

I began my Laidlaw Research Project with the aim of both investigating the fairness of the Irish predicted grades system introduced in the pandemic, and exploring the relationship between teacher-assigned grades, socio-economic status, and personality traits. However, throughout the project I learned much more about research, leadership, and project management than I had ever expected. This reflection will outline the basis and results of my research and discuss what I learned from the experience and how I plan to develop as a leader in the future.

Literature Review and Research Question

The research investigated how personality traits might be important for understanding the persistence of educational inequality. It contributes to the literature on 'cultural capital', a concept introduced by sociologist Pierre Bourdieu (1973) to explain persistent educational inequality.

Cultural capital is a collection of mannerisms, cultural tastes, and strategies of interactions with educators which is associated with high status backgrounds and is rewarded by the education system (Lamont and Lareau 1988). In the same way that the children of high socio-economic status (SES) families inherit more money than their peers from less well-off backgrounds, thereby creating intergenerational inequality, Bourdieu thought that these high SES families might also possess and transmit 'cultural capital' to their children, thereby creating inequality in education.

There are two key issues which researchers must investigate in order to understand the role of cultural capital in educational inequality. First, the specific traits and behaviours which make up cultural capital vary between contexts and over time. Cultural capital is not defined as any specific trait or behaviour. Instead, any trait or behaviour which is associated with a high SES background and is rewarded by the education system may be considered cultural capital (Lamont and Lareau 1988). Therefore, we must first identify what counts as cultural capital. Secondly, the definition of cultural capital does not specify how these traits or behaviours lead to better educational outcomes. In order to show that cultural capital is important for educational inequality, we must investigate the mechanisms through which it actually improves grades.

This research contributes to the literature on both of these issues. It builds on work by Kaiser and Schneickert (2016), who showed that children from a high SES background were more likely to have certain personality traits (pathway a_1), and these traits led to higher grades (pathway a_2). Here we can say that personality traits 'mediate' the relationship between SES and high grades. These traits may therefore be considered elements of cultural capital. However, they did not provide a mechanism through which personality traits might affect grades. This research investigated whether

the ‘teacher selection’ mechanism, as specified by (Wildhagen 2009), could explain this association. The teacher selection mechanism proposes that teachers have better relationships with students who have high cultural capital. This leads to these students receiving more attention from the teacher, feeling more engaged in class, and eventually, achieving better grades. Perhaps personality traits lead to better grades in this way – if teachers have more positive evaluations of the abilities of students with high SES personality characteristics, then they might overestimate the grades of these students.

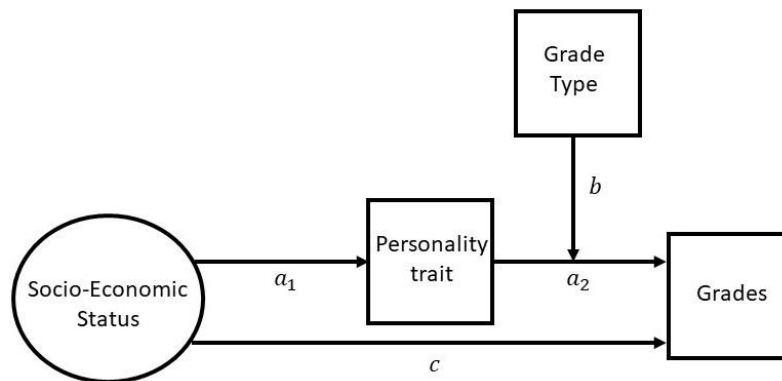


Figure 1: Each arrow represents a causal link between two variables. Pathway c represents the effect of SES on grades that isn't mediated through personality traits.

The temporary introduction of predicted grades in place of the traditional anonymously marked and standardised Leaving Certificate exams presented an ideal opportunity to test this hypothesis. Predicted grades were mostly based on teacher judgements, meaning that the effect of teachers' perceptions and biases should be stronger than under anonymously marked exams. The mediation of SES advantage on grades through personality traits should be stronger under predicted grades than under exams. This kind of relationship is called moderated mediation, where grade type 'moderates' the strength of the mediation relationship. It is represented by pathway b . If this hypothesis were confirmed, then the personality trait in question could be considered an element of cultural capital and evidence of the teacher selection mechanism. It would also have serious implications for the evaluation of grading systems which rely on personal judgements from teachers.

Hypotheses:

- a) Certain personality traits mediate the relationship between SES and higher grades
- b) This mediation is moderated by assessment type, i.e. it is stronger under teacher-assessment than under anonymous exams

Methods

Data were collected through a survey ($n = 99$) of people who took higher level English, Irish, and Mathematics at Leaving Certificate level between June 2016 and June 2021. As there is no available sampling frame of past Leaving Certificate students, the survey was promoted on social media and respondents answered through an online platform. To incentivise participation, eight €25 One4All vouchers were randomly distributed to participants.

Results

The small sample size and unrepresentative sampling method mean that the results cannot be generalised to the wider population. Instead, this research tests the viability of the hypothesis and provides guidance on the inclusion of personality questions in future large-scale studies. The results should therefore be interpreted as exploratory in nature.

I ran five different models using structural equation modelling, each testing a different personality trait. None of the models showed an acceptable level of fit, and several tests resulted in warning or error messages. This suggests that 'empirical under-identification' occurred, meaning the sample size was too small to accurately test the model. This research can neither support nor reject the hypothesis. I then ran a series of linear regressions, investigating the relationships between each personality trait, subject, and grade type. This yielded one significant result – grades in English were more strongly predicted by the trait 'intellect/openness to experience' when they were assessed by teachers compared to when they were assessed through examination. After applying a Bonferroni correction to account for the number of tests which were carried out, the result was significant at $p < 0.05$.

There are a number of possible explanations for this. It is possible that English teachers of the students in the sample systematically overestimated the grades of students who exhibit high intellect/openness to experience. This would mean that teacher-assessed grading may result in different outcomes for students with certain personality characteristics compared to traditional examinations. This may form the basis for the inclusion of personality instruments on future large-scale studies of teacher-assessed grading. However, this explanation rests on several assumptions, each of which should be investigated in future research.

First, the fact that the result was only found in English might reflect a lack of objective evidence for teachers to base their estimations on, which may not be the case in Irish or mathematics. Compared

to mathematics, which has a rigorous and well-defined marking scheme, and Irish, where students are more likely to make basic grammatical and spelling errors, grading in English may rely more heavily on subjective judgements by the teacher. These judgements may then be more likely to be influenced by unconscious biases towards students who display more desirable personality characteristics.

Secondly, intellect/openness to experience is associated with imagination, creativity, and curiosity (McCrae and Costa Jr. 2008). These traits may be rewarded more heavily in English, which includes a creative writing component and rewards students for the aesthetic quality of their work, compared to Irish and mathematics¹. Hence this trait may be seen as more desirable by English teachers. However, this research suggests that teachers overestimate its role in predicting achievement.

Of course, there are other possible explanations for this result. The result may have been accidental and may not be replicated in a larger study. Also, because the sample is not representative, generalisations to the wider population cannot be made. Also, students usually receive grades in seven or eight subjects at either ordinary or higher level for their Leaving Certificate. This study only considered the three mandatory subjects, and only at higher level. A larger study could investigate effects across all subjects and both levels to provide a fuller picture.

Limitations aside, this result is interesting both for the development of theory and education policy. While the data cannot support the more ambitious model I had originally proposed, the results regarding English grades and intellect/openness to experience provide support for future investigation of personality questions in large-scale studies.

Reflection

I want to work as a researcher in sociology, so the opportunity to carry out a self-directed research project over the summer was something I was very excited for. Before I began the project, I knew that research requires knowledge and skills that can only be learned through practice. However, I didn't realise just how important and instructive practical experience is in research.

The time I spent on learning about and applying statistical techniques represents both the greatest success and greatest challenge of the project. The familiarity I now have with structural equation

¹ While the Irish exam includes similar elements, a greater proportion of marks is awarded based on correct grammar, syntax and spelling than in English. This may lead to more objective marking practices in Irish compared to English.

modelling and statistics in general will be a great asset as I progress in college and in my career. I have noticed that I now have a much better understanding of the data and methods sections of academic papers – in fact, when I began re-reading papers while writing the literature review above, I was surprised at how much more I understood compared to the first time I read these papers. I also found this section of the research the most enjoyable part. While constructing and distributing the survey was a tedious and time-consuming task, I found that I could have spent many more weeks learning about and applying statistical methods. The highlight of my experience this summer was finally specifying the SEM model and writing the code to test it. While I had first expressed the idea behind the model in January, at that time I wouldn't have known where to start with stating it formally and testing it. Developing the ability to express and test a model in this way has certainly been the most rewarding aspect of this project.

While developing familiarity with statistical techniques was the highlight of my research, it was also quite challenging and took much more time and effort than I had anticipated. I knew that analysis was the most likely source of a delay in my project, but I had assumed that once I figured out what the correct technique was, it would be straightforward to apply this to the data and find my results. Unfortunately, I was completely wrong! I quickly learned that there is no consensus on almost anything in statistical methods for the social sciences. I also found much of the literature on SEM hard to navigate because of my lack of familiarity with the terminology – often I would find a paper that seemed to answer my question, and it would turn out to be incomprehensible to someone without a background in the field. I spent around three weeks deciding on how to proceed with the analysis. This portion of my research project lasted a week longer than I had anticipated. However, I felt that the experience and knowledge I gained was worth the extra time it took.

Although I carried out this project by myself, the experience has also taught me valuable lessons on leadership and teamwork. I now have a better understanding of the skills that I must develop to lead successful projects in the future. I set very ambitious expectations for the project, especially given the timeframe and resources that were available to me. At times I was too thorough in my work – when I should have moved on to the next stage of the project, I instead tried to perfect the work that I was currently doing. I had also failed to take proper account of my lack of experience of research. In hindsight, I would have still tested the SEM model, but I would have expanded the scope of the project to include less complex research questions from the start. This may have helped me to spend less time on the SEM model once it became apparent that it was unlikely to work.

I also learned how important peer support and teamwork is when leading a project. Dr Hadfield invited me to attend her weekly lab meetings where PhD students under her supervision discuss

their research and offer advice to each other. Although I was not working directly with the PhD students at these meetings, I found it very helpful to hear from and work alongside people who are also carrying out research. This was especially helpful for me as I plan to enter postgraduate study after college. Being able to talk to and learn from people who are doing the work which I want to do was a very valuable experience. It also helped to keep me accountable for my project timeline and motivated me to complete my research to the highest standard possible.

This research project has been an exceptionally rewarding experience for me. Not only has it provided me with experience of carrying out research in the social sciences, but it has also allowed me to contribute to the literature on educational inequality and develop skills which will be essential to taking on leadership roles in the future. I'm now looking to the next stage of my Laidlaw scholarship with great excitement and anticipation!

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