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Personality Traits, Facets and Cognitive Performance: Age Differences in Their Relations

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Abstract

Personality traits and cognitive performance are related, but little work has examined how these associations vary by personality facet or age. 154 adults aged 22 to 84 completed the Brief Test of Adult Cognition by Telephone (BTACT) and the NEO Five Factor Personality Inventory. Hierarchical multiple regression analyses showed negative emotional aspects of personality (neuroticism, depression) were associated with lower reasoning, and social aspects of personality (assertiveness) were associated with faster reaction time, yet lower reasoning. The association between neuroticism and performance was found primarily among younger adults. In older adulthood, better performance was associated with positive emotional aspects of personality. We discuss how personality may have different associations with performance across age and the implications for possible interventions.

1. Introduction

Research has shown links between personality and cognition, although results have been somewhat inconsistent. Neuroticism is negatively related to cognition, while openness is positively linked to cognition (Chamorro-Premuzic, Furnham & Petrides, 2006; Costa, Fozard, McCrae, & Bosse, 1976; Graham & Lachman, 2012; McCrae, 1987; Moutafi, Furnham & Crump, 2003; Moutafi, Furnham & Paltiel, 2005; Schaie, Willis & Caskie, 2004). Extraversion is associated with better speed and long-term memory, but worse reasoning and verbal ability (Chamorro-Premuzic & Furnham, 2006; Chamorro-Premuzic et al., 2006; Graham & Lachman, 2012; McCrae, 1987; Moutafi et al., 2005). Conscientiousness shows positive and negative associations to cognition (Graham & Lachman, 2012; McCrae, 1987; Moutafi et al., 2003; 2005; Schaie, et al., 2004). Agreeableness is associated with poor reasoning, spatial orientation and general cognition (Schaie, et al., 2004; Willis & Boron, 2008). Variations across studies could be due to the focus on traits not facets, and the range of cognitive variables used. For example, inconsistencies in extraversion could be explained by whether studies use tasks requiring

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effortful or automatic processing (Evans, 2008). Some argue that personality and cognition represent overlapping constructs (Ackerman & Heggestad, 1997). However, others more recently argue that intelligence/ability and performance are distinct from personality (Chamorro-Premuzic & Furnham, 2006).

The personality/cognition relationship also varies by age. Whereas personality typically stabilizes by middle adulthood (Roberts, Walton, & Viechtbauer, 2006), cognitive performance shows declines on fluid tasks in later adulthood (Salthouse & Ferrer-Caja, 2003). Some studies examined how relationships between personality and performance vary by age although not typically at the facet level. Booth and colleagues (2006) explored traits among older adults (60-85), finding that openness and neuroticism are the strongest predictors of performance. Baker & Bichsel (2006) broadened this by comparing younger and older adults, finding that across age, extraversion and openness were positively associated with most aspects of performance. They also examined cognitively superior older adults, a group with better performance than average older adults in the sample, finding that high conscientiousness and low agreeableness were associated with better performance. This suggests that individuals who maintain their abilities beyond the average older adult have a particular constellation of personality characteristics (Baker & Bichsel, 2006), and provides a foundation for our study by showing the importance of understanding how personality influences performance differently for older and younger adults. Soubelet and Salthouse (2011) examined a wide age range (18-96) and found the pattern and direction was consistently positive for openness across age, and negative for extraversion. We extend this by examining personality facets and traits in relation to performance as a function of age.

Few studies included facets in their analyses, and with age homogeneous samples. Chamorro-Premuzic & Furnham (2003) found that facets related to academic performance were dutifulness (C), anxiety (N), and activity (E), concluding that inclusion of facets is necessary to determine the precise characteristics predicting performance. Other studies used a wider age-range but did not analyze as a function of age. Moutafi, Furnham & Crump (2006) found, among 24-66 year-olds, actions and ideas (openness) were positively correlated, while order, self-discipline and deliberation (conscientiousness) were negatively correlated with fluid intelligence. Aiken-Morgan et al., (2012) explored traits and facets among older adults in relation to memory and verbal learning, revealing facet-level predictors, including positive emotions, deliberation (negative) and straightforwardness (positive). These studies provide guidance for the current study, and we expand this work to include younger and older adults to analyze how these associations differ across age. There is a need for a systematic analysis of personality facets that may underlie trait level associations, and the differential effects that personality may have on cognition in younger versus older adults.

The current study's objective was to extend the literature by examining (a) links between personality and cognition at the trait and facet levels in a sample including younger and older adults, to explore which traits/facets are related, and whether relationships vary by cognitive domain, and (b) how links between personality and cognition differ in older and younger adults. Personality may be a risk or protective factor for cognitive performance or aging-related changes in cognition.

For hypothesis one, we were interested in whether results would be found when younger and older adults were both included, as earlier work focused primarily on either college students or older adults. We expected neuroticism to be negatively related, and openness to be positively related to performance across cognitive domains. Based on prior work (e.g. Costa et al., 1976; Wolf & Ackerman, 2005), we expected extraversion to be positively related to speed but negatively related to domains requiring effortful processing (e.g. reasoning, verbal fluency). We expected conscientiousness to be negatively related to speed, verbal fluency and reasoning.

The goal of hypothesis two was to uncover specific facets of each trait most closely related to cognition (e.g. Chamorro-Premuzic & Furnham, 2003; Moutafi et al., 2006). We expected competence to be positively related, and dutifulness to be negatively related to all cognitive domains. The extraversion facets of assertiveness and activity would be negatively related to reasoning and positively to speed. We expected all facets of openness to be associated with cognition, the most strongly being ideas and actions (Moutafi et al., 2006). We expected depression and anxiety (neuroticism) to have a negative relation to all domains.

The goal of hypothesis three was to examine how personality-cognition varies across age (Aiken-Morgan et al., 2012; Soubelet & Salthouse, 2011). We expected the relation between personality (traits and facets) and cognition to vary for younger and older adults. Given the limited literature with age comparisons, we did not make specific predictions for all facets. Nevertheless we expected to find positive emotions, deliberation, and aesthetics, feeling and ideas to play a unique role in older adulthood (Aiken-Morgan et al., 2012). We focused on fluid measures of cognition, as these are known to decline with age yet show wide individual differences.

2. Methods

2.1 Participants

Participants were from a probability sample within 10 miles of a university in suburban Boston, provided by a sampling firm. Trained lab members mailed letters to potential participants, called to follow up, and recruited them, resulting in a total sample of $N=154$. The average age was 57.23 ($SD=15.68$, range 22-84). The sample was comprised of 51.3% over the age of 60, 52.6% were male, and 82.7% of the sample had a college education or higher.

2.2 Measures

2.2.1 Personality—Personality was measured using the 240-item NEO-FFI (Costa & McCrae, 1992), which included the 30-facet, and five trait scales. Participants rated themselves on a 5- point scale ranging from “strongly disagree” to “strongly agree,” with respect to how well each statement described them. Each facet score consisted of a mean of 8 items from the overall scale. Each trait score was computed by taking the mean of that trait's corresponding facet scores. The range of coefficient alpha reliabilities was from .60 to .85. One facet, tender-mindedness, was below .6, therefore we do not report results for this facet.

2.2.2 Cognition—Cognitive performance was measured using the Brief Test of Adult Cognition-Telephone (BTACT) (Lachman & Tun, 2008). The cognitive domains measured were processing speed, reaction time, verbal fluency, inductive reasoning, working and episodic memory. Phone testing is useful, especially for older adults who do not typically use the internet frequently, and may have difficulty due to vision problems. Hearing issues for phone batteries has been addressed, and shown not to be a factor (Lachman, Agrigoroaei, Tun & Weaver, in press).

2.2.2.1 Verbal Fluency: was measured using the category fluency task (Kozora & Cullum, 1995; Lezak, 1995). Participants were given one minute to generate as many words within the category “animal” as they can. Repeated words and intrusion errors were subtracted from the total score.

2.2.2.2 Inductive Reasoning: Participants were asked to generate the next logical number in a progression of numbers (such as “3 6 9 12 15”). They received 5 series, increasing in difficulty. Scores were the number of sets correctly completed, for a highest possible score of 5.

2.2.2.3 Processing speed: Participants were given 30 seconds to count backwards from 100 as quickly and accurately as possible. The score is the total number of correct numbers reported, after subtracting skipped and incorrect numbers.

2.2.2.4 Reaction Time: was measured using the Stop and Go Switch task. Participants completed two single task trials with 20 blocks each, first with a congruent response (to RED, say “STOP”, to GREEN, say “GO”), then with an incongruent response (to RED, say “GO”, to GREEN, say “STOP”). In the mixed-switch trials, they were given a cue to switch between congruent and non-congruent responses. The task sequence was randomized, so switch cues were given at random intervals in order to increase sensitivity to age effects (Tun & Lachman, 2008). Reaction time scores are coded such that higher latency scores indicate slower speed and are reported in milliseconds. The mean of reaction times for the mixed-task (switch and non-switch trials) was analyzed.

2.2.2.5 Episodic Memory: was assessed using the Rey Auditory-Verbal Learning Test (Rey, 1964; Lezak, 1995; Taylor, 1959), which includes 15 items for free recall with a possible scores of 0 to 15.

2.2.2.6 Working memory: was assessed using backward digit span from the WAIS-III test (1997) in which a list of numbers must be recalled in reverse order. The range is from 2 to 8 digits.

2.3 Procedure

Cognitive data were collected over the telephone, and personality was assessed via paper and pencil questionnaire. Participants were screened to ensure that they were within the desired age ranges, had no history of neurological disorders, reported at least fair health status (compared to others their age), spoke English as their first language (or learned English before age 10), and had no signs of dementia. The BTACT cognitive battery phone

interview was administered by telephone and participants were scheduled to come to the lab within two weeks to participate in a study with a large number of variables including the personality inventory (a few participants took it home and mailed it back within a week). Participants were compensated \$40.

3. Results

3.1 Data Analysis

To test relations between personality and cognitive performance, hierarchical multiple regression (HMR) models were computed using each of the cognitive domains as dependent variables. In step 1 we controlled for age, sex, and education, and personality traits were entered in step 2. To test the effects of the individual facets, we computed a set of models that included the facets in step 2, with each model consisting of the 6 facets from one trait (e.g. extraversion facets in one model), controlling for age, sex, and education in step 1. To test hypothesis three, personality (traits/facets) by age interaction terms were calculated and entered into the third step of all models. Models were tested separately by trait, combined for parsimony, and trimmed of non-significant effects. Scores were centered around the mean, and significant interactions were plotted according to Aiken and West (1991).

3.2 Personality Traits/Facets and Cognition

A summary of the significant models for trait personality predicting cognition is provided in Table 1. Step 1 accounted for 13% ($p < .01$) of the variance in verbal fluency, 2% in reasoning, 18% ($p < .001$) in processing speed, and 6% ($p < .05$) in reaction time. Sex predicted processing speed ($\beta = -.29, p < .01$) indicating that males are faster than females. Education was related to reasoning ($\beta = .18, p < .05$). Age predicted verbal fluency ($\beta = -.37, p < .001$), processing speed ($\beta = -.36, p < .001$), and reaction time ($\beta = .19, p < .05$), with older adults performing worse than young adults, as expected. Personality traits explained significant additional variance in verbal fluency ($R^2 = .02, p < .05$), and reasoning ($R^2 = .06, p < .01$), but not reaction time or processing speed.

For hypothesis 2, which tested the facets' relation to cognition, a set of HMR models were computed using the same cognitive variables as dependent measures, including age, sex, and education in step 1 as covariates. Step 2 included the facets and accounted for additional variance for verbal fluency ($R^2 = .04, p < .001$), reasoning ($R^2 = .06, p < .01$), speed ($R^2 = .12, p < .01$), and reaction time ($R^2 = .06$), (Table 2). None of the models predicted working or episodic memory at either the trait or facet level.

Neuroticism was negatively related to reasoning ($\beta = -.24, p < .05$), indicating that higher neuroticism is associated with lower cognition, as predicted. The neuroticism facets related to cognition were Anger/Hostility predicting speed ($\beta = -.19, p < .05$), and Depression predicting reasoning ($\beta = -.23, p < .05$), suggesting that individuals who are more angry and depressed have slower speed and lower reasoning scores.

Openness was related to verbal fluency ($\beta = .18, p < .05$), indicating that individuals high in openness have better verbal ability, as expected. The ideas facet was also positively related to verbal fluency ($\beta = .24, p < .01$).

Extraversion was related to reasoning ($\beta = -.22, p < .05$), indicating that high extraversion is associated with lower cognition, as expected. The assertiveness facet was related to reasoning ($\beta = -.25, p < .01$) and reaction time ($\beta = -.22, p < .05$).

Trait conscientiousness did not predict cognition, but the competence facet was related to processing speed ($\beta = .19, p < .05$). Finally, agreeableness was not related to any cognitive domain, nor was any of the facets.

3.3 Personality by Age Interactions

The trait level interaction terms accounted for added variance for reasoning ($R^2 = .04, p < .05$), and reaction time ($R^2 = .04, p < .01$), and facet level models accounted for additional variance in verbal fluency ($R^2 = .02, p < .05$), reasoning ($R^2 = .06, p < .001$), processing speed ($R^2 = .05, p < .01$), and reaction time ($R^2 = .12, p < .001$).

On the trait level, Age x Neuroticism predicted reasoning ($\beta = .22, p < .05$), and reaction time ($\beta = -.22, p < .05$). Low neuroticism was associated with higher reasoning among younger adults, while in older adulthood neuroticism did not contribute. Moreover, for high neuroticism, younger adults' performance was comparable to that of older adults (Figure 1). Younger adults high in neuroticism are slower than those low in neuroticism, and younger individuals with high neuroticism react as slowly as older adults (Figure 2).

On the facet level, Age x Positive Emotions (Extraversion) predicted verbal fluency ($\beta = .16, p < .01$). While older adults performed worse than younger adults overall, older adults with high positive emotions had better performance compared to young adults. Interestingly, younger adults low in positive emotions had the highest overall fluency scores (Figure 3), suggesting that certain facets of extraversion may benefit older adults, but not younger adults.

Age x Depression (Neuroticism) predicted reasoning ($\beta = .27, p < .01$). Depression was negatively related to performance in younger adults, but it did not contribute in older adulthood (Figure 4), consistent with the neuroticism trait.

Competence x Age ($\beta = -.24, p < .01$) predicted processing speed. While younger adults were faster overall, younger adults who were low in competence were slower than younger adults high in competence, and there was no difference in older adulthood. This suggests that younger adults with low competence perform as slowly as older adults (Figure 5).

Several of the openness facet x age interactions predicted Reaction Time. Age x Fantasy ($\beta = -.33, p < .01$), Age x Aesthetics ($\beta = .31, p < .01$), and Age x Feelings ($\beta = -.19, p < .05$), were related to reaction time. Older adults with high fantasy performed similarly to younger adults (Figure 6). Similarly, older adults with high feelings have faster reaction times (Figure 7). Older adults who are low in feelings have higher (slower) reaction times than high feelings, and there were no age differences among those high in feelings (older adults high in feelings performed as well as high feelings younger adults).

Age x Aesthetics shows a different pattern, such that low aesthetics is associated with faster reaction times in older adulthood, but slower reaction times in younger adulthood. Older and

younger adults with low aesthetics perform equally fast, while high aesthetics is associated with faster reaction time in younger adults, but slower reaction time in older adults (Figure 8).

4. Discussion

Examining facet level personality across multiple ages and cognitive domains gives new insights into the role of personality in cognitive performance across adulthood. The results help clarify some inconsistencies and gaps identified in the literature. For every trait that was related to performance, at least one facet related to the same cognitive domain, yet in some cases a facet was related but not the corresponding trait. Neuroticism and depression were negatively related to reasoning. Neuroticism had the greatest impact on cognitive tasks requiring effortful processing (Evans, 2008). Neuroticism was not related to speed, but anger/hostility was negatively related.

Similarly, openness and the facet ideas were associated with higher verbal fluency indicating that ideas may be a key characteristic in the association between openness and cognition. Those open to ideas are likely to spend time exploring intellectual pursuits, which could translate into a greater facility with words.

Extraversion and assertiveness were negatively related to reasoning. While extraversion was not related to reaction time, we found a negative association for assertiveness, indicating those high in assertiveness were faster. This provides a possible reason for directional inconsistencies in the literature regarding extraversion. We identify assertiveness (an individual's sociability) as a key characteristic in understanding extraversion's association with cognition. Individuals high in assertiveness perform well on tasks requiring quick, more automatic processing, but worse when tasks require deeper, more effortful processing (reasoning; Evans, 2008). This is consistent with the idea that extraverted individuals may be faster, but are less likely to take time to think thoroughly about a task (Baker & Bichsel, 2006; Chamorro-Premuzic et al., 2006; Wolf & Ackerman, 2005).

We did not find any trait-level associations for conscientiousness, but the facet competence was associated with faster speed. In the cases where facets were related to a cognitive domain when the corresponding trait was not related (assertiveness, competence, anger/hostility), we infer that when researchers average together the facets to calculate the composite traits, some associations are obscured. Examining facets adds value for exploring more nuanced associations of personality and cognition.

Our study also contributes to the literature by showing that relationships between personality and cognition vary by age, shedding light on individual differences in cognitive aging. The results can provide guidance for researchers to tailor cognitive interventions for different personality types. Personality stabilizes in early to middle adulthood (Roberts & Del Vecchio, 2000) while cognition increases throughout early adulthood and then begins to show declines (Salthouse & Ferrer-Caja, 2003). Although we could not directly test directionality given the study design, it is plausible that personality influences cognitive performance, and changes with age.

Younger adults with high neuroticism, depression and low competence performed similarly to older adults. These individuals likely have lower self-efficacy or sense of control, which may affect their motivation or effort (Wilson et al., 2006). These findings suggest that more neurotic younger adults process information slower than other younger adults. If these individuals were to decrease in neuroticism, as often occurs with aging (Roberts et al., 2006), their performance may improve. On the other hand, it is difficult to change personality in adulthood (McCrae & Costa, 1994). Thus, another approach is to tailor cognitive interventions to different personality dispositions.

For extraversion, positive emotions had a stronger link to fluency in older adulthood than younger adults, and older adults who had high positive emotions performed as well as younger adults. This suggests that being positive is helpful for performance, particularly in older adulthood. This partially conflicts with Aiken-Morgan et al.'s (2012) finding that positive emotions were associated with worse performance among older adults. However, their finding was in association with verbal learning, not fluency, which reflects access to already acquired knowledge.

Feelings (openness) refers to how open an individual is to emotional experiences, while fantasy refers to how receptive a person is towards imagination. Older adults high in feelings and fantasy performed just as quickly as younger adults. While positive emotions, feelings and fantasy are associated with better performance for older adults, aesthetics is associated with worse performance in older adulthood. Older adults who are high in aesthetics may find the reaction time task more challenging, as these individuals who focus on artistic features may not be inclined towards tasks that require quick, automatic processing (Evans, 2008).

Overall, interactions between personality and age illuminate the characteristics most relevant in the context of age-related cognitive differences. The findings demonstrated that facets of personality are associated with cognition differentially across age, particularly emotional aspects of personality (depression and openness to emotional experiences), and intellectual aspects of personality (competence and fantasy). One social aspect of personality, assertiveness, was related but did not differ across age. The directional shifts in the interactions suggest that positive emotional aspects of personality (positive emotions, openness to feelings) are associated with better performance in older adulthood, but related to worse performance in younger adulthood. It may be adaptive to possess certain characteristics during young adulthood, and others during older adulthood, such as an added benefit in older adulthood to maintaining emotionally positive personality characteristics. This is consistent with Socio-Emotional Selectivity Theory which suggests that older adults are more selective in their focus, invest in emotionally meaningful activities, and focus on positive information over negative (Mather & Carstensen, 2005), which seems to benefit cognition in older adults. Our finding that depression is bad for younger adults' performance, but does not seem to be related to cognition for older adults, indicates that the effect of emotionality on older adults' cognition is only salient for the positive aspects of emotions (Carstensen & Mikels, 2005). Our findings are a snap shot of individual differences in younger adult performance, and indicate that certain personality traits may hinder performance in young adults. As these individuals age, their performance will likely continue to be lower than their peers, and may even decline at a greater rate. Understanding

the role of personality at earlier ages could be beneficial for minimizing the deleterious effects of cognitive aging.

Some limitations should be noted. Our sample was mostly Caucasian and highly educated, due in part to the demographics of the study area and requirements to come into the lab, which limits the external validity of the study. Nevertheless, the younger and older adults had similar levels of education, which is important for the internal validity. Future studies with larger, more representative samples should explore these relationships with a wider educational range; associations may be stronger if the range of abilities is larger. The cross-sectional design does not allow for us to make directional conclusions. Future work with cognitive and personality data at multiple measurement occasions will allow for testing causal models to further understand the processes involved in these associations.

4.1 Conclusion

The present findings add to the literature by giving a more detailed understanding of what personality characteristics are related to cognitive performance differentially across adulthood. By knowing which characteristics are associated with cognition, we can tailor interventions and recommendations towards optimizing cognitive health. While cognitive aging theories indicate that declines in cognition are common after a certain age, there are wide individual differences in the rate and frequency of decline. This study demonstrates the contribution of individual differences in personality to cognition across the adult lifespan, setting the stage for future work to promote and maintain adaptive functioning and optimal cognitive health throughout adulthood.

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Highlights

1. Neuroticism and extraversion are negatively associated with reasoning
2. Assertiveness associated with faster RT, lower reasoning
3. Ideas associated with higher fluency, Hostility associated with slower speed
4. In younger adults, neuroticism associated with slower RT, worse Reasoning
5. For older adults, positive facets of personality associated with better performance

Figure 1.
Age by Neuroticism Interaction Predicting Inductive Reasoning Scores

Figure 2.
Age by Neuroticism Interaction Predicting Reaction Time Scores

Figure 3.
Age by Positive Emotions Interaction Predicting Verbal Fluency Scores

Figure 4.
Age by Depression Interaction Predicting Inductive Reasoning Scores

Figure 5.
Age by Competence Interaction Predicting Processing Speed

Figure 6.
Age by Fantasy Interaction Predicting Reaction Time Scores

Figure 7.
Age by Feelings Interaction Predicting Reaction Time Scores

Figure 8.
Age by Aesthetics Interaction Predicting Reaction Time Scores

Table 1
Regression Models: Personality Traits Predicting Cognitive Performance with Age Interactions (standardized betas)

	DV: Verbal Fluency	DV: Inductive Reasoning	DV: Reaction Time
Step 1:	Adj. R ² = .12 <i>F</i> (3, 135) = 6.09***	Adj. R ² = .02 <i>F</i> (3, 136) = 1.92	Adj. R ² = .06 <i>F</i> (3, 126) = 3.57*
Age	-.27**	-.03	.19*
Sex	.10	-.09	.10
Education	.13	.18*	-.17 ^t
Step 2:	Adj. R ² = .13 <i>F</i> (4, 135) = 5.92***	Adj. R ² = .08 <i>F</i> (5, 136) = 3.35**	Adj. R ² = .07 <i>F</i> (4, 126) = 3.34*
Neuroticism		-.24*	0.15
Extraversion		-.22*	
Openness	.18*		
Step 3:	Adj. R ² = .12 <i>F</i> (6, 136) = 3.96**	Adj. R ² = .14 <i>F</i> (5, 126) = 3.95**	
Neuroticism*Age	.22*		-.22*

* p<.05
** p<.01
*** p<.001
NB: personality traits did not predict working memory, episodic memory or processing speed, and therefore these dimensions are omitted from Table 1.
^t p<.10

Table 2

Regression Models, Personality Facets Predicting Cognitive Performance with Age Interactions (standardized betas)

	Verbal Fluency	Inductive Reasoning	Processing Speed	Reaction Time
Step 1:	Adj. R ² = .10 <i>F</i> (3, 135) = 6.09**	Adj. R ² = .02 <i>F</i> (3, 136) = 1.92	Adj. R ² = .18 <i>F</i> (3, 135) = 11.03***	Adj. R ² = .06 <i>F</i> (3, 126) = 3.57*
Age	-.27**	-.03	-.36***	.19*
Sex	.10	-.09	-.29**	0.1
Education	.13	.18*	0.1	-.17 [†]
Step 2:	Adj. R ² = .13 <i>F</i> (5, 135) = 5.19***	Adj. R ² = .08 <i>F</i> (5, 136) = 3.39**	Adj. R ² = .26 <i>F</i> (5, 135) = 10.52***	Adj. R ² = .08 <i>F</i> (8, 126) = 2.32**
C1_Competence				
E6_PosEmotions	-.03			-.22*
E3_Assertiveness		-.25**		-.011
O1_Fantasy				0.01
O2_Aesthetics				-.01
O3_Feelings				
O5_Ideas	.24**			
N2_Hostility			-.19*	
N3_Depression		-.023*		
Step 3:	Adj. R ² = .16 <i>F</i> (6, 135) = 5.21***	Adj. R ² = .14 <i>F</i> (6, 136) = 4.68***	Adj. R ² = .31 <i>F</i> (6, 135) = 11.16***	Adj. R ² = .19 <i>F</i> (11, 126) = 3.65***
Age*Competence			-.24**	
Age*PosEmotions	.18*			
Age*Depression		.27**		-.33**
Age*Fantasy				.31**
Age*Aesthetics				
Age*Feelings				-.19*

* $p < .05$ ** $p < .01$

NB: Personality facets do not predict working memory or episodic memory, and therefore these dimensions are omitted from **Table 2**.

p<.001
p<.10