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An historical analysis of the lexical emergence of the Big Five personality adjective descriptors ☆

Ralph L. Piedmont *, William Aycock

*Loyola College in Maryland, Department of Pastoral Counseling, 8890 McGaw Road, Suite 380,
Columbia, MD 21045, United States*

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9 Abstract

10 This study examined two questions regarding the emergence of adjectives that describe the Big Five Per-
11 sonality dimensions and when they emerged into the modern English lexicon: (1) Did the terms that
12 describe these qualities appear simultaneously or sequentially? (2) Can the emergence of these terms be
13 linked to specific historical eras? Results showed that the adjective descriptors for Openness appeared in
14 the modern lexicon significantly later than those for Agreeableness, Extraversion, and Conscientiousness.
15 The historical context surrounding the emergence of Openness was presented and the implications of these
16 findings for understanding personality were discussed.

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18 *Keywords:* Five-factor model of personality; Lexical analysis; Culture

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☆ Request reprints from Ralph L. Piedmont, Department of Pastoral Counseling, Loyola College in Maryland, 8890 McGaw Road, Suite 380, Columbia, MD 21045. Or via e-mail at: rpiedmont@loyola.edu. Portions of these data were presented at the 2002 Annual Convention of the Eastern Psychological Association in Boston, MA. Thanks are extended to Mark M. Leach, Robert R. McCrae, Rose Piedmont, and Martin F. Sherman for their comments on an earlier version of this report.

* Corresponding author. Tel.: +1 410 617 7325; fax: +1 410 617 7644.

E-mail address: rpiedmont@loyola.edu (R.L. Piedmont).

20 1. Introduction

21 Generations of lexicographers have spent decades in a continuum of collaborative and detailed
22 analyses to carefully document the categorizations of human interpersonal experiences. Miller
23 (1991) made the observation: “When an idea is important, people are likely to have a word for
24 it. Mountain people will have a word for mountain; people who live on the plains and have never
25 seen a mountain will not have such a word. The more important something is, moreover, the more
26 words that are likely to be” (p. 4). This idea reflects what has come to be known as the “lexical
27 hypothesis”, and formed the underlying logic to Allport’s groundbreaking research that saw the
28 English language as a potential source point for identifying salient individual-difference variables
29 (Allport & Odbert, 1936). The result of this work has been the development of the Five-Factor
30 Model of Personality (FFM; Digman, 1990).

31 The FFM has become one of the more widely accepted taxonomies for describing personality
32 structure (Digman, 1990; McCrae & John, 1992; Wiggins, 1996). The value of this model has been
33 found in its widespread usage in personality assessment (Ozer & Riese, 1994) and its importance
34 has been extended through research documenting its cross-cultural relevance (McCrae & Allik,
35 2002). Behavioral genetics research has documented that between 40% and 60% of the variance
36 of these constructs is genetically heritable (Jang, Livesly, & Vernon, 1996). As biological realities,
37 these dimensions have important implications for understanding human behavior.

38 However, this genetic linkage does not imply that culture and context have no impact on how
39 these dimensions are expressed and the adaptive function(s) they serve. There is a complex inter-
40 action between nature and nurture, and no aspect of human behavior can be understood solely in
41 terms of just one of these perspectives. Research with the FFM has generated findings that sup-
42 port the hypothesis that culture can have an impact on the salience and expression of personality
43 qualities. Four sets of findings are presented that support this hypothesis. Although alternative
44 explanations for the findings of each study are possible (e.g., McCrae, 2004; Poortinga, van de
45 Vijver, & van Hemert, 2002), taken as a whole these findings provide a compelling rationale sup-
46 porting a cultural impact hypothesis.

47 First, mean level scores on the domains of the FFM vary across the globe. McCrae (2002) pre-
48 sented data from 36 cultures and found much variability in scores on the FFM. For example Aus-
49 trian, Swiss, and Dutch samples scored the highest on Openness to Experience, whereas the Danes,
50 Malaysians, and Telugu Indians scored the lowest. When these differences were plotted spatially,
51 Allik and McCrae (2004) noted that systematic patterns of personality profiles emerged that corre-
52 sponded to the mapping of the countries on the globe. Thus, Indonesians, Filipinos, and Malaysians
53 occupied one quadrant whereas Czech, Germans, and Austrians were found in another. Americans,
54 Canadians, and Hispanic Americans were found in yet another quadrant. Levels of personality dif-
55 fer across cultures (and geographic regions) suggesting that different adaptive pressures may stress
56 some aspects of personality more than others. In a related study by Hofstede and McCrae (2004),
57 they noted how FFM personality scores in these cultures were significantly related to the cultural-
58 based dimensions of Individualism, Power Distance, Masculinity, and Uncertainty Avoidance.

59 Second, emic-based research examining the lexical structure of traits in various cultures has re-
60 vealed that there may exist other context-specific personality dimensions not contained in the
61 FFM (Bond, Nakazato, & Shiraiishi, 1975; Isaka, 1990; Narayanan, Menon, & Levine, 1995;
62 Yik & Bond, 1993). These dimensions capture trait aspects that may have developed in response

63 to specific demands of the culture. Third, there is evidence suggesting that over time immigrant
64 groups exhibit personality styles more consistent with their adoptive homes. McCrae, Yik, Trap-
65 nell, Bond, and Paulhus (1998) examined the personality profiles for recent Chinese immigrants to
66 Canada with a cohort of Canadian born Chinese. Significant effects for acculturation were found:
67 Canadian born Chinese scored higher in Extraversion, Openness, and Agreeableness than the re-
68 cent immigrants.

69 These three sets of findings support the hypothesis that there is a dynamic interplay between
70 personality and culture: People select/create their environments so as to provide outlets for their
71 own motivations, and environments in turn can provide specific pathways (e.g., rituals, social con-
72 ventions, moral principles) that can focus these motivations for maximum effect. However, an-
73 other question emerges from these findings: “As cultures develop and change over time (either
74 in response to specific events, like wars or natural catastrophes, or to changing motivations in
75 people), do they create psychological pressures to which people need to adapt?” Adaptation
76 may be in the form of certain characteristics becoming more salient or the emergence of person-
77 ality qualities that may have been dormant.

78 This question emerged from the fourth set of findings in a study by Piedmont, Bain, McCrae,
79 and Costa (2002) that translated the NEO PI-R into Shona, a native language of Zimbabwe. The
80 great majority of research on the FFM has concerned itself with mostly industrialized or pre-
81 industrial nations. Research with the Shona was one of only a very small number of studies exam-
82 ining the non-industrialized, agrarian cultures of sub-Saharan Africa. Although the five-factor
83 structure could be obtained, Piedmont et al. (2002) found that it was difficult to find Shona words
84 that represented Openness to Experience concepts. Problems in recovering Openness were found
85 by others using different indigenous African samples (Heuchert, Parker, Stumpf, & Myburgh,
86 2000; Horn, 2000). This difficulty in recovering Openness cannot be due to its lack of presence.
87 As research has shown, the construct has a substantial genetic basis and should be present in
88 all humans. Perhaps, then, living in a traditional agrarian society, where personal options and
89 opportunities for innovation are limited, individual differences in Openness may not be sufficiently
90 important in daily life for the Shona to have developed a relevant vocabulary about the quality.
91 The lack of words to define the construct would make it difficult for individuals to develop any
92 type of self-image around Openness. Piedmont et al. considered whether the relative salience of
93 Openness in the West is a recent response to the adaptive pressures brought about by industrial-
94 ization and urbanization. The rise of a smokestack economy may have introduced sociological
95 changes that highlighted individual differences in reactions to novelty, in distinguishing innova-
96 tors from laggards, and in identifying creative potential.

97 If indeed culture can impact the expression of traits, then major, durable, sociological shifts in a
98 culture should be reflected in changes in the salience of specific traits. One way to track this pos-
99 sibility would be to examine when various trait terms made their appearance into the lexicon. If
100 our hypothesis that Openness was a response to industrialization were correct, then we would ex-
101 pect that terms capturing Openness would have emerged more recently in time than terms captur-
102 ing the other personality dimensions. This is a key premise of the lexical approach, that as
103 attributes become more important and worthy of notice, words for those qualities appear and
104 are maintained by frequent use (Saucier & Goldberg, 2001). If this perspective were correct, then
105 it would provide an exciting platform for understanding how personality terms may develop in
106 relation to specific cultural movements (see McClelland, 1961).

107 Information about when a word appeared in the lexicon is readily available in the Oxford Eng-
108 lish Dictionary (OED), which provides historical dates for when (and where) a word was first used.
109 This methodology can directly index when constructs became lexically formalized. Using year of
110 entry dates from the OED, [Benjafield and Muckenheim \(1989\)](#) examined a sample of trait descrip-
111 tors that described qualities inherent to the Interpersonal Circumplex (IC; [Wiggins, 1979](#)). (The IC
112 is defined by the FFM personality domains of Extraversion and Agreeableness [[McCrae & Costa,](#)
113 [1989](#)]). They found that the broader, positive trait terms of each domain emerged earlier in lan-
114 guage usage than the more specific, negative terms. They argued that such a lexical progression re-
115 flected a developing cognitive capacity of people to think more sophisticatedly about others.

116 The purpose of this study was to expand on this methodology by examining a sample of word
117 descriptors from the English language that reflect all the FFM personality dimensions and deter-
118 mine: (1) if the emergence of these trait terms into the lexicon occurred simultaneously or lagged
119 over time; and, (2) when, historically, these word descriptors made their first appearance in the
120 English lexicon. This study sought to determine if there are significant period effects for the emer-
121 gence of the FFM dimensions and if Openness did indeed represent a rather recent lexical devel-
122 opment in personality structure.

123 2. Method

124 The etymological dates of first usage origins for 160 trait-descriptive personality adjectives were
125 researched in this study. These descriptive adjectives were chosen from the following instrument:
126 *The Bipolar Adjective Rating Scale (BARS)*. Developed by [McCrae and Costa \(1985\)](#), the
127 BARS is an 80-item bipolar scale designed to capture the five major dimensions of personality:
128 Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness. Items for this scale
129 were selected from the lexical analyses of [Goldberg \(1983\)](#) and were augmented with additional
130 items written by McCrae and Costa. Admittedly an older measure of the FFM, research does
131 show this scale to be a valid indicator of these five personality dimensions ([McCrae & Costa,](#)
132 [1987](#); [Piedmont, 1995](#)). Of the 160 trait items in the scale, six could not be used in this study
133 (“not impulse ridden,” “not lonely,” and “not envious” were dropped because they were only
134 the negative counterpart of a corresponding adjective; and “prefer variety,” “narrow interests,”
135 and “prefer routine” were excluded because they were phrases rather than a single term). For
136 the remaining 154 adjectives, a specific *year/date-of-entry* was determined.

137 2.1. Procedure

138 The Second Edition of the *Oxford English Dictionary (OED, 1989)* and the updated CD-ROM
139 (2000) edition/version of the OED were used to determine the earliest known instance of occurrence
140 (date-of-entry [by year]) when each of the 154 trait descriptive adjectives entered the English lexicon.
141 The OED is the standard source for determining the date-of-entry of a word into the English lan-
142 guage ([Benjafield & Muckenheim, 1989](#)). Each descriptive adjective’s *year/date-of-entry* into the
143 English lexicon was obtained from the OED to determine the word’s first usage as a *descriptor of*
144 *personality or personal temperament*. These dates served as the dependent variable in this study.

145 The OED notes that in the light of “historical etymology,” *recent English* words (such as our
146 adjective descriptors) are “the extant formal representative, or direct phonetic descendant, of an

147 earlier word” (OED, 2nd ed., p. xxvii). In light of this historical etymological reality, this study
148 sought to carefully research each descriptor so that the earliest form of the adjective would be
149 acknowledged where the form and spelling of the term was recognizable and closely associated
150 with the present “formal representation” of the word. For example, “talkatyve” (1441) was cho-
151 sen over the earlier usage, “talcatife” (c. 1400) by Chaucer, for the BARS descriptor, “talkative.”
152 Doing this helps to increase confidence that both the term was being used in a connotatively sim-
153 ilar manner as today, and that the word represents a truly English term and is not a hold-over or
154 hybrid word from another language (e.g., Saxon, Norse). This required some subjectivity on our
155 part and may have resulted in date of entry values that are slightly more recent. For those adject-
156 tives where the OED gave a range of entry dates, the *year/date-of-entry* value was determined to
157 be the midpoint year in the given range. For example, the OED gives the BARS descriptor “so-
158 ber” a first usage range from 1350-1390. The year “1370” was chosen for entry.

159 3. Results

160 The English language is usually divided into three periods: Old English (OE), Middle English
161 (ME), and Modern English (Mod). Commonly accepted dates for these periods are given as: OE
162 (<1200), ME (1200–1500), and Mod (>1500) (Benjafield, 1983). In examining the distribution of
163 all 154-trait terms across these periods shows that the majority emerged in the Modern period
164 ($n = 114$), with declining numbers in the ME ($n = 34$) and OE ($n = 6$) periods. Most of the terms
165 for personality emerged rather recently ($\chi^2 [2; N = 154] = 122.39, p < .001$). This finding is consis-
166 tent with Benjafield’s (1983) findings that constructs used to describe psychological events entered
167 the English language much later than those used primarily to describe physical events.

168 For each personality domain, the average year in which the adjectives appeared in usage in the
169 lexicon was obtained. The temporal appearance of the adjectives was as following: Extraversion
170 ($M = 1542$; $SD = 248.9$; Range: 900–1967; Mode: 1550–1650), Agreeableness ($M = 1565$;
171 $SD = 190.9$; Range: 1050–1944; Mode: 1550–1650), Conscientiousness ($M = 1614$; $SD = 224.6$;
172 Range: 1000–1892; Mode: 1750–1850), Neuroticism ($M = 1678$; $SD = 200.7$; Range: 1300–1907;
173 Mode: 1825–1875), and Openness ($M = 1722$; $SD = 180.2$; Range: 1340–1934; Mode: 1825–
174 1875). Interestingly, this is the order these factors emerge in factor analysis results using adjective
175 rating scales chosen to be representative of the English lexicon (Goldberg, 1992).

176 In order to determine if the “age” of these adjectives was significantly different across domains,
177 a one-way ANOVA with five groups, representing the five personality domains was performed.
178 An overall effect was found [$F(4,149) = 3.28, p = .013, \eta^2 = .08$], indicating significant year of
179 appearance differences across the five personality domains. A post-hoc LSD test indicated that
180 E and A appeared significantly earlier than N and O, while C was significantly older than O.
181 Clearly, O seems to appear in language usage significantly later than E, A, and C¹.

¹ One reviewer noted that a disproportionate number of the terms for Openness involved words that bore the residue of their origin in the bipolar scale: terms such as “uncreative” and “uncurious” (i.e., 6 of 30 terms). These “un” words emerged later in time than the original terms. As such, it could be argued that the more recent emergence of Openness was due to an over-inclusion of these types of terms. In order to address this issue, the ANOVA was redone omitting these six terms. The results were again significant [$F(4,143) = 2.80, p < .05$], with Openness emerging significantly later (Mean Date of Entry was 1718) than Extraversion, Agreeableness, and Conscientiousness

182 **4. Discussion**

183 These data raise four important points. First, the order in which these personality dimensions
184 emerged in language corresponds to the order in which they emerge in factor analyses of adjective
185 samples. Goldberg (1992) noted that the domains of E and A have the largest number of adjectives
186 in the lexicon. One explanation for the over-representation of E and A trait adjectives is that
187 they were around longer than any of the others. McCrae (1990) has also noted that Openness is
188 the least well represented in the language and it has only recently emerged in language usage.
189 Thus, the longer a personality trait has been present in the lexicon, the more descriptors that appear
190 to accrue. Benjafield and Muckenheimer (1989) demonstrated that the addition of new trait
191 terms occurs systematically, with newer terms reflecting more cognitive differentiation. Thus, E
192 and A have not only more descriptors, but are more conceptually developed and differentiated
193 terms.

194 Second, these data also show that the personality dimensions did not all emerge in our language
195 simultaneously. There are significant differences in the rise in usage of these terms with Openness
196 being the most recent. This raises the possibility that changes in our sociological environment may
197 help to create new adaptive pressures that our personalities need to accommodate. The average
198 year appearance for the Openness domain is 1722, the middle of the Age of Reason, the beginnings
199 of the industrial revolution, and the rise of modern science. These “events” placed a higher
200 premium on creativity, flexibility, and curiosity. In comparison with Extraversion, only 6 of the 23
201 Openness items (26%) were in their modern form in 1650, and the largest number of Openness
202 terms entered the lexicon during the period 1825–1875. The 19th century saw a major increase
203 in the usage of Openness-related terms. Thus, it may be possible that the sociological demands
204 of this new “age of science” placed on individuals an external impetus for the creation of a more
205 sophisticated language to discuss personal qualities that were most relevant for the times. New
206 adaptive challenges may have been emerging in society that needed to be lexically formalized.
207 As a result, understandings of personality and temperament became more differentiated and
208 nuanced.

209 Third, these findings also provide one possible explanation as to why Openness is very difficult
210 to recover in the languages of pre-industrialized, agrarian cultures, like the Shona of Zimbabwe
211 (Piedmont et al., 2002); who lack the contextual impetus for lexically developing Openness as a
212 highly differentiated adaptive response. The highly structured, communal, and cyclical nature
213 of farming limits the degree to which individuals seek to be nontraditional, creative, and independent.
214 These findings also suggest why the personality profiles of Chinese immigrants changed over
215 time in the direction of the normative pattern for their host country. The new culture provides a
216 different set of adaptive challenges as well as novel ways of thinking about and describing oneself.
217 Over time, people construe (express) their personality in ways that make sense in light of these
218 cultural demands.

219 Although it was not anticipated, it is interesting to note that Neuroticism also emerged linguistically
220 rather late; its average year of entry not being significantly different from Openness (1678
221 versus 1722). It may be possible that the increasing salience of these two dimensions is related.
222 One explanation is that both constructs share a common “cause”, in that industrialization may
223 have emphasized openness-related dispositions, but the social and personal upheavals that accompanied
224 it (e.g., migration of people from farms to cities; the rise in urban living) induced a greater

225 awareness of feelings of personal vulnerability, anxiety, isolation, and emotional dysphoria. As
226 Popovic (2002) noted, “anxiety appears when an individual faces reality without the protection
227 of personal or social constructs, and is confronted once again with its inherent uncertainty” (p.
228 33). A second explanation could be that Neuroticism is a “side effect” of Openness. Greater sal-
229 ience in Openness supports a consideration of the abstract, nontraditional, unstructured, “what
230 if?” qualities of life. This perspective emphasizes the transient, uncertain nature of life that induces
231 greater feelings of anxiety. Rollo May (1950, p. 351) may have grasped this connection when he
232 said, “personalities of higher intelligence, originality, and level of differentiation likewise have
233 more anxiety.”

234 Finally, whatever the ontological links between these two dimensions may be, future research
235 may wish to consider the ways in which cultural conditions may promote the emergence of new
236 personality terms in language. Is it a change in people themselves that creates a need for these new
237 terms (i.e., a critical mass of people with a common temperament emerge)? Or, is it the intrusion
238 of external forces that change the quality of culture (e.g., economics, technology, scientific discov-
239 ery) that provides the urgency for new descriptive terms? One can only wonder if our current cul-
240 ture is calling forth new changes in us today. To what extent has the dawn of the “Digital Age”
241 and the use of terrorism as a political tool created new terms for characterizing people that may
242 help to further nuance our language of “personality”? Does the biological matrix from which per-
243 sonality arises contain more potential personological variability than what is currently expressed
244 phenotypically? Are the Big 5 personality dimensions only a contemporary representation of what
245 personality is? Will there be new dimensions of personality present in our lexicon 300 years from
246 now? Would an examination of ancient languages (e.g., Greek, Latin) provide evidence of person-
247 ality descriptors that may have become “extinct” in the face of changing cultural pressures? To
248 what extent does lexical change reflect either change in the underlying traits or just in their expres-
249 sion? By examining our understanding of personality within a socio-historical context, answers to
250 these questions may provide an entirely new perspective for understanding how nature and nur-
251 ture affect human behavior.

252 4.1. Empirical strengths, interpretive caveats and semiotic psychology

253 Although this study provides a very novel approach to understanding personality trait terms,
254 it is not unique. As noted earlier, Benjafield and Muckenheim (1989) conducted a study that
255 found year of entry values for the trait terms describing the Interpersonal Circumplex. The
256 results of the current study replicate their findings in that those terms most related to extraversion
257 appeared earlier than those related to agreeableness. A second point of convergence con-
258 cerns the mean year of entry for Conscientiousness descriptors, which was 1614. McClelland
259 (1961) also noted a peak level of need achievement-related imagery in English literature occur-
260 ring around 1600. These points of convergence provide some assurance that the findings of this
261 study are not atypical, random, or unique. However, there are numerous adjective measures for
262 the Big 5 (e.g., Goldberg, 1992) that include different terms from those used here. Further, the
263 number of adjectives for each personality domain was different, making some average date of
264 entry estimates more precise than others. It needs to be determined if a similar pattern of find-
265 ings would have emerged had a larger, more equally representative set of adjectives been used
266 for analysis.

267 In examining and interpreting these findings, some consideration needs to be given to the mean-
268 ing behind the date of entry (DOE) values used here. Specifically, the emergence of these trait
269 terms did not occur in a vacuum; many of these adjectives developed out of pre-existing terms.
270 Therefore, it should *not* be concluded that the constructs underlying the terms examined here
271 did not exist previous to the earliest DOE value. For example, the term “nervous” emerged in
272 the year 1340. This does not mean that people were not nervous before this time (or for that mat-
273 ter, that Neuroticism was not a relevant construct before 1300). In fact, this term was derived
274 from an earlier Latin word (nervosus). Thus the concept of nervousness has been around for a
275 long time, but this specific aspect of it was only formalized in *our language* during the Middle Eng-
276 lish period. Although this study cannot explain the “why” to this fact, it does call attention to the
277 possibility that environmental forces can impact the ways in which biologically based qualities
278 come to be expressed (or repressed) in behavior.

279 However, what the DOE does represent is the fact that during specific historical eras, writers
280 were very much interested in talking about specific aspects of human personality with sufficient
281 depth and nuance as to require the development of new terms and concepts. Whether by rediscover-
282 ing older terms or by inventing new ones, writers found it important to plumb the depths of hu-
283 man temperament in new ways. To the extent that language and speech can be considered indices
284 of underlying emotions and attitudes (see Markel, 1998 and his discussion of semiotic psychol-
285 ogy), then the current methodology can be useful for assessing the psychological climate of cul-
286 tures at various time periods. The focus of a seminological approach (from the Greek work
287 *semeion* meaning sign, from Saussure, Bally, & Sechehaye, 1966) would be on learning more about
288 how exactly terms come into lexical usage and the kinds of events (both external and internal)
289 that promote either the creation of new words or the reshaping of older ones. Semiotics would
290 also be interested in understanding the psychological value these new terms carry (e.g., Benjafield,
291 1983). Such an endeavor may provide new insights into how cultural events shape our understand-
292 ings of self and others as well as how these new understandings return to impact cultural
293 development.

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