



Procrastination and the five-factor model: a facet level analysis

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Abstract

Procrastination has been viewed both as a single trait dimension and as a complex trait composed of several component antecedents. The aim of this study was to investigate some of the antecedents of procrastination (fear of failure, aversiveness of task, risk taking, rebellion against control, dependency, and difficulty making decisions) in terms of the five factors of personality (Neuroticism, Extraversion, Agreeableness, Openness and Conscientiousness). The participants consisted of 349 university students who completed the Revised NEO Personality Inventory and the Procrastination Assessment Scale for students. Total procrastination was related to both the low conscientiousness facets (competence, order, dutifulness, achievement striving, self-discipline, deliberation) and the neuroticism facets (anxiety, depression, self-consciousness, impulsiveness, vulnerability). When the procrastination antecedents were considered, task aversiveness had a strong relationship to both low conscientiousness and neuroticism. Fear of failure, difficulty making decisions, and dependency had a smaller relationship to several of the conscientiousness and neuroticism facets. In addition, risk-taking was negatively related to agreeableness and the fantasy facet of openness to experience was related to total procrastination. © 2000 Elsevier Science Ltd. All rights reserved.

1. Introduction

Procrastination is a complex phenomenon with cognitive, affective and behavioral components (Rothblum, Solomon & Murakami, 1986). According to Solomon and Rothblum (1984), academic procrastination involves the experience of anxiety due to persistent delay on academic tasks. Other authors such as Lay and Silverman (1996) emphasize that dejection rather than anxiety is the key motivator for procrastination. Johnson and Bloom (1995) have pointed out that procrastination has been investigated along two different lines of research, the first relating procrastination to past performance and goal completion, the second line looking at the relationship between personality factors and procrastination.

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Procrastination has been related to two of the major models in personality: the three factor model: extraversion, psychoticism, and neuroticism (Eysenck & Eysenck, 1985) and the five-factor model: neuroticism, extraversion, openness, conscientiousness and agreeableness (Costa & McCrae, 1992). With the three factor model, McCown, Petzel and Rupert (1987) found a linear relationship between procrastination and extraversion, and a curvilinear relationship between procrastination and neuroticism, the low and high neuroticism people having higher procrastination scores.

With the five-factor model, procrastination has been related to low conscientiousness and neuroticism. Recent investigations have applied Costa and McCrae's (1992) facets of the five-factor model to academic procrastination. According to Costa and McCrae (1992), conscientiousness is composed of the facets: competence, order, dutifulness, achievement striving, self-discipline, and deliberation. The neuroticism factor contains: anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability. Lay, Kovacs and Danto (1998) found a relationship between low conscientiousness and procrastination in school children age 7–11 years, indicating that procrastination may be a pattern established early on in an individual's academic career. With young adults, Johnson and Bloom (1995) performed a facet level analysis on the relationship between neuroticism, conscientiousness and procrastination. All the conscientiousness facets were inversely related to procrastination with self-discipline being the strongest predictor. The relationship to neuroticism was much weaker, with impulsiveness and vulnerability being the strongest facet predictors of procrastination. Schouwenberg and Lay (1995) analyzed trait procrastination in terms of the complete set of five-factor facets and found similar results. Exceptions to this were a negative relationship to the activity facet of extraversion and a positive correlation with the fantasy facet of openness to experience. In another study, McCown and Johnson (1991) also found that neuroticism was related to total procrastination scores along with measures of lack of confidence in preparedness, anxiety and was inversely related to total hours studying.

A limitation of previous five-factor investigations in this area is that procrastination has been measured in terms of a single global scale. Procrastination occurs in different areas of academic activity and is likely to have a set of factors. These components of procrastination may have different relationships to the dimensions and facets of the five-factor model. A more detailed analysis may reveal more of the underlying structure of procrastination than a single global measure might indicate. The purpose of this study is to relate the five-factor facets to total procrastination scores along with the factors of procrastination. In addition, as age is likely to be a consideration, a sample of older subjects will be compared with the younger participants. While overall procrastination may be a life-long pattern, examination of the dimensions of procrastination may reveal age related differences.

2. Method

2.1. Participants and procedure

The data were collected from university and college students in exchange for course credit. Complete data sets were obtained from 349 participants (women, 256; men, 86; unknown gender, 7)

The subjects ranged in age from 18 to 53 years with a mean age of 21.98 and SD of 5.16. All responses were anonymous and confidential.

2.2. *Test instruments*

The procrastination assessment scale for students (Solomon & Rothblum, 1984) is a 44-item scale designed to measure the prevalence of procrastination in six domains: term papers, studying for exams, reading assignments, administrative tasks, attending meetings, and academic tasks in general. The test uses a 5-point Likert scale and participants are asked to rate the degree to which they procrastinate on a task and the degree to which procrastination presents a problem for them on that particular task. A total procrastination score is obtained by summing the first two questions of each of the six areas. The instrument also has 26 items assessing seven dimensions of procrastination: aversiveness of task, fear of failure, difficulty making decisions, dependency, lack of assertion, risk taking, rebellion against control.

Revised NEO Personality Inventory (NEO-PI-R) (Costa & McCrae, 1992) is a 240 item set of self-statements that assess the five dimensions of personality along with six facet scales for each factor. This is an instrument with well-established reliability and validity (Costa & McCrae, 1992). In order to facilitate comparisons with the Schouwenberg and Lay (1995) study involving the NEO-PI-R and trait procrastination, the conscientiousness scale was also scored with one item removed from the achievement-striving facet and four items removed from the self-discipline facet. This alternative scoring was done to eliminate items with obvious procrastination content, which could artificially inflate obtained relationships between variables.

3. Results

Means and SDs for the PASS are presented in Table 1. No gender differences were noted. With respect to age comparisons, a sample of 50 older (25–53 years) participants (32 females, 18 males), with a mean age of $M = 31.9$, $SD = 7.2$ was compared to the 18–24 year old component of the sample. The older students had lower scores on task aversiveness, rebellion, and dependency. Cronbach's alpha's for the PASS scales, ranged from difficulty making decisions 0.581 to fear of failure 0.827. In addition, the older respondents had significantly lower scores on the reading assignment domain, $M = 6.46$, $SD = 1.82$, compared to $M = 7.28$, $SD = 1.81$ for the 18–24 year old students, $F(1,323) = 8.24$, $P < 0.01$.

As factor solutions can vary from sample to sample, analysis of principal components was performed on the procrastination antecedents (items 19–44) of the PASS. The analysis revealed a six-factor solution rather than the Solomon and Rothblum (1984) seven-factor solution. The varimax rotated solution accounted for 61.02% of the variance: factor 1 (fear of failure) 14.73%, factor 2 (aversiveness of task) 11.67%, factor 3 (difficulty making decisions) 10.95%, factor 4 (rebellion against control) 9.04%, factor 5 (risk taking) 7.76% and factor 6 (dependency) 6.82%. Overall, this solution was very similar to that of Solomon and Rothblum (1984). However, the 'lack of assertion' and the 'difficulty making decision' items loaded on a single factor three. Also, factor 6 and factor 4 had three items that clearly loaded onto these factors, which was not the case with the Solomon and Rothblum (1984) solution. Factor 6 had an additional item, number

Table 1

Means and SDs for the procrastination assessment scale for students^a

	Cronbach's α	18–24 years, mean (SD)	25+ years, mean (SD)
Total	0.827	34.78 (7.20)	33.30 (5.91)
Fear of failure	0.862	10.88 (4.79)	12.04 (5.51)
Aversive	0.768	15.89 (4.56)	13.65 (3.82)*
Risk-taking	0.874	3.51 (1.98)	3.72 (2.27)
Assertion	0.626	4.08 (1.79)	3.86 (2.08)
Difficulty	0.581	8.24 (2.49)	8.24 (2.36)
Diff./assert. (F3)	0.688	11.48 (3.44)	10.86 (3.30)
Rebellion	0.744	3.22 (1.70)	2.74 (1.74)**
Rebellion (F4)	0.749	6.07 (2.59)	5.24 (1.92)**
Dependence	0.597	6.95 (2.54)	5.74 (2.11)**
Depend. (F6)	0.608	10.98 (3.04)	9.22 (2.71)**

^a Note: ** $P < 0.01$, * $P < 0.05$, significant age group comparison. Aversive., aversiveness of task; assertion, lack of assertion; difficulty, difficulty making decisions; diff/assert., difficulty making decisions/lack of assertion; rebellion, rebellion against control.

22 ('had too many other things to do') which loaded 0.622. Factor 4 had two items, number 40 ('concerned that if you did well, your classmates would resent you') which loaded 0.718, and item number 32 ('were concerned that if you got a good grade, people would have higher expectations of you in the future') which loaded 0.790.

Stepwise multiple regression was performed with the Neo-PI factors as predictors and the total procrastination as the criterion. Conscientiousness accounted for 24.8 % of the variance and neuroticism accounted for 9.9%, for a total of 34.7% of the variance in total procrastination scores. This result contrasts with the 1% for neuroticism obtained by Schouwenberg and Lay (1995). In a second regression analysis, the 30 NEO-PI-R facets were used as predictors of total procrastination. Stepwise analysis produced a solution accounting for 37.7% of the variance with (C5) self-discipline (23.8%), (N4) self-consciousness (6.8%), (C1) competence (2.9%), (N5) impulsiveness (2.1%), and (O1) fantasy (1.3%) predicting total procrastination scores.

Table 2 shows the correlations between the NEO-PI-R domain and facet scales and the scales of the PASS. The PASS scales were scored according to the current factor analysis, with lack of assertion and difficulty making decisions combined on scale 3 and two items added to the rebellion scale and one item added to the dependency scale.

With total procrastination, extraversion correlated negatively $R = -0.21$. This is similar to the result obtained by McCown and Johnson (1991) of $R = -0.29$. There was no relationship between extraversion and the six PASS scales. However, the extraversion facets, assertiveness and warmth, were negatively related to total procrastination. The $R = -0.28$ for assertiveness is significantly larger than the $R = -0.13$, $Z = 2.07$, $P < 0.05$ obtained by Schouwenberg and Lay (1995). Assertiveness was also inversely related to difficulty making decisions/lack of assertion. This finding is in line with the introverted, neurotic procrastinator described by McCown, Johnson and Petzel (1989).

Openness to experience had no significant relationship to total procrastination or the PASS scales. The fantasy facet correlation of $R = 0.21$ is similar to the Schouwenberg and Lay (1995) finding of $R = 0.29$ with the NEO-PI-R and Lay's (1988) procrastination scale.

Table 2

Correlation between PASS procrastination scales and NEO-PI-R five-factor facets^a

Factors and facets	Total	Risk	Fear	Depend.	Rebel	Diff.	Aversive
Neuroticism	0.42	−0.02	0.30	0.16	0.11	0.22	0.41
Anxiety	0.21		0.23				0.23
Angry hostility	0.17						0.24
Depression	0.39		0.30			0.20	0.34
Self-consciousness	0.37		0.27			0.22	0.34
Impulsiveness	0.32						0.27
Vulnerability	0.38		0.21	0.22		0.25	0.36
Extraversion	−0.21	0.00	−0.10	0.04	−0.14	−0.12	−0.11
Warmth	−0.20						
Gregariousness	−0.12						
Assertiveness	−0.28					−0.21	
Activity	−0.18						
Excitement-seeking	0.06						
Positive emotions	−0.16						
Openness to experience	0.08	−0.10	0.01	−0.11	−0.03	−0.20	0.10
Fantasy	0.21						
Aesthetics	0.13						
Feelings	0.02						
Actions	−0.06						
Ideas	−0.04						
Values	0.03						
Agreeableness	−0.04	−0.23	−0.05	−0.06	−0.15	0.03	−0.03
Trust	−0.17		−0.20				
Straightforwardness	−0.04	−0.25					
Altruism	−0.13						
Compliance	−0.02						
Modesty	0.12						
Tender-mindedness	0.07						
Conscientiousness	−0.55, −0.51*	−0.14	−0.02	−0.18	−0.21	−0.08	−0.35
Competence	−0.48				−0.24		−0.31
Order	−0.31						−0.21
Dutifulness	−0.33						−0.28
Achievement striving	−0.45 −0.43*				−0.24		−0.27
Self-discipline	−0.63 −0.50*						−0.33
Deliberation	−0.34						−0.22

^a With the NEO-PI-R facets, only significant Bonferroni corrected correlations are shown for the PASS scales.

*Scored with one achievement striving and four items from self-discipline removed due to procrastination behavior content as in Schouwenberg & Lay (1995). Risk, risk-taking; fear, fear of failure; depend., dependence; rebel., rebellion against control; diff., difficulty making decisions; aversive., task aversiveness.

Agreeableness had no overall relationship to the total procrastination scale. The risk scale was inversely related to agreeableness and the straightforwardness facet. As low agreeableness is a component of Psychoticism, this result is consistent with McCown and Johnson's (1991) finding of a correlation between impulsive activities and psychoticism.

Neuroticism was related to total procrastination $R=0.42$, this finding contrasts with Johnson and Bloom (1995) finding of $R=0.18$, $Z=2.99$, $P<0.01$. Fear, aversiveness of the task and difficulty making decisions/lack of assertion were also moderately related to neuroticism.

With the neuroticism facets, correlations ranged from $R=0.17$ (angry hostility) to $R=0.39$ (depression), these results are similar to Schouwenberg and Lay's (1995) finding of $R=0.19$ (angry hostility) to $R=0.40$ (impulsiveness). With the PASS scales, aversiveness of the task was related to the neuroticism facet scales (R 's from 0.23 to 0.36). Fear of failure was akin to depression, self-consciousness and anxiety. Difficulty making decisions/lack of assertiveness correlated with vulnerability, self-consciousness and depression. Dependence was also related to vulnerability.

Conscientiousness, at both the domain and facet level, was negatively related to total procrastination, as previous research by Johnson and Bloom (1995) and Schouwenberg and Lay (1995) has indicated. This relationship is also evident with the PASS scales. Fear of failure was inversely related to competence. The dependence scale was negatively correlated with achievement striving and self-discipline. With the rebellion scale, the relationship was with low competence and achievement striving. Aversiveness of the task was negatively related to all of the conscientiousness facets.

Table 3 shows the correlations between the procrastination domains of the PASS and the NEO-PI-R facet scales. Exams, papers and reading correlate with conscientiousness and neuroticism in a similar fashion. One exception is angry hostility, which was related to papers, but not to exams or reading. The fantasy facet of openness was related to procrastination on exams, papers and reading. Procrastination on general school activities was related to low extraversion and self-consciousness and impulsiveness. Procrastination on attending meetings and administrative tasks was related largely to low conscientiousness.

In order to obtain a simple representation of the relationship between the NEO-PI-R and the PASS, multidimensional scaling (MDS) was performed using SYSTAT with the data being treated as similarities and scaled with the Kruskal method. A two-dimensional solution revealed a conscientiousness-procrastination dimension. Neuroticism was closely related to aversiveness, fear of failure, difficulty making decisions scores. The second dimension, appears to be an agreeableness-risk dimension (Fig. 1).

In an earlier study by McCown and Johnson (1991) procrastination was related to neuroticism, extraversion, and psychoticism. Multidimensional scaling was performed on the correlation matrix reported McCown and Johnson (1991). Results are shown in Fig. 2. This study also examined several aspects of procrastination: anxiety, confidence in preparedness, planned social activities, impulsive activities, course dissatisfaction and total hours studying along with a single procrastination measure. The two-dimensional solution shows the three types of procrastinators proposed by McCown et al. (1989). The proximity of psychoticism and impulsive activities is similar to McCown et al. (1989) type I antiauthoritarian procrastinator. In the current study, the inverse relationship between agreeableness and the risk scale appears to capture this relationship. The type III (introverted, neurotic, pessimistic) element to procrastination is observed in the close proximity of anxiety and neuroticism in McCown and Johnson (1991) and in the present study with neuroticism, aversiveness of the task and total procrastination. McCown et al.'s (1989) type

Table 3
Correlation between procrastination domains and NEO-PI-R facets

	Exams	Papers	Reading	Attendance	Admin.	General
Conscientiousness	−0.41	−0.40	−0.30	−0.31	−0.37	
Competence	−0.37	−0.35	−0.28	−0.29	−0.32	
Order	−0.21	−0.22	−0.22		−0.28	
Dutifulness	−0.24	−0.28		−0.21	−0.30	
Achievement striving ^a	−0.37	−0.32	−0.27	−0.26	−0.26	
Self-discipline ^a	−0.40	−0.43	−0.24	−0.31	−0.31	
Deliberation	−0.31	−0.31	−0.23	−0.21	−0.24	
Neuroticism	0.31	0.35	0.30	0.20	0.21	0.20
Anxiety						
Angry hostility		0.23				
Depression	0.26	0.30	0.28	0.21		0.23
Self-consciousness	0.27	0.26	0.24	0.22		0.22
Impulsiveness	0.27	0.35	0.24		0.24	
Vulnerability	0.24	0.27	0.28	0.21	0.26	
Extraversion						−0.38
Warmth						−0.38
Gregariousness						−0.36
Assertiveness	−0.20					−0.25
Activity						
Excitement-seeking						−0.23
Positive emotions						−0.24
Fantasy (openness)	0.21	0.26	0.25			

^a Alternate scoring for conscientiousness, achievement striving, and self-discipline. Only significant Bonferroni corrected correlations are shown.

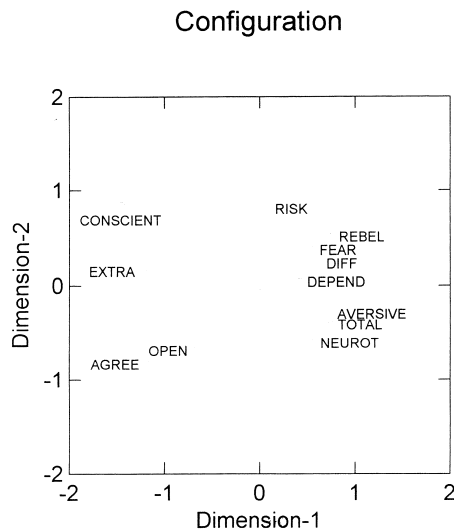


Fig. 1. Multidimensional scaling of PASS and FFM. Stress = 0.144, $R^2 = 0.903$. Note: Conscient., conscientiousness; Extra., extraversion; Agree., agreeableness; Open., openness to experience; Neurot., neuroticism; Risk, risk-taking; Aversive., aversiveness of task; Depend., dependence; Diff., difficulty making decisions; Fear., fear of failure; Rebel, rebellion against control; Total, total procrastination.

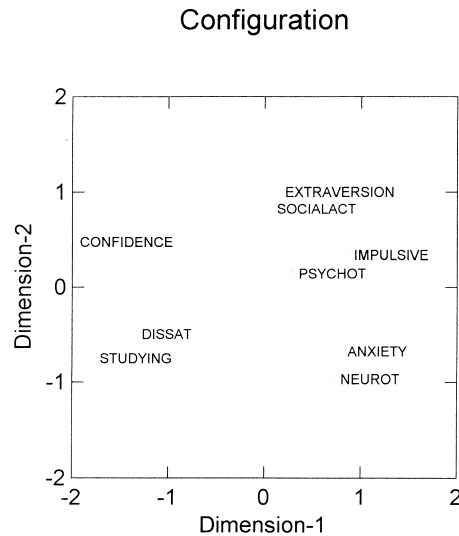


Fig. 2. Multidimensional scaling of McCown & Johnson (1991). Stress = 0.108, $R^2 = 0.914$. Note: Neurot., neuroticism; Psychot., psychoticism; Confidence, confidence in preparedness; Socialact., planned social activities; Impulsive, impulsive activities; Dissat., course dissatisfaction.

II (extraverted, neurotic) is evident in the McCown and Johnson (1991) solution as extraversion is closely associated with planned social activities. In the present study, extraversion was more closely associated with conscientiousness than to any of the procrastination scales and had a negative relationship to procrastination.

4. Discussion

The results indicate the complexity of procrastination as a psychological phenomenon. Low conscientiousness emerged as the largest component of total procrastination. Self-discipline was the strongest facet level predictor as studies by (Schouwenberg & Lay, 1995; Johnson & Bloom, 1995) have indicated. Neuroticism has had a weaker role in previous studies (Schouwenberg & Lay, 1995; Johnson & Bloom, 1995) and has been mainly related to the impulsiveness facet. These results indicate a relationship to the depression and self-consciousness facets as well. The MDS analysis shows the proximity of several of the PASS antecedents scales to the neuroticism factor. In sum, neuroticism is a stronger contributor to procrastination than previous work has indicated. Introversion, particularly the facets of assertiveness and warmth, appears to be a lesser component of procrastination. The fantasy facet of openness to experience has items assessing imagination, and daydreaming. These are attributes that may be an asset in creative problem solving, but when combined with low conscientiousness, neuroticism and passive introversion, it is likely that this is another component of overall procrastination.

Aversiveness of the task is an important dimension of procrastination as previous work by Lay (1992) has indicated. This scale had the strongest relationships with the personality variables, correlating moderately with all of the neuroticism and conscientiousness facets.

Although no overall age related trait procrastination differences were noted, examination of specific procrastination scales reveals differences in an expected direction. The older respondents had significantly lower scores on the aversiveness scale. This finding was not attributable to the lower neuroticism scores expected with older respondents (Costa & McCrae, 1992, 1994) as no age differences were found for the NEO-PI-R domain scales. There may be an age related change in the perception of task aversiveness, based upon a greater repertoire of past experiences in the older respondents. Dependency and rebellion were also lower in the older respondents. These scales were largely related to low conscientiousness, with low achievement striving being a common facet scale for these two procrastination antecedents.

Examination of the six domains of procrastination, exams, papers, reading, meeting attendance, administrative and general activities reveals similar patterns of largely low conscientiousness and high neuroticism facets being associated with procrastination in these areas. However, there are some interesting exceptions. The association between angry hostility and procrastination on papers shows that papers may be seen as optional and unnecessary to some students compared to the expected exams and assigned readings within coursework. This association was not evident when angry hostility and total procrastination are considered. Low assertiveness and procrastination were also associated. This may be due to a lesser inclination for more introverted students to ask professors or other students for help with exam preparation.

The role of introversion in procrastination is revealed by the relationship between procrastination on general school activities and extraversion. General school activities is mainly related to low extraversion and neuroticism, compared to the other domains which are a combination of low conscientiousness and neuroticism. The contribution of openness experience to procrastination is revealed in that tasks requiring verbal reasoning such as exams, papers and reading are related to the fantasy facet of openness to experience, whereas tasks that are more directly related to time management: attending meetings and administrative procrastination are more related to low conscientiousness.

This study shows that other factors besides low conscientiousness are also important contributors to the procrastination process. Consideration of procrastination as purely a subset of conscientiousness may be an oversimplification. Future research needs to look at some of the issues that have been raised by this research: age differences in procrastinatory behavior, the conceptualization of procrastination as a multidimensional versus unitary trait, and the role of neuroticism in procrastination.

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