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Associations between the wellbeing process and academic outcomes

ABSTRACT

Background:

The Student Wellbeing Process Questionnaire (Student WPQ) has been used to identify predictors of both positive and negative wellbeing. These variables can now be used to investigate whether different aspects of the wellbeing process are associated with academic outcomes.

Aims:

The wellbeing process involves established predictors such as exposure to stressors, negative coping, social support, positive personality, and conscientiousness. The wellbeing outcomes are positive (e.g. happiness, positive affect, and life satisfaction), and negative (e.g. stress, anxiety and depression). The aim was to examine associations between these variables and academic outcomes (Grade Point Average [GPA]; perceived efficiency; perceived course stress, and perceived workload).

Methodology:

The research described in this paper was carried out with the approval of the ethics committee, School of Psychology, Cardiff University, and the informed consent of the participants (1296 psychology undergraduates; 89.4% female; 49.7 % year 1; mean age 19.5 years). An online survey was carried out and this included the Student WPQ and academic outcomes. A MANOVA was conducted to examine associations between the wellbeing process variables and the academic outcomes.

Results:

The main factor associated with the academic outcomes was conscientiousness. Those in the high conscientiousness category had higher GPA scores, reported greater efficiency and higher course stress and workload. GPA scores were also associated with student stressors, with those in the high stress category having lower GPA scores. Greater efficiency was associated with higher scores for positive wellbeing and social support, and lower negative coping. Higher course stress was associated with higher scores for exposure to stressors, negative coping and negative wellbeing. Higher negative wellbeing was also associated with higher perceived workload.

Conclusion:

Conscientiousness is the best predictor of academic outcomes. Other components of the wellbeing process have selective effects of academic outcomes.

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Keywords: Well-being, DRIVE model, Student WPQ, Conscientiousness, Academic outcomes

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14 1. INTRODUCTION

15

16 Success at university is influenced by a plethora of different factors, and research has
17 shown that one of these factors is wellbeing. The majority of research that links wellbeing
18 to academic attainment focuses on specific aspects of wellbeing, as opposed to measuring
19 the entire concept. For example, Chamorro-Premuzic and Furnham [1] looked at how
20 personality (a wellbeing predictor) affects academic performance. They found that students
21 scoring high on neuroticism performed worse on five written exams, whilst those scoring
22 higher on conscientiousness received better grades. Conscientiousness, has been widely
23 reported to positively predict academic attainment of university students (Furnham,
24 Chamorro- Premuzic & McDougall [2]; Laidra et al. [3]). Komarraju, Karau, Schmeck and
25 Avdic, [4] found that these two personality traits, along with openness to experience,
26 extraversion and agreeableness influence academic achievement and in some cases, can
27 explain up to 14% of variance in grade point average (GPA). Other important personality
28 variables related to academic achievement are optimism and self-efficacy (Chemers, Hu &
29 Garcia [5]). With regards to self-efficacy, it has been found to be a critical predictor of
30 academic attainment (Putwain, Sander & Larivee [6]; Bembenutty [7]), with highly self-
31 efficacious students demonstrating more persistence and more time spent monitoring their
32 work (Bouffard, Parent & Larivee [8]). Other wellbeing researchers have looked at the
33 relationship between coping styles and GPA. The main consensus is that problem-focused
34 coping (tackling the cause of stress) is significantly correlated with higher academic
35 attainment and motivation, particularly when compared to emotion-focused coping i.e.
36 reducing the emotions associated with a particular stressor (Struthers, Perry, & Menec [9];
37 Halamandaris & Power [10]). Negative coping styles such as self-blame has also been
38 associated with poor academic performance (DeBerard, Glen & Deana [11]). Another main
39 area of wellbeing is social support. Cutrona et al. [12] found a significant correlation
40 between parental support and GPA, however no relationships were present when peer
41 support was measured.

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43 Evidence also supports an association between specific well-being outcomes and academic
44 attainment. In particular, poor academic attainment has been associated with perceived
45 stress (Fazio & Palm [13]; Leppink, Odlaug, Lust, Christenson & Grant [14]) and depression
46 due to its impact on cognitive function (Turner, Thompson, Huber & Arif [15]). Conversely,
47 high academic attainment has been directly associated with the specific well-being
48 outcome, life satisfaction (Chambel & Curral [16]). Low levels of life satisfaction and high
49 levels of distress have a direct influence on student performance and mediate the
50 association between academic work control and performance (Chambel & Curral, [16];
51 Cotton, Dollard & De Jonge [17]). Research has revealed a relationship between academic
52 attainment and the outcomes of wellbeing, namely the negative impact of both depression
53 (Haines, Norris & Kashy [18]; Andrews & Wilding [19]) and anxiety (Surtees, Wainwright &
54 Pharoah [20]; Eisenberg, Golberstein & Hunt [21]) on academic success. It should be noted,
55 however, that Hysenbegasi, Hass, and Rowland [22] found that this academic impairment is
56 only likely at moderate to severe levels of depression. While much research shows how
57 wellbeing can positively predict academic performance, little is known about whether

58 academic performance can boost wellbeing and thus, how time allocation to academic
59 studies could influence students' wellbeing. Quinn and Duckworth [23] looked at the
60 direction of causality between academic attainment and wellbeing and found that the
61 relationship is reciprocally causal. Such that not only did the wellbeing of students predict
62 their academic performance, the students who earned higher grades tended to experience
63 higher wellbeing.

64

65 Therefore, the established link between wellbeing and academic attainment is dependent
66 on how one measures wellbeing. The research supporting this association suggests that it
67 may be specific wellbeing outcomes that are predictive of academic attainment.
68 Alternatively, it has been argued that specific wellbeing outcomes are not the most useful
69 predictors of academic attainment (Richardson, Abraham & Bond, [24]). In addition, there
70 is variation in the results obtained with specific variables. For example, when the impact of
71 stress on academic performance has been explored, the majority of studies have found a
72 significant negative correlation between self-reported stress level and academic
73 achievement (Elias, Siew Ping, & Chong Abdullah [25]; Stewart, Lam, Betson, & Wong [26]).
74 However, there have been a few studies presenting the opposite findings (Siraj, et al. [27];
75 Kumari & Radhakanta [28]).

76

77 Features of studying have also shown to be important in determining academic attainment.
78 Past academic success is a good predictor of future attainment (Mckenzie & Schweitzer
79 [29]). Richardson, Bond, and Abraham [24] completed a meta-analysis from 241 datasets to
80 investigate predictor variables of GPA at university. From their UK data, a weak positive
81 correlation was found between A-level results and GPA. For example, McFadden and Dart's
82 [30] investigation reported that total study time positively influenced expected course
83 grades. Similarly, Pascarella and Terenzini [31] found that study habits significantly relate to
84 improved cumulative grade point average (GPA) in first year students, and Romer [32]
85 observed a strong positive correlation between students' class attendance and academic
86 performance. In contrast, an extensive study conducted by Schuman, Walsh, Olson and
87 Etheridge [33] identified that "at best [there is] only a very small relation between amount
88 of studying and grades" (p. 945). Likewise, Nonis and Hudson [34] found that the amount of
89 time spent studying had no direct influence on academic performance. One reason for this
90 conflicting evidence could be that the relationship between time allocated to studying and
91 academic attainment are usually investigated in the presence of other variables, e.g.
92 motivation, stress or anxiety. Another, simpler explanation is that the results of the
93 previous studies have not looked at all of student time use, but only that allocated to
94 lecture attendance and self- study. However, all student activities can affect academic
95 attainment and although time allocation is an area that students can control most, there
96 has been little investigation of the topic. It is also important to note that lecture attendance
97 and self-study may have independent contributions towards academic performance.
98 Dolton, Marcenaro and Navarro [35] found that both formal study (lecture attendance) and
99 self-study are significant determinants of exam scores, but the former was up to four times
100 more important than the latter, revealing the importance of investigating the contribution
101 of each factor to students' time allocation to study, rather than covering both terms under
102 one measure.

103

104 One problem that becomes apparent is that wellbeing seems to be a very difficult concept
105 to define, as it encompasses so many variables. Research on the wellbeing process has used
106 the Wellbeing Process Questionnaire (WPQ - Williams & Smith [36-39]; Williams,
107 Pendlebury & Smith [40]; Williams, Thomas & Smith [41]) and the Smith Wellbeing
108 Questionnaire (SWELL – Smith & Smith [42-44]; Fan & Smith [45-47]). These questionnaires
109 have also been used in research with students (Williams, Pendlebury, Thomas & Smith [48];
110 Alharbi & Smith [49]; Nor & Smith [50]). An important feature of these questionnaires is
111 that they use short scales which are correlated with scores from longer established
112 measures. These short scales have been shown to have good validity and reliability. They
113 have been widely used in cross-sectional research and also in longitudinal studies which
114 give a better indication of causality (Galvin [51]; Nelson [52]). The model of wellbeing has
115 been based on the Demands-Resources-Individual Effects (DRIVE) model (Mark & Smith
116 [53-57]). This approach required measurement of exposure to stressors, resources such as
117 control and support to help with such challenges, and individual differences in personality
118 and coping style. New variables can be added to the model which has led to the inclusion of
119 positive outcomes, such as positive affect, happiness and life satisfaction (Smith [58-59];
120 Smith & Wadsworth [60]; Smith et al. [61]; Wadsworth et al. [62]). These positive outcomes
121 are often regarded as the key components of wellbeing but our more holistic approach has
122 included both negative and positive characteristics (e.g. control, support and demands),
123 appraisals (life satisfaction and perceived stress), individual characteristics (e.g. negative
124 coping and positive personality) and outcomes (happiness, anxiety and depression). Other
125 variables that have recently been included in the model relate to work-life balance and
126 burnout (Omosehin & Smith [63]), psychological contract fulfilment (Ahmad et al. [64-65]),
127 culture (Capasso et al [66-68]; Zurlo et al. [69]) and training attitudes (Nor & Smith [70]).
128
129 The aim of the present research was to examine associations between the different
130 components of the wellbeing process and subjective (perceived efficiency, course stress
131 and workload) and objective academic outcomes (GPA).
132

133 **2. METHODOLOGY**

134
135 The study reported here was carried out with the approval of the ethics committee, School
136 of Psychology, Cardiff University, and the informed consent of the participants.
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138 **2.1.1 Participants**

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140 The participants were 1296 undergraduate psychology students in year 1 (49.7%) or 2 of
141 their course (89.4% female; mean age: 19.5 years, range 17-48 years). They were given
142 course credits for participating in the study.
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145 **2.1.2 Measures**

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147 The questionnaire was presented online using Qualtrics software. The survey consisted of
148 the Student WPQ [48] and the independent variables were:

- 149 • Year of study
- 150 • Conscientiousness
- 151 • Positive personality (self-esteem, self-efficacy and optimism)
- 152 • Exposure to stressors
- 153 • Negative coping styles
- 154 • Social support
- 155 • Positive wellbeing outcomes
- 156 • Negative wellbeing outcomes

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158 The dependent variables were:

- 159 • Grade point average (obtained from student records)
- 160 • Perceived efficiency of studying
- 161 • Perceived academic stress
- 162 • Perceived academic workload

163

164 **2.1.3 Statistical Plan**

165

166 The independent variables were dichotomized using a median split and these transformed
167 scores were the independent variables in a multi-variate analysis of variance. The academic
168 outcome measures were the dependent variables.

169

170 **3. RESULTS**

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172 **3.1.1 Effects of conscientiousness**

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174 The overall effect of conscientiousness was significant (Wilks' Lambda = 0.950, F=16.995, p
175 < 0.001, partial eta squared = 0.05). All of the individual variables showed a significant
176 effect of conscientiousness and the mean scores for high and low groups are shown in
177 Table 1. The high conscientiousness groups had higher GPA scores, reported greater
178 efficiency, but also reported higher course stress and workload.

179

180

181 **Table 1: Conscientiousness and academic outcomes (scores are the means and s.e.s;**
 182 **higher scores = greater efficiency, stress and workload)**
 183

	Low conscientiousness	High conscientiousness	Significance
GPA	62.39 (0.29)	64.81 (0.30)	F=32.32 p < 0.001
Work efficiency	5.64 (0.07)	6.32 (0.08)	F=38.64 p < 0.001
Course stress	6.97 (0.06)	7.20 (0.06)	F = 6.46 p < 0.05
Workload	7.18 (0.06)	7.47 (0.07)	F = 9.43 p < 0.005

184

185 **3.1.2 Selective effects of other components of the wellbeing process**

186

187 The only variable not associated with any of the academic outcomes was positive
 188 personality (self-esteem, self-efficacy and optimism). Higher positive wellbeing was
 189 associated with greater efficiency (Low positive wellbeing: mean = 5.73 s.e. = 0.09; high
 190 positive wellbeing: mean = 6.24 s.e. = 0.08 ; F = 16.43 p < 0.001). Higher social support
 191 was also associated with greater efficiency (Low social support: mean = 5.86 s.e. = 0.08;
 192 high social support: mean = 6.11 s.e. = 0.07; F = 5.39 p < 0.05). Greater negative
 193 wellbeing was associated with more course stress (Low negative wellbeing: mean = 6.68
 194 s.e. = 0.07; high negative wellbeing: mean = 7.49 s.e. = 0.07; F = 61.37 p < 0.001) and a
 195 perception of a higher workload (Low negative wellbeing: mean = 7.07 s.e. = 0.07; high
 196 negative wellbeing: mean = 7.59 s.e. = 0.07 ; F = 23.21 p < 0.001). Greater exposure to
 197 stressors was associated with lower GPA scores (Low stressors: mean = 64.25 s.e. = 0.29;
 198 high stressors: mean = 62.96 s.e. = 0.29; F = 9.33 p < 0.005) and more course stress (Low
 199 stressors: mean = 6.88 s.e. = 0.06; high stressors: mean = 7.29 s.e. = 0.06 ; F = 20.19 p
 200 < 0.001). More frequent use of negative coping was associated with lower efficiency (Low
 201 negative coping: mean = 6.24 s.e. = 0.08 ; high negative coping: mean = 5.73 s.e. = 0.07;
 202 F = 22.44 p < 0.001) and greater course stress (Low negative coping: mean = 6.93 s.e. =
 203 0.06 ; high negative coping: mean = 7.25 s.e. = 0.06 ; F = 13.53 p < 0.001). Finally,
 204 perception of course stress (Year 1: mean = 6.74 s.e. = 0.06; Year 2: mean = 7.44 s.e. =
 205 0.06; F = 71.11 p < 0.001) and workload (Year 1: mean = 6.98 s.e. = 0.06 ; Year 2: mean
 206 = 7.67 s.e. = 0.06; F = 63.22 p < 0.001) increased from year 1 to year 2.

207

208 **4 DISCUSSION**

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210 The results confirm that conscientiousness is the major predictor of academic outcomes.
 211 This replicates previous findings and has the added advantage that other components of
 212 the wellbeing process were statistically controlled. The only other variable associated with
 213 GPA scores was exposure to stressors, with high stress being associated with lower
 214 attainment. This again confirms previous results. Positive personality (self-efficacy, self-
 215 esteem and optimism) had no significant effect on any of the outcomes which suggests that

216 previous research on these variables and academic attainment may reflect correlated
217 attributes. Positive factors such as social support and the happiness, positive affect and life
218 satisfaction (positive outcomes) were associated with greater perceived efficiency of study
219 but not with perceptions of course stress or workload. In contrast, negative factors
220 (exposure to stressors, negative coping and negative outcomes) were associated with
221 perceptions of greater workload and course stress.

222

223 **5. LIMITATIONS**

224 A major limitation of this study was that it was cross-sectional, and further longitudinal
225 research is required to identify causal relationships. Another limitation is that the sample
226 consisted of first and second year psychology undergraduate students (mainly female).
227 Studying this homogenous sample had the advantage that they were doing similar courses.
228 However, research investigating heterogeneous samples with the present measuring
229 instruments is now required.

230

231 **6. CONCLUSION**

232

233 The literature reviewed in the introduction suggested that several components of the
234 wellbeing process are associated with academic outcomes. A multi-variate approach to this
235 topic confirmed that conscientiousness is the most important correlate of academic
236 outcomes. Other predictor variables had selective effects, with only exposure to stressors
237 influencing GPA scores. Positive factors (social support; positive wellbeing outcomes) were
238 associated with positive perceptions of academic efficiency, whereas negative factors
239 (stressors, negative coping and negative wellbeing outcomes) were associated with
240 perceptions of higher workload and stress.

241

242 **COMPETING INTERESTS**

243

244 Authors have declared that no competing interests exist.

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