Personality and Individual Differences 50 (2011) 426–429

Contents lists available at ScienceDirect

Personality and Individual Differences

journal homepage: www.elsevier.com/locate/paid

Short Communication

Perfectionism, efficiency, and response bias in proof-reading performance: Extension and replication

Joachim Stoeber *

School of Psychology, University of Kent, Canterbury, Kent CT2 7NP, United Kingdom

ARTICLE INFO

Article history:
Received 27 August 2010
Received in revised form 15 October 2010
Accepted 20 October 2010
Available online 12 November 2010

Keywords:
Perfectionism
Performance
Efficiency
Errors
Signal detection analysis
Bias

ABSTRACT

In an investigation of perfectionism and proof-reading performance differentiating between perfectionist strivings and perfectionist concerns, Stoeber and Eysenck (2008) found that only perfectionist strivings (but not perfectionist concerns) showed significant correlations with proof-reading performance: a negative correlation with efficiency (accuracy divided by time invested in the task) and a positive correlation with false alarms (incorrectly detected errors). The aim of the present study was to expand on Stoeber and Eysenck's study investigating 156 students using different measures of perfectionism and a different text for proof-reading. Results replicated Stoeber and Eysenck's main findings: Perfectionist strivings showed a negative correlation with efficiency and a positive correlation with false alarms. In addition, they showed a positive correlation with invested time and a negative correlation with response bias against reporting errors. In contrast, perfectionist concerns did not show any significant correlations with proof-reading performance. The findings corroborate the association between perfectionist strivings and reduced efficiency. Moreover, they further confirm the importance of (a) differentiating perfectionist strivings and perfectionist concerns, (b) using signal detection analysis, and (c) considering both absolute performance and relative performance (efficiency) when investigating the relationships of perfectionism with performance.

1. Introduction

Perfectionism is a personality disposition characterized by striving for flawlessness and setting exceedingly high standards for performance accompanied by tendencies for overly critical evaluations (Flett & Hewitt, 2002; Frost, Marten, Lahart, & Rosenblate, 1990). Moreover, perfectionism is a multidimensional characteristic. In particular, two dimensions of perfectionism need to be differentiated: Perfectionist strivings and perfectionist concerns (Stoeber & Otto, 2006). The first dimension—perfectionist strivings—captures those aspects of perfectionism associated with striving for perfection and setting exceedingly high standards for performance. The second dimension—perfectionist concerns—captures those aspects associated with concerns over making mistakes, fear of negative evaluations by others, and feelings of discrepancy between one's expectations and performance (see Stoeber & Otto, 2006, for a review).

The differentiation between the two dimensions is crucial because perfectionist concerns have been associated with negative characteristics, processes, and outcomes whereas perfectionist strivings have been associated with positive characteristics, processes, and outcomes (Hill, Huelsman, & Araujo, 2010; Stoeber & Otto, 2006). In particular, perfectionist strivings have been associated with higher levels of performance such as academic performance (see Stoeber & Otto, 2006), aptitude test performance (Stoeber & Kersting, 2007), and task performance (Stoeber, Chesterman, & Tarn, 2010). In contrast, perfectionist concerns have not shown any systematic negative associations with performance (Stoeber & Otto, 2006). Only in studies that measured perfectionist concerns using the Discrepancy scale of the revised Almost Perfect Scale (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001) did perfectionist concerns show consistent negative relationships with academic performance, indicating that different measures of perfectionism may show different relationships with performance.

Moreover, Stoeber and Eysenck (2008) recently demonstrated that it is important to consider not only absolute performance, but also relative performance (or *efficiency*) taking into account the effort invested to achieve a certain level of absolute performance. To demonstrate their point, they investigated perfectionism and proof-reading performance taking invested time (time to complete the task) as an indicator of invested effort. To measure the two dimensions of perfectionism, they used two scales from the APS-R: the High Standards scale to measure perfectionist strivings and the Discrepancy scale to measure perfectionist concerns. In terms of proof-reading, overall performance was measured using signal detection analysis, and efficiency was then calculated by dividing performance by time taken to complete the task.

* Tel.: +44 1227 824196.
E-mail address: J.Stoeber@kent.ac.uk

0191-8869/$ - see front matter © 2010 Elsevier Ltd. All rights reserved.
doi:10.1016/j.paid.2010.10.021

Perfectionist strivings showed a negative correlation with efficiency, suggesting that individuals high in perfectionist strivings are less efficient (cf. Ishida, 2005). Moreover, perfectionist strivings showed a positive correlation with false alarms (incorrectly detected errors), suggesting that individuals high in perfectionist strivings have a tendency to report errors even when all is correct. In contrast, perfectionist concerns did not show any significant bivariate correlations with proof-reading performance. However, when partial correlations were computed partialling out the influence of perfectionist strivings, perfectionist concerns showed a significant negative correlation with the number of hits (correctly detected errors) and a significant positive correlation with response bias against reporting errors.

Stoeber and Eysenck (2008) were the first to investigate perfectionism and efficiency using time to determine effort and employing signal detection analysis to determine overall performance. Consequently, it would be important to replicate their findings, particularly because their sample was not particularly large ($N = 96$) and the significant partial correlations of perfectionist concerns were not predicted. Moreover, it is unclear if their findings would generalize to other measures of perfectionist strivings and perfectionist concerns and to other proof-reading texts. Consequently, the aim of the present study was to expand on Stoeber and Eysenck's findings using a larger sample, different measures of perfectionism, and a different text.

2. Method

2.1. Participants and procedure

Participants were 156 first-year undergraduate students (28 male, 128 female) studying psychology at a British university. Mean age was 19.6 years ($SD = 3.9$; range = 18–47 years). Students were tested in groups of 34–50 students in the computer lab. First, they completed the perfectionism measures. Then they received written instructions for the proof-reading task and, after reading them, started the task. The task was computer-administered: a computer program recorded students' answers and measured the time students took to complete the task.

2.2. Measures

2.2.1. Perfectionism

To measure perfectionism, two scales were used: the 5-item Striving for Perfection scale (Stoeber & Rambow, 2007) to measure perfectionist strivings (e.g., "I strive to be as perfect as possible"), and the 9-item Concern Over Mistakes scale (Frost et al., 1990) to measure perfectionist concerns (e.g., "People will probably think less of me if I make a mistake"). Both scales have been shown to be reliable indicators of the two dimensions of perfectionism (e.g., Stoeber, Stoll, Salmi, & Tiikkaja, 2009), and the scales' scores showed high reliability (Cronbach's alphas): .91 (striving for perfection) and .87 (concern over mistakes).

2.2.2. Proof-reading performance

To measure proof-reading performance, the same task as in Stoeber and Eysenck (2008) was used. Again, the text required students to find three types of errors: spelling, grammar, and APA format errors (see Stoeber & Eysenck, 2008, for details). However, a different and longer text containing more errors was used. Whereas Stoeber and Eysenck used a text from a journal article on taste potentiation in mice (Davis, Bailey, Becker, & Grover, 1990) comprising 107 lines (1126 words, 6073 characters) and containing 30 errors (11 spelling, 9 grammar, 10 APA format errors), the present study used a text from a journal article on heat and hostility in humans (Dubitsky, Weber, & Rotton, 1993) comprising 182 lines (1979 words, 10,388 characters) and containing 50 errors (20 spelling, 14 grammar, 16 APA format errors).

The text was presented on a computer screen as running text with one line of text highlighted. At the end of the highlighted line, students found three tick-boxes labeled "S" for spelling error, "G" for grammar error, and "A" for APA format error. Students were instructed to tick the respective box if they found an error in spelling, grammar, or APA format. Further they were instructed that a line of text could contain more than one type of error (e.g., a spelling error and an APA format error) in which case they had to tick all respective boxes (e.g., "S" and "A"). After finishing proof-reading a line, students clicked on a button labeled "Next" to move to the next line of text. Students were instructed to work at their own pace, and they had 50 min to complete the task which was sufficient for all students (see Table 1, Time, Max).

2.3. Preliminary analyses

Following Stoeber and Eysenck (2008), a signal detection analysis was performed to differentiate accuracy and response bias. First, the number of hits (correctly detected errors) and the number of false alarms (incorrectly detected errors) were determined. Second, hit rates and false alarm rates were computed adding 0.5 to the nominator and 1 to the denominator to avoid division by zero:

Table 1
Descriptive statistics and bivariate correlations.

					Correlation						
Variable	*M*	*SD*	Min	Max	1	2	3	4	5	6	7
Perfectionism											
1. Perfectionist strivings	4.28	1.32	1.00	7.00							
2. Perfectionist concerns	3.27	1.05	1.11	6.22	.56***						
Proof-reading performance											
3. Time	21.52	5.35	11.42	40.21	.23**	.14					
4. Hits	23.37	7.22	5	41	.12	.04	.42***				
5. False alarms[a]	25.78	29.26	0	251	.21**	.14	.25**	−.02			
6. Accuracy	1.66	0.58	0.03	3.09	−.04	−.03	.11	.73***	−.61***		
7. Response bias	0.92	0.26	−0.03	1.64	−.21**	−.08	−.49***	−.66***	−.64***	.03	
8. Efficiency	1.47	0.61	0.19	3.80	−.21*	−.15	−.71***	.07	−.50***	.48***	.42***

Note: $N = 152$. Perfectionism scores are mean scores (see *Measures*). Time = time (in minutes) taken to complete the proof-reading task. Response bias = bias against reporting errors. Efficiency = accuracy′/time′ (see Section 2.3). Min = minimum, Max = maximum.

* $p < .05$, two-tailed.

** $p < .01$, two-tailed.

*** $p < .001$, two-tailed.

[a] Note that, because each of the 182 lines of text may contain three errors (a spelling, a grammar, and an APA style error), the theoretical maximum for false alarms is $3 \times 182 = 546$.