

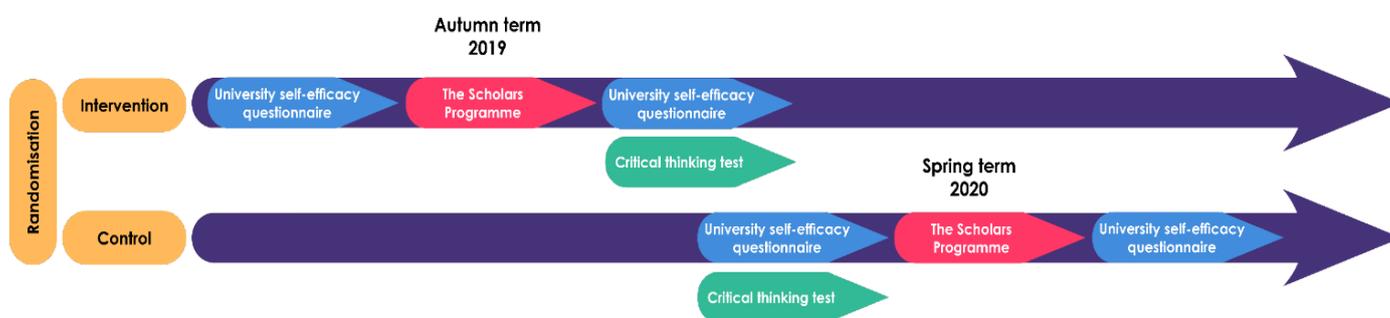
## University of Cambridge External Evaluation 2019-20: Technical Note

During the charity's *Path to Outcomes* strategy, we committed to carrying out a randomised controlled trial (RCT) for The Scholars Programme. Now, as the trial comes to a close and we are reaching the end of our current strategy, we are excited to share the key findings from the trial and to explain how this external evaluation will shape our next five-year strategy.

In 2019-20, Drs Sonia Ilie and Ashton Brown from the University of Cambridge conducted an RCT of The Scholars Programme. The trial examined whether taking part in the programme caused improvements in pupils' cognitive outcomes. The key outcomes included general critical thinking and self-efficacy in relation to university-style learning.

### Trial design

Two-hundred Key Stage 4 pupils from eight schools in England and Wales took part in the trial; half of the pupils were randomly allocated to take part in the intervention, The Scholars Programme; the other half waited until after the trial was over to take part in the programme, acting as a wait-list control group. As part of the trial, all pupils were required to complete standardised self-report questionnaires as well as a critical thinking test (see Figure 1 below). The trial was granted ethical approval by the Faculty of Education, University of Cambridge. The external evaluation team at the University of Cambridge independently oversaw the RCT, including the trial design and group randomisation, the statistical analysis, and interpretation of the findings.



**Figure 1: an overview of the evaluation design for the RCT**

The research design in the trial is associated with the highest level of evidence (i.e. causality) and randomly allocating each individual pupil to The Scholars Programme or the wait-list control group resulted in balanced characteristics of pupils across these groups. This allows the trial to attribute any differences in outcomes to participation in The Scholars Programme.

### The results

**General critical thinking:** The trial explored whether The Scholars Programme improves pupils' critical thinking skills in relation to a new topic, what is known as general critical thinking. Critical thinking refers to the ability to evaluate and analyse arguments effectively, which is associated with better educational outcomes. General critical thinking was assessed using a validated critical thinking assessment called the Ennis-Weir Critical Thinking Essay Test (Ennis & Weir, 1985). In the trial, pupils' answers to the assessment were independently marked by researchers at the University of Cambridge who were blind to the experimental conditions.

The RCT found no statistically significant impact on general critical thinking: pupils who took part in the programme scored slightly higher on measures of general critical thinking relative to the control group, but attrition from the trial meant the sample was not large enough to detect if this difference was significant. Other evidence from our programme data shows that The Scholars Programme significantly improves the subject-specific critical thinking linked to the assignments that pupils produce in subject areas that The Scholars Programme focuses on. From wider evidence, we know that developing general critical thinking, where critical thinking can be applied to a new topic, can take many years to develop.

**Self-efficacy in relation to university-style learning:** The term self-efficacy refers to beliefs about one's ability to learn and perform behaviours. In the context of this trial, we used a self-report questionnaire to measure self-efficacy in relation to university-style learning, which is, the belief in one's ability to develop the knowledge, skills and behaviours needed to succeed at university. Academic research shows that self-efficacy in relation to university learning is both directly and indirectly associated with progression to university, as well as success during university (Reay et al., 2009; Wright et al, 2013).

The RCT showed that pupils who took part in The Scholars Programme had significantly higher levels of university self-efficacy compared to pupils in the control group. The magnitude of the impact of The Scholars Programme on university self-efficacy was medium, with an effect size of 0.24.

## Conclusions from the trial

Below is a quote from Dr Sonia Ilie about the outcome of the trial:

"All in all, the results of this evaluation suggest that The Scholars Programme is effective at increasing student self-efficacy in relation to university study; a larger trial would clarify if the better general critical thinking skills observed for participants compared to the control group are driven by participation in The Scholars Programme."

## What next?

Conducting an RCT has strengthened our evidence base and enabled us to understand the mechanism through which The Scholars Programme is supporting progression to highly-selective universities. This evidence has come at a crucial time as we start to plan for and embark on our next five-year strategy. What we now know, based on the trial, is that our programme is having a significant and meaningful impact on self-efficacy for university-style learning. It remains unclear the extent to which we are impacting general critical thinking. These findings have important implications for what we do next in our new five-year strategy:

- First, it highlights the importance of maintaining and strengthening the focus of self-efficacy for university-style learning in the context of our existing programmes, but also ensuring this outcome, and activities that drive this outcome, are embedded explicitly within any new programmes that we develop.
- Second, the trial suggests that self-efficacy for university-style learning is a key mechanism by which this programme supports pupils to progress to highly-selective

universities. Related to this, extensive evidence shows that this outcome is essential not only for getting into university but also getting on at university.

- Third, we need to continue to effectively measure and evaluate the impact of meta-skills, such as general critical thinking, and understand if and how our programmes are contributing to these wider set of skills.
- Finally, and most importantly, moving into our next strategy we will continue to ensure that robust research and evaluation stays at the core of what we do as a charity. This trial, along with the wide-ranging evidence that we have gathered over the past five years, has put us in a strong position to continue to grow our approaches to evaluation both within our own programmes, but also expanding this work to support the sector's evaluation needs and priorities.

**Acknowledgements:** We would like to thank the participating schools, teachers and pupils for their support with this trial, as well as Drs Sonia Ilie and Ashton Brown for all of their work in conducting this external evaluation on behalf of The Brilliant Club. We would be pleased to share further insight with anyone interested in learning more about our approach. Please contact Dr Lauren Bellaera: [hello@thebrilliantclub.org](mailto:hello@thebrilliantclub.org), for more information.

## References

Ennis, R., & Weir, E. (1985). *The Ennis-Weir Critical Thinking Essay Test*. Pacific Grove, CA: Critical Thinking Press and Software.

Reay, D., Crozier, G., & Clayton, J. (2009). 'Strangers in paradise'? Working-class students in elite universities. *Sociology*, 43, 1103-1121.

Wright, S. L., Jenkins-Guarnieri, M. A., & Murdock, J. L. (2013). Career development among first-year college students: College self-efficacy, student persistence, and academic success. *Journal of Career Development*, 40, 292-310.

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