PERSONAL STANDARDS: MEASURING THE IMPACT OF VALUES AND IDENTITY ON FIRST-YEAR PHYSICS LEARNING

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ABSTRACT

This paper explores how beliefs about self affect learning in students at risk of performance anxiety. We examine the generalisability of recent work on value-affirmation from the USA to Australian science students. The frequently reported gender gap in physics performance (–with females lagging behind males) was eliminated via a value-affirmation intervention [Miyake et al, 2010]. In theory, those who identify with a group "known" not to perform well, experience "identity threat" but if they think about values important to them personally, they perform better because of a bolstered sense of self. This study raises the following questions:

- Are Australian students susceptible to stereotype threat relating to gender?
- Is the value-affirmation exercise proven in one context transferable to ours?
- Can it improve learning performance of those who are fearful of physics, perhaps because of previous education?

We measure how strongly and how commonly students endorse a negative belief that "other" people succeed in core physics and service teaching courses. We surveyed confidence and attitudes. We will present statistical analysis of pre- and post-instruction results on a well-established physics diagnostic test, showing the distribution of assessment performance for randomly-assigned control vs intervention groups, and with respect to the strength of endorsement of negative beliefs.

REFERENCES

Miyake, A., Kost-Smith, L., Finkelstein, N., Pollock, S., Cohen, G., & Ito, T. (2010). Reducing the gender achievement gap in college science: A classroom study of values affirmation, *Science*, *330*(26), 1234-1237.

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