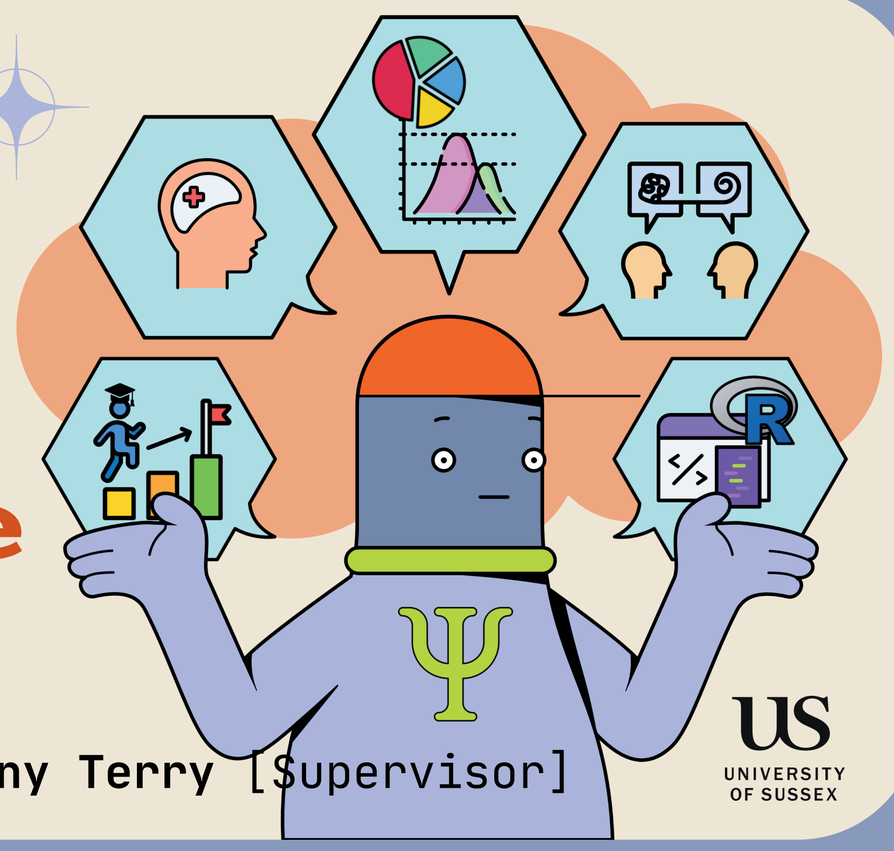
Believing that you're good at statistics will influence your career goals... only if you value statistics!



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The interplay between attitudes towards statistics and career goals

Study Background

- Despite statistics' fundamental role in psychology, **as many as 84% of students fail to see its relevance** [1, 2, 3] Click me!
- Negative attitudes and experiences with statistics has been repeatedly **linked to subsequent poor achievement** [e.g. 4, 5]
- However, its role in pushing students away from psychology-related careers has **yet to be investigated** [6]
- Using the **Expectancy Value Theory**, [7, 8] past research has found that when students **value and expect to succeed** in STEM subjects, they are more likely to and subsequently engage in STEM-related careers [9, 10]
- With implications on interventions, these expectancy and value beliefs may be **reciprocally related** and are also **not mutually exclusive** (i.e. interact with each other) [11]

Hypotheses

Quantitative interaction - Students who expect to succeed in statistics are more likely to have statistics-inclusive career goals, but only when they have a higher perceived value of statistics (***and vice versa***)

Exploratory qualitative question - Is there a reciprocal relationship between statistics attitudes and career goals?

Methods

Mixed-methods survey study consisting of undergraduate Psychology students (M = 19.5 years)

Quantitative
- Expectancy and Value beliefs scale (**Predictors**)
- Career goals scale (**Outcome**)

Moderation analysis

Qualitative
- Open-ended questions on whether their statistics attitudes have influenced their career goals, and vice versa

Content analysis

Quantitative Findings

The interaction between expectancy and value beliefs was **significantly related** to career goals in statistics, b = 0.12, [0.01, 0.23], t = 2.24, p = .02, η^2_p = .04

Value → Expectancy → Goals

Students' **expectancy beliefs** in statistics influence their career goals ***only*** **when their value beliefs are high**

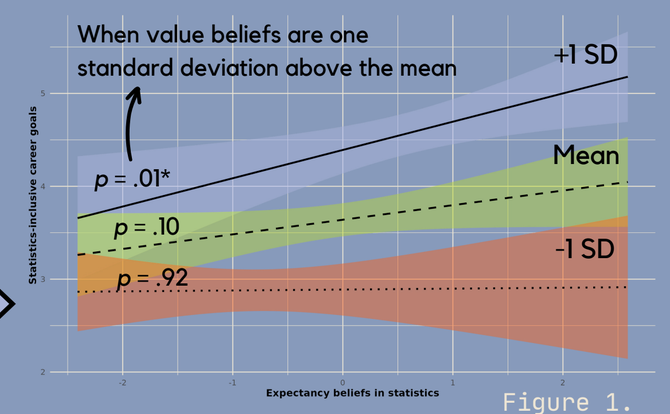

Figure 1.

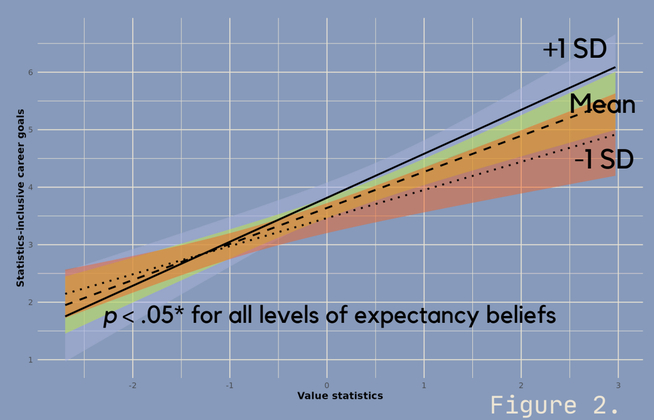

Figure 2.

Expectancy → Value → Goals

But **value beliefs** in statistics influence students' career goals ***regardless of*** **high/low expectancy beliefs**

Our study is the ***first*** to demonstrate an **interaction effect** among psychology students, aligning with findings previously observed in STEM fields [11, 12]. It also highlights the **strength of value beliefs** in influencing students' career goals, which is also consistent with previous studies [12, 13]. This could be attributed to value beliefs' ***centrality in identity formation*** [14] and other ***environmental factors*** (e.g. family) [15].

Qualitative Findings

A reciprocal relationship was coded for in 16.55% of participants, which is **significantly higher than would be expected by chance**, χ^2 (1, N = 140) = 60.46, p < .05

"My career goals have emphasised the ***importance*** of statistics to me and so *I would really like to do well in it, no matter how hard or scary it is*"

Contrary to negatively valenced findings in the literature, career goals created **positive persistence** in statistics!

"***I like the objectivity of statistics*** and so would prefer to be in a field where this is the case"

"Its made my goals be less clinical and research based as they are heavily based in statistics"

Majority of participants (23%) aimed to be - **Clinical Psychologists**

"I think my career goals have made my attitude towards statistics negative as ***I don't always find it necessary***"

Expectancy and **value** beliefs were found in ***most*** responses

Limitations + What's Next?

- Small **sample size** increased risk of Type II error
- **Career uncertainty** as a potential confounding variable, where it may also influence poor expectancy/value beliefs [16, 17]
- Future **longitudinal** quantitative investigation on reciprocal links
- Further investigate **value beliefs**, and include perceived cost

Conclusion

- Expectancy AND value beliefs should be considered in **methods teaching/intervention** e.g. increasing confidence might not work if students don't value statistics
- Usefulness, importance and interest in statistics (i.e. value) should be **harnessed/fostered**
- Beyond grades, **longer-term outcomes** (i.e. career goals) affect how students approach statistics

Click here for more information!

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