



Conscientiousness and procrastination predict academic coursework marks rather than examination performance



Peter E. Morris^{a,b,*}, Catherine O. Fritz^b

^a Department of Psychology, Lancaster University, UK

^b Psychology Division, University of Northampton, UK

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ABSTRACT

Past research has reported a consistent but small relationship (e.g. $r = .23$) between conscientiousness and university academic performance. However, in almost all cases the nature of the academic work has not been divided into the major elements of coursework and examination performance. We examined the relationships between conscientiousness and procrastination and the coursework and examination performance of psychology students in their second and third year modules. Both conscientiousness ($r = .45$) and procrastination ($r = -.39$) were significant predictors of overall coursework marks and significantly predicted coursework marks for all but one of the individual modules. Correlations with examination marks were smaller and less consistent. Regression analysis showed that conscientiousness was the more dominant predictor than procrastination. These results extend the literature relating conscientiousness to academic performance, demonstrating that the relationship is stronger with coursework than with exams.

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1. Introduction

The relationship between personality and academic performance has interested many researchers (see [Furnham, Nuygards, & Chamorro-Premuzic, 2013](#), and [Poropat, 2009](#) for reviews). We set out to extend this research, hypothesizing that the performance of university psychology students in their coursework would be better predicted by conscientiousness and procrastination than would their performance in their examinations.

Conscientiousness has consistently been the leading personality predictor of academic performance (e.g. [Furnham et al., 2013](#); [Poropat, 2009](#)). [Poropat \(2009\)](#) carried out a meta-analysis of studies of the five-factor model of personality ([Costa & McCrae, 1992](#); [Goldberg et al., 2006](#)) and those factors' prediction of academic performance. [Poropat's](#) review drew upon 80 research reports and aggregated sample sizes that ranged from 58,522 for correlations with agreeableness to 70,926 for correlations with conscientiousness. He found correlations with academic performance, estimated from these very large samples, of .19 for conscientiousness, .10 for openness, .07 for agreeableness, .01 for stability and $-.01$ for extraversion. For his tertiary education subsample of 32,887 participants, [Poropat](#) found a sample weighted correlation corrected for scale reliability of .23 between conscientiousness and academic performance. Conscientiousness was as successful a predictor as was intelligence for tertiary level academic performance ([Poropat,](#)

[2009](#)). In a similar meta-analysis of the Eysenck Personality Questionnaire (EPQ), [Poropat \(2011\)](#) found correlations with academic performance of $-.06$ with psychoticism (attributed to the correlation between psychoticism and conscientiousness), of $-.06$ with neuroticism, and .02 with extraversion. The main outcome of [Poropat's](#) meta-analyses was to highlight the importance of conscientiousness as the leading personality dimension for predicting academic performance.

Various researchers have explored aspects of conscientiousness in some detail. For example, [MacCann, Duckworth, and Roberts \(2009\)](#) have examined empirically various facets of conscientiousness. [Biderman, Nguyen, and Sebren \(2008\)](#) studied how time-on-task mediates the conscientiousness–performance relationship; [Lubbers, Van Der Werf, Kuyper, and Hendriks \(2010\)](#) explored how “homework behavior” mediates the relationship of conscientiousness and academic performance by secondary school children; and [Reiter-Palmon, Illies, and Kobe-Cross \(2009\)](#) have argued that conscientiousness is not always a good predictor of performance, especially creative performance. However, [Friedman and Kern \(2014\)](#) comment on the wide-ranging benefits of conscientiousness, concluding that the conscientious “stay healthier, thrive and live longer” (p. 731).

Most studies of academic performance have used overall Grade Point Averages (GPAs) as the measure of academic achievement and have not differentiated between coursework performance and examination assessment. However, the personal self-management required for completing coursework assignments that are often spread across an academic year and involve essay writing and other effortful and time-consuming commitment, may, plausibly, rely more on conscientiousness than does preparation for examinations at the end of a year

* Corresponding author at: Psychology, School of Social Sciences, Park Campus, Boughton Green Road, Northampton NN2 7AL, UK. Tel.: +44 1604 240983.

E-mail address: p.morris@lancaster.ac.uk (P.E. Morris).

or semester. A similar argument has been made by Duckworth, Quinn, and Tsukayama (2012) on the roles of IQ and self-control in predicting standardized achievement test scores and report card grades of school children. Their research found that intelligence predicted performance on standardized tests but that the ongoing level of student performance, as recorded in their report cards, was best predicted by measures of self-control that will be related to conscientiousness.

Examination and coursework performance were addressed separately by Furnham et al. (2013); they analyzed the relationship between these separate measures of academic performance and the big five personality variables. They recruited a sample of 1013 university students from four British universities across four faculties (arts/humanities, social science, life/biological sciences and mathematical sciences). For conscientiousness, they found significant correlations of .15 and .13 with coursework and examination grades respectively, suggesting that the relationship between conscientiousness and coursework performance may be only very slightly stronger than with exam performance.

There are, however, aspects of the Furnham et al. (2013) study that suggest that further investigation would be worthwhile. Furnham et al. combined together many different disciplines, and the nature of coursework differs between disciplines. Discipline specific research may be justified. Also, Furnham et al. used self-reports of academic performance. Kuncel, Crede, and Thomas (2005), concluded from their meta-analytic review of research involving self-reports of grades that such grades are less construct valid than many scholars believe and should be used with caution. It would, therefore, be desirable to have the actual results for analysis, particularly because it is reasonable to suppose that students who are more conscientious will be more accurate in their reports than less conscientious students. Finally, Furnham et al. used only three self-report questions when assessing each of the personality dimensions, and the coefficient alphas for agreeableness (.54) and for conscientiousness (.61) were lower than the .7 that is usually recommended as the acceptable threshold for psychometric tests internal reliability, with .8 or higher being preferred (e.g. Carmines & Zeller, 1994; Maltby, Day, & Macaskill, 2010). Because the alpha for the exams (.64) and the coursework (.60) measures were also low the possible correlations between the measures and the personality dimensions will have been attenuated by their relatively low reliabilities (Carmines & Zeller, 1994; Spearman, 1904).

Coursework, at least in British Psychology degrees, often involves a literature search for the assigned topic to produce an essay, literature review, critical review or other analysis related to that topic; this written work is often between 2000 and 3000 words long. For research methods and some other modules, coursework may require designing, conducting and/or analyzing a small study as well as reporting it following APA guidelines. For statistics and other modules, coursework may involve answering questions about the content, in a take-home test, an online test or a short test during class time. Coursework may be due at several points during the academic year, but is often due near the end of each term. Coursework assignments are designed to be most effectively addressed through incremental work over time. This work must be done during term time, when classes are regularly scheduled. The dissertation or research thesis is a special piece of coursework, usually up to 8000 or 10,000 words, reporting the student's own empirical research during their final year, supported by a comprehensive literature review. The dissertation typically has few, if any, class meetings, relying on the student to work independently and to seek guidance from their supervisor as needed throughout the year.

Exams, on the other hand, in British Psychology degrees, are usually scheduled to take place at the end of the academic year, usually after the Easter break, when classes have ended. Students usually have 1–3 weeks for exam preparation after the term starts before their first exam is scheduled and exams are usually spread out so that students have at least a day or two between exams for further preparation. Exams are held under very controlled, supervised conditions. Each exam may take 2 h or

more and often requires students to choose two or more exam questions (usually not previously available) to answer at length in a well-developed essay; these may be accompanied by short answer and/or multiple choice questions.

Procrastination as a personality dimension correlates with conscientiousness and was, for example, treated as a facet of conscientiousness by MacCann et al. (2009). Steel (2007), in his meta-analysis of procrastination, combined 20 studies reporting correlations between procrastination and conscientiousness, finding a correlation of $-.62$, with a sample size of 4012. The size of this correlation suggests that although procrastination and conscientiousness are related, they are not identical constructs. Procrastination was, therefore, included in the present study with the prediction that students scoring high on procrastination would have poorer academic performance, and that procrastination would have a stronger relationship with coursework than with examination performance.

We used the student version of Lay's (1986) procrastination test. Ferrari (1992) proposed that there were three types of procrastination with Lay's General Procrastination Scale assessing primarily arousal procrastination, but Steel (2010) tested this idea with both a meta-analysis and a factor-analytic study and found no empirical support for a three-factor approach to understanding procrastination. Nevertheless, we considered the possibility of multiple factors, so in a preliminary analysis of the Lay test we factor analyzed data from 371 student respondents, collapsed across three years' of classes. The scree plot for this analysis indicated one very strong factor with little hint of further factors, so we used the full test in the main study. Although we have data for procrastination for three years we do not have access to the academic records of the students in the first two of those years, so the present paper had to be based upon the third year's data.

Our predictions were that both conscientiousness and procrastination would be related to students' overall academic performance. However, because conscientiousness and procrastination would be stronger discriminators of performance over the longer coursework preparation periods we specifically predicted stronger correlations with coursework performance than with examination performance. Under the shorter, more intense stress of preparation for an imminent examination, most students would engage in appropriate preparation and any influence of conscientiousness and procrastination would be weaker. We also examined whether there was a substantial relationship between procrastination and coursework performance when conscientiousness was statistically controlled, or whether predictions based solely upon conscientiousness tests would be sufficient, and we compared the general dominance weights of conscientiousness and procrastination using the technique recommended by LeBreton, Hargis, Griepentrog, Oswald, and Ployhart (2007).

2. Method

2.1. Participants

One hundred and seven second-year major Psychology students completed the International Personality Item Pool (IPIP, Goldberg et al., 2006) measure during their first workshop on the Personality & Individual Differences module; some weeks later the 71 of these who attended the class completed the procrastination scale. The second year and third year modules that made up the degree for the Psychology single major students were analyzed after the completion of the students' degrees in the following year. For 95 students we had data for both the IPIP and academic performance measures, with scores on the procrastination scale for 67 of those students. All students were sent a personal email asking for permission to use their data anonymously and promising to exclude the results of any student who so requested. No student asked for their data to be excluded.

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