really do much to change it.

Your intelligence is something about you that you can't change very much.

No matter who you are, you can significantly change your intelligence level.

To be honest, you can't really change how intelligent you are.

You can always substantially change how intelligent you are.

You can learn new things, but you can't really change your basic intelligence.

No matter how much intelligence you have, you can always change it quite a bit.

You can change even your basic intelligence level considerably.

Results: Learning styles

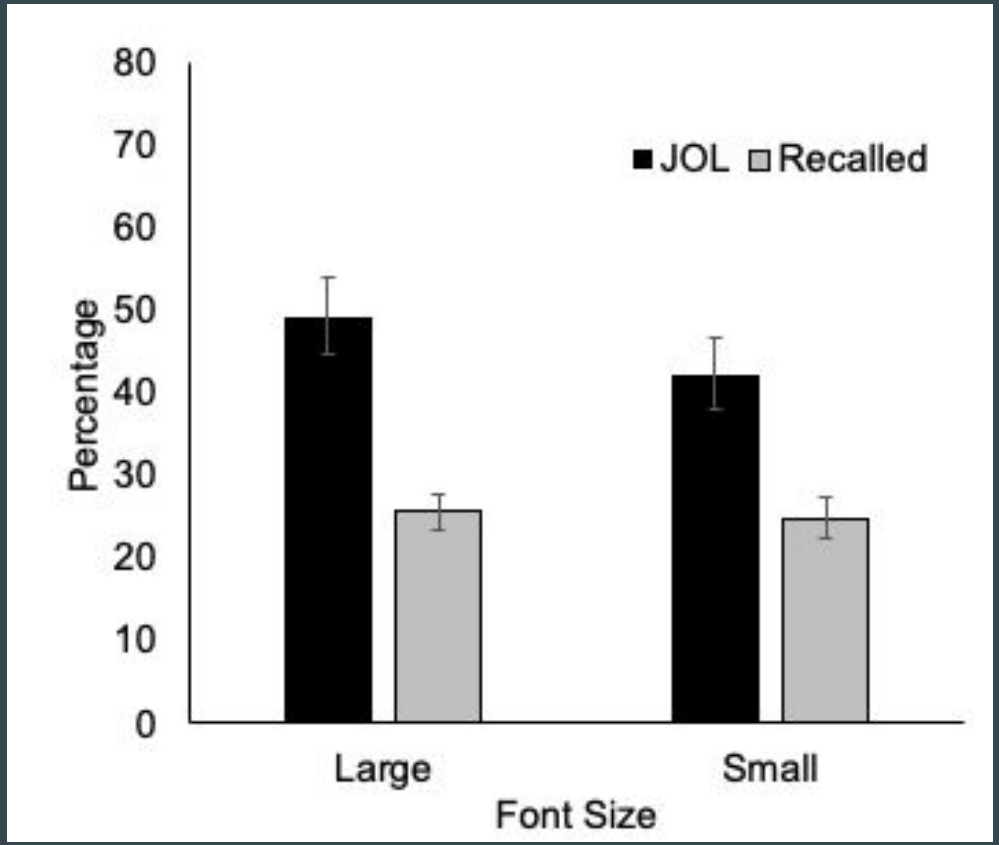
Visual learning styles: 43.47%

Kinesthetic learning styles: 21.75%

Auditory learning styles: 8.69%

Did not endorse a specific learning style: 26.09%

Results: Font Size Effect



Error bars represent standard error of the mean.

Results: Correlations

Relationship between belief in learning styles and perceptions about small and large font words was not significant, point-biserial $r = .19$, $p = .38$

Perhaps there is no relationship *or* not enough variance in learning style beliefs (only ~26% indicated no belief in learning styles)

Relationship between belief in learning styles and perceptions about intelligence ("No matter who you are, you can significantly change your intelligence level") was significant, point-biserial $r = -.42$, $p < .05$

Fixed beliefs about intelligence were related to having a belief in learning styles

More work is needed to explore this connection

Conclusions

Connection between belief in learning styles and perceptions about intelligence was significant

No significant relationship between beliefs of individualized learning styles and the difference score between their JOLs for large and small font words

Significance: uncovering relationships (or lack thereof) between metacognitive constructs

Future research: Could changing participants' beliefs about learning styles (via a short lesson on the lack of evidence to support visual, auditory, etc) affect their beliefs about learning and intelligence?

References

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