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Internal Structure Test of Big Five Inventory

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The purpose of this study was to explain the internal structure of Big Five personality trait instrument, namely the Big Five Inventory (BFI). Maximum likelihood method of factor analysis in SPSS 16.0 was used to find suitability between the model proposed and data collected. Subjects (*N*=156) were all psychology students. Results reveal that five factors personality (Big Five) as proposed by personality theory is not in accordance with data collected. Seven factor model is more appropriate to explain personality, namely openness to experience, conscientiousness, friendliness, introversion, emotional stability, aggressiveness, and vulnerability. The findings have two alternative meanings, first an essential difference in meaning derived from the translated instrument items that could exhibit different responses, and second, the large spectrum of personality characteristics in "Big Five" enables the emergence of a new form of different personality characteristic as a consequence of overlapping between factors of the theory.

Keywords: big five personality trait, big five inventory, factor analysis.

Penelitian ini berusaha menjelaskan struktur internal alat ukur *big five personality trait*, yakni *Big Five Inventory* (BFI). Metode yang digunakan adalah analisis faktor menggunakan metode *maximum likelihood* dalam program SPSS 16.0 untuk mencari kesesuaian model yang diajukan dengan data yang diperoleh. Subjek (*N*=156) adalah mahasiswa psikologi. Hasilnya menunjukkan bahwa model lima faktor yang diajukan dalam teori kepribadian *big five* tidak sesuai dengan data yang didapatkan. Adapun, model tujuh faktor lebih cocok untuk menjelaskan kepribadian dalam subjek penelitian ini. Tujuh faktor itu terdiri atas *openness*, *conscientiousness*, *friendliness*, *introversion*, *emotional stability*, *aggressiveness*, dan *vulnerability*. Perlu diperhatikan bahwa terdapat dua alternatif pemaknaan dalam temuan ini. Pertama adanya perbedaan esensi makna pada terjemahan butir alat ukur yang mungkin memunculkan perbedaan respons. Kedua adalah luasnya karakteristik kepribadian *Big Five* yang memungkinkan terbentuknya karakteristik kepribadian yang berbeda akibat singgungan antar-faktor dalam teori tersebut.

Kata kunci: *big five personality trait*, *big five inventory*, analisis faktor

Many psychologists tried to figure out personality representatively (Mastuti, 2005). One of theory they develop is trait theory. Cartel (1979) defined trait as individual behavior while facing certain situation (cited in Feist & Feist, 2006). Burger (2004) defined *trait* as personality dimension used as categorizing individuals according to certain characteristics. Based on trait theory, they developed personality theory not on clinical approach, but on psychometric approach known as Big Five Personality Trait (Feist & Feist, 2006). This theory tried to make a map of personality in five fundamental characteristics, namely extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience.

Extraversion describes individuals who are motivated and interested in social activities (John & Srivastava, 1999). Extraversion has two sides, extravert and introvert. Extravert is characteristics of individuals who are warm, high spirited, friendly and assertive. Introvert does not have those characteristics, but it is not correct if someone says they are asocial or do not have motivation to do something (Burger, 2004). Those who have low scores on extraversion are silent and passive individuals who cannot express their emotion.

Agreeableness describes individuals who have a genuine heart, trust other people, honest, and good to others (John & Srivastava, 1999). Having high score

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on agreeableness means willing to help, trustworthy, and sympathetic. Having low score means not easy to be trusted or trust other people, like to criticize other people, and not nice (Burger, 2004).

Conscientiousness describes self control, organized to achieve goals (John & Srivastava, 1999). High score on this dimension means organized, plan oriented, and perseverance. Low score means carelessness, easy to be distracted, inconsistent, and having no perseverance (Burger, 2004).

Neuroticism is the opposite of emotional stability. Neuroticism describes negative emotion like anxiety, unrest, tensed, and sadness (John & Srivastava, 1999). Having high score means having a tendency to be an anxios person, while having low score means having a tendency to be calm, not vulnerable to stressful situation. (Burger, 2004).

Openness to experience describes thought, imagination, and individual's life experience (John & Srivastava, 1999). Having high score means having unconventional and independent thinking. Having low score means having conventional ideas and do not like something new (Burger, 2004).

Several researchers recognize those factors as Five Factor Model. According to De Raad and Perugini (2002), the term Five Factor Model and Big Five Model were frequently used with essentially the same meaning. Srivastava (2010) stated that in the past the term Five Factor Model was usually used in trait research using questionnaires while Big Five Model was used in trait personality research in language, but in its development, those two terms are used interchangeably. Furthermore, according to Goldberg, (cited in John & Srivastava, 1999) "Big Five" is chosen not to reflect its greatness, but to stress that each factor has a broad coverage. In this study the term Big Five Model (BFM) is used to mention the five factors of personality.

Along with development in theory and instruments in measuring BFM, there seems to be a controversy on the total number of factors that can be revealed. There was a research using language to find personality trait in language, and there was also a research using instrument to find exact factors measured by the BFM. De Raad and Barelds (2008) conducted personality trait research using Dutch language with 2,365 items that describe personality through database enlisted in Dutch language. They concluded that it is supposed to be eight personality factors that describe individual personality. Besides big five, three other factors are virtue, competence, and hedonism. Virtue describes someone as loyal, good, sincere, truthful and trustworthy. Competence describes someone as high spirited, willing to help other people, and open minded. Hedonism describes someone as pleasure seeking, wild, willing to experiment, and impulsive. This finding shows that in Dutch language taxonomy, big five is not appropriate to describe someone's personality.

Benet-Martinez and John (1998) tried to compare Big Five Inventory in English and Spanish to evaluate cross-language appropriateness and tested instrument convergence using students who study in America and Spain. Results show that BFI English version has alpha coefficient of .78.

Plaisant, Courtois, Reveillere, Mendelsohn, and John (2010) tried to verify structure and internal reliability to find discriminant and convergence validity between *French Big Five Inventory* (BFI-Fr) and NEO-PI-R. Plaisant et al (2010) conducted two studies. The first one tried to see the internal consistency and intercultural comparison, and the mean of internal consistency was .79, showing that the installment has a good quality. The second study compared BFI-Fr and NEO-PI-R, and proved that the correlation is high and significant (.74, $p<$ .001).

Karaman, Dogan, and Coban (2010) adapted BFI to Turkish language. Content validity was done through translation of English BFI into Turkish language and vice versa by three competent individuals who knew those two languages as well as their cultures. Similarity test was done by correlating BFI English version and Turkish version by 33 students. Reliability test was done on 1153 students with alpha coefficient for extraversion .77, agreeableness .81, conscientiousness .84, neuroticism .75, and openness to experience .86.

Mastuti (2005) has done factor analysis on Big Five personality test instrument taken from IPIP (International Personality Item Pool). She found that personality characteristics consisted of six factors; namely neuroticism, extraversion, openness to experience, agreeableness, conscientiousness and morality, and variance ranging from 3.753% to 50.334% with total variance of 93.688%.

Different results of studies done by De Raad and Barelds (2008) and Mastuti (2005) make it interesting to study further the instrument of BFM. Several instruments have been developed by experts based on BFM including NEO Personality Inventory, Revised (NEO-PI-R), NEO Five Factor Inventory (NEO-FFI), Trait Descriptive Adjective (TDA), Big Five Inventory (BFI) (Gosling, Rentfrow & Swann, 2003). Among many choices of BFM instruments, three inventories have been well developed and widely used; namely 44 items of Big Five Inventory (BFI), 60 items of NEO Five-Factor Inventory (NEO-FFI) and 100 Trait Des-

criptive Adjectives (TDA) (Gosling, Rentfrow, & Swann, 2003).

In this study, BFI was chosen as instrument to measure BFM since Benet-Mertinez and John (1998), and Plaisant *et al* (2010) concluded that after conversion to other languages, BFI proved to be reliable, valid, and efficient and had a good correlation with other BFM instruments such as NEO-PI-R. Factor analysis of BFI has not been done yet in Indonesia, so the internal structure of BFI needs to be tested. Another reason for using BFI was that BFI is a non-commercial instrument that can be used by anybody without necessary permission from the individual who made it as long as his name is cited (Srivastava, 2010).

According to the previous study, hypotheses of this study was internal structure test of BFI would reveal that personality factors were more than five. This study aims to test the internal structure of BFI, hopefully the result of this study would be beneficial to the society, especially those who use BFI.

Reliability

Reliability is level of confidence, consistency or accuracy of measurement (Azwar, 2008), an indicator of reliability of research instrument meaning that measurement results is the same everytime it measures (Neuman, 1999), a quality of psychological test instrument, free of mistakes and stable (Chadha, 2009), with minimal score .07, but with minimal score limit .6 in exploratory research (Hair, Anderson, Tatham, & Black, 1998).

There are five methods to test reliability, namely test-retest, parallel form, split-half, rational equivalence, and Cronbach alpha (Chadha, 2009). Test-retest method is done by doing the test twice on the same subjects with interval period between the tests, while parallel form is done by administering two different tests that measure the same thing and then the results are compared. The purpose of those two methods is to find out the consistency of measurement of the test instrument.

The other three methods are used to find out internal consistency of the test instruments, the consistency of test items or part of the test instrument (Azwar, 2008; Chadha, 2009). Split-half is used when the test is divided into two parts with the assumption that those two parts is parallel. Rational equivalence is used when the test cannot be divided in two parts with the same content. The test is divided according to sum of items so that each part has only one item. This approach is chosen when the test response is true or false, while alpha Cronbach is used when the response category is more than two (Chadha, 2009). This approach fits the measurement of personality tests where the instrument is not necessary to be divided into several parts. Among three methods of measuring internal consistency, alpha Cronbach has the function of finding score variance which will be added to total items (Chadha, 2009).

Validity

Validity means the accuracy and preciseness of test instrument while in function (Azwar, 2008), indicating the accuracy of a method or procedure, and an instrument which fulfill its goal (McCroskey and Feldbaum, 2002), with minimal validity coefficient of .3 (McCroskey & Feldbaum; Azwar, 2008).

Validity is a unitary concept from evidence and theory which become the foundation of scientific interpretation of test result (American Educational Research Association = AERA, American Psychological Association = APA, & National Council on Measure-ment in Education = NCME, 1999). Among several evidences that can be used to evaluate validity is evidence based on content, response, internal structure, relation with other variables, and test result. The purpose of this study was to find the internal structure to see the congruity between factors measured by BFI and factors that became the basis of the research instrument.

Internal structure has the purpose of proving that each item test is functional in measuring construct as it is made. Test items have the possibility to function incorrectly because similarity in characteristics in measuring other constructs. Analysis of internal structure could show the extent of relationship between items and construct that form the basis of score interpretation so that the accuracy of construct measurement is known (AERA, APA & NCME, 1996).

Internal Structure Test (Factor Analysis)

Internal structure analysis of instrument indicates relation among instrument items with component agreement with construct that form the basis of that instrument (AERA, APA & NCME, 1999). Not all instruments have internal structure which is in agreement with based theory when it is administered to different groups, so it is necessary to test the internal structure in order to prove the accuracy of instrument based on theory. Internal structure test is done through factor analysis (Norman & Streiner, 2008).

Factor analysis is an approach to find and analyze relational patterns between variables and explain general factors which form the basis of intervariable (Hair, Anderson, Tatham, & Black, 1998; Norman & Streiner, 2008). Among methods of factor analysis are the principal components analysis (PCA), principal axis factoring (PAF) or common factor analysis, and maximum likelihood (ML).

Principal Components Analysis is used to combine several variables to be the same size as index (Norman and Streiner, 2008), while Principal Axis Factoring is used to make a new instrument by wiping out unrelated variables. Maximum likelihood has the purpose of finding parameter value possibly achieved by data or maximize the possibility of parameter (Brown, cited in Harrington, 2009). Maximum Likelihood uses goodness of fit, so the model accuracy can be found. The criterion of accuracy significancy is .05. Maximum likelihood was used in this study with the purpose of finding theoretical model accuracy upon data taken.

Criteria in Determining Number of Factors

There were five criteria in determining the number of factors being sought (Netemeyer, Bearden, & Sharma, 2003; Hair, Anderson, Tatham, Black, 1998) namely:

1. Maintain factors that have *eigenvalue* more than one, it can be used if item numbers are between 20-50.
2. Screen test, counting circles before flat point and down sharp edge in scree plot
3. Maintain factors that their items fulfill the requisites:
   a. Having appropriate loading, > .4 is substansial, > .5 is highly significant.
   b. Factors at least contain three items.
4. Explain 50-60% variance, at least 5% total variance is accounted for by each factor.
5. A priori criteria, follow the number of factors which form the basis of the iinstrument.

   Generally factors are taken based on some criteria, not only one criterion.

Method

Subjects of this research were all students of Faculty of Psychology, Surabaya University, class of 2010 since it could be used as a longitudinal study by someone else interested in this topic. Data was collected using Big Five Inventory instrument, that was made by Oliver P. John (1998), adapted in Surijah and Sia study (2007) then adapted in this study. The instrument consisted of 44 questions designed in such a way that it could be easily administered. The blue print of Big Five Inventory could be seen in Table 1.

Steps to be done in data analysis:

1. Reliability test. Reliability test was done on factors and items using alpha coefficient available on SPSS 16.0. Factors were reliable if the coefficient was .7 while items .3.
2. Factor analysis. Factor analysis was done with the purpose of finding the validity based on appropriateness of internal structure and finding how many factors were revealed. Exploratory factor analysis would be done using SPSS 16.0 using maximum likelihood extraction and convergence validity test by correlating old factors with new ones. Steps of factor analysis: (1) Doing reliability test on five factor model; (2) Doing model accuracy test; (3) If the model was not accurate, find appropriate model; (4) Finding item spread on appropriate model; (5) Doing reliability test on new model; (6) Doing model accuracy test on new model

The hypothesis was tested by comparing Goodness of Fit of each model. Model with greatest accuracy would be used. If the model has more than five factors, the hypothesis would be accepted. A model is accurate if significance value of goodness of fit is more than .05.

Results

Five Factor Reliability Test

Factor reliability test. Factor reliability tests for five factors show that alpha coefficient of extraversion is .809, agreeableness is .582, conscientious is .797, neuroticism is .748, and openness to experience is .598. Factor reliability test shows that factor agreeableness and openness to experience alpha coefficient is < .6, meaning that those two factors are less reliable while three other factors are reliable (alpha coefficient > .7). It is assumed that items of agreeableness and openness to experience have low consistency, and this will be tested.

Item reliability test. Item reliability test of five factor shows that each item of extraversion (.389 - .640), conscientiousness (.332 - .647), and neuroticism (.333 - .625) has correlation coefficient > .3 which means that each item measures what it is supposed to measure. For Agreeableness, item 12, 22, 27, and 37 have correlation coefficient < .3 (.007 - .273) meaning that those four items do not measure what they were

supposed to measure. For openness to experience, item 35 and 41 of factor have correlation coefficient < .3 and negative (- .160 - .161). In this study, items that do not meet the reliability criteria are not eliminated since those items have the possibility to form a new factor in internal structure test. Therefore all items are used in BFI instrument.

Internal Structure Test

Maximum likelihood was used to test internal structure since goodness of fit test could show appropriateness of instrument model to data collected. Bartlett test is .000 and KMO value is .735, meaning that further test could be done. Five model factors can only explain 43.405% variance, it cannot explain more than 50% of the data, so it is concluded that five factor models does not fit the data and a new model should be made to explain the data collected.

Table 2 shows that the spread of items in five factors is not in accordance with BFI blueprint. Ten items do not have weight and four items have dual weight, so 14 items do not have appropriateness with five factor model. Goodness of fit significantly is .000 meaning that instrument model is not in accordance with data collected.

Those two conditions mean that measurement of BFI does not agree with Big Five construct that has five personality factors, so ML factor analysis was used to find number of factors which were in agreement with data collected. The first criterion in determining the number of factors to be used suggested 13 factors, the second criterion suggested 6 factors, the third suggested 7 factors, and the fourth suggested 7 factors to explain 50% variance and 4 factors to explain 5% total variance, the fifth suggested 5 factors to be used as foundation of the instrument. Criterion that suggests factors which can explain 50% variance was chosen.

The seven factors was found by using maximum likelihood method in SPSS 16.0. The first step was to limit the suppress value as big as .5 to eliminate insignificant items. The second step was to throw every item that did not have weight. The third step was to lower suppress value to .4 with the purpose of finding which item measured two factors or more. The fourth step was to throw away items that have dual weight or more. The fifth step was to invert code item 18 so that it did not have negative weight. Finally seven factor model shown in Table 3 has goodness of fit significancy as big as .051.

Seven factors have significancy of goodness of fit > .05 meaning that the proposed model is in accordance with the data collected, so it is concluded that seven factors with items in Table 1 is accepted as a good model. Seven factors with 28 items show total variance explained as big as 60.191%, increasing 16.786% compared with five factor model. Composition of the new seven factor model is as follows:

1. Factor 1 consists of item number 5, 10, 20, 25, 30, 40, and 44.
2. Factor 2 consists of item number 3, 13, 26, and 28.
3. Factor 3 consists of item number 1, 7, 32, 36, and 42.
4. Factor 4 consists of item number 6 and 21.
5. Factor 5 consists of item number 4, 9, 24, and 34.
6. Factor 6 consists of item number 2, 12, and 37.
7. Factor 7 consists of item number 18, 19, and 39.

Normality Test

Normality test on five factors shows that each factor has significancy < .05 meaning that each factor is not in normal distribution. Normality test on seven factor shows that only one factor (Factor 1) that has normal data distribution (p = .051) while the other six do not have normal spread (p < .05). Spearman correlation is then applied to see relation between factors.

Seven Factor Reliability Test

Factor reliability test. Factor 1 has alpha coefficient .783, factor 2 has alpha coefficient .772, factor 3 has alpha coefficient .753, factor 4 has alpha coefficient .906, factor 5 has alpha coefficient .696, factor 6 has alpha coefficient .631, and factor 7 has alpha coefficient .577. It means that factor 1 through 6 are reliable, whereas factor 7 is less reliable.

Table 1
BFI Blueprint

Factor	Items	*F*	%
Extraversion	1, 6R, 11, 16, 21R, 26, 31R, 36	8	18.18
Agreeableness	2R, 7, 12R, 17, 22, 27R, 32, 37R, 42	9	20.45
Conscientiousness	3, 8R, 13, 18R, 23R, 28, 33, 38, 43R	9	20.45
Neuroticism	4, 9R, 14, 19, 24R, 29, 34, 39	8	18.18
Openness to experience	5, 10, 15, 20, 25, 30, 35R, 40, 41R, 44	10	22.72
Total		44	100.00

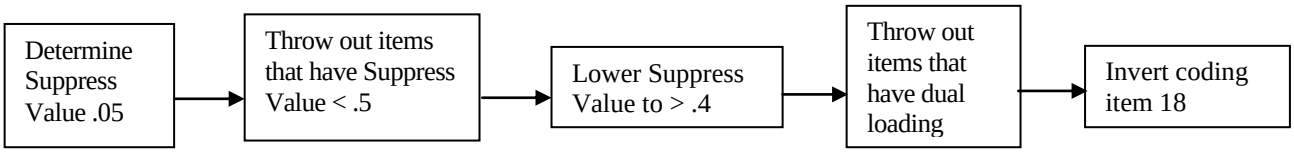

Figure 1. Flow chart of steps of finding seven factors

Table 2
BFI Five Factor Test Using Maximum Likelihood Method

	Factor				
	1	2	3	4	5
3c	.713				
13c	.704				
23Rc	.667				
28c	.666				
33c	.544				
18Rc	.482				
35Ro	-.406				
38c	.404				
26e					
43Rc					
37Ra					
2Ra					
12Ra					
5o		.652			
25o		.637			
40o		.58			
10o		.54			
16e		.533			.466
20o		.501			
44o		.484			
15o	.409	.464			
30o		.457			
9Rn			.593		
14n			.583		
19n			.562		
39n			.509		
4n			.506		
29n			.476		
34Rn			.443		
24Rn					
8Rc					
22a					
41Ro					
21Re				.915	
6Re				.839	
36e				.47	.453
1e				.468	.414
31Re				.425	
27Ra				.42	
32a					.713
7a					.586
42a					.545
11e					.448
17a					

Table 3
Seven Factor BFI Using Maximum Likelihood Method

	Factor						
	1	2	3	4	5	6	7
5o	.655						
40o	.619						
10o	.581						
30o	.557						
25o	.551						
20o	.541						
44o	.519						
28c		.746					
13c		.73					
3c		.712					
26e		.467					
32a			.658				
7a			.633				
42a			.604				
36e			.563				
1e			.481				
6Re				.893			
21Re				.874			
9Rn					.92		
34Rn					.54		
24Rn					.463		
4n					.437		
37Ra						.601	
2Ra						.57	
12Ra						.552	
39n							.599
19n							.565
18c							.453

Item reliability test. Item reliability test of the seven factors shows that items in factor 1, 2, 3, 4, 5, 6, and 7 have correlation coefficient > .3, meaning that none of the items is thrown away. It was concluded that every item measures what it is supposed to measure.

Correlation Between Factor Tests

Based upon correlation test between five and seven factors, several factors seem to have significantly positive and negative correlation with several others. On Table 4, it can be seen the correlation between five factors. Extraversion has a high positive correlation with openness to experience; agreeableness, does not have

Table 4
Correlation Between Five Factors and Seven Factors

		E	Ab	C	N	O	Faktor 4 I	Faktor 6 As	Faktor 2 C	Faktor 5 ES	Faktor 1 O	Faktor 3 F	Faktor 7 V
Extraversion	Correlation Coefficient	1										
	Sig. (2-tailed)	.										
Agreeableness	Correlation Coefficient	.253	1									
	Sig. (2-tailed)	.001	.									
Conscientiousness	Correlation Coefficient	.152	.261	1								
	Sig. (2-tailed)	.057	.001	.								
Neuroticism	Correlation Coefficient	-.124	-.094	-.402	1							
	Sig. (2-tailed)	.122	.242	0	.							
Openness	Correlation Coefficient	.364	.112	.154	-.084	1						
	Sig. (2-tailed)	0	.163	.054	.297	.						
Factor 4	Correlation Coefficient	-.793	-.065	.071	-.035	-.195	1					
Introversion	Sig. (2-tailed)	0	.418	.379	.667	.015	.					
Factor 6	Correlation Coefficient	.103	-.628	-.379	.177*	.042	-.164	1				
Aggressiveness	Sig. (2-tailed)	.2	0	0	.027	.606	.04	.				
Factor 2	Correlation Coefficient	.325	.214	.833	-.288	.161	-.021	-.174	1			
Conscientiousness	Sig. (2-tailed)	0	.007	0	0	.045	.792	.03	.			
Factor 5	Correlation Coefficient	.098	.163	.395	-.856	.142	.102	-.207	.339	1		
Emotional Stability	Sig. (2-tailed)	.226	.042	0	0	.078	.205	.009	0	.		
Factor 1	Correlation Coefficient	.418	.170	.167	-.073	.917	-.227	.015	.213	.137	1	
Openness	Sig. (2-tailed)	0	.033	.037	.368	0	.004	.849	.007	.087	.	
Factor 3	Correlation Coefficient	.605	.622	.176	-.05	.283	-.310	-.031	.305	.111	.357	1
Friendliness	Sig. (2-tailed)	0	0	.028	.538	0	0	.702	0	.169	0	.
Factor 7	Correlation Coefficient	-.186	-.033	-.479	.694	-.06	.079	.134	-.251	-.387	-.047	-.032	1
Vulnerability	Sig. (2-tailed)	.02	.681	0	0	.438	.329	.096	.002	0	.561	.693	.

Note. E = Extraversion, Ab = Agreeableness, C = Conscientiousness, N = Neuroticism, O = Openness, I = Introversion, As = Agressiveness, ES = Emotional Stability, F = Friendliness, V = Vulnerability

correlation with the four others, conscientiousness has a pretty high negative correlation with neuroticism. Correlation between extraversion and openness to experience shows that those two have the same thing in common, maybe because the items have multi-interpretation, meanwhile conscientiousness has a negative correlation with neuroticism, meaning that those two factors measure the opposite aspects.

Naming of the Seven Factors

Factor 1. Factor 1 consists of seven items; 5, 10, 20, 25, 30, 40, and 44 originated from factor openness, so factor 1 is a fraction of openness, proven by a very high positive correlation with openness. Another proof is positive correlation between factor 1 and extraversion, and factor 1 and factor 3, both are originated from extraversion. So, factor 1 is named openness.

Factor 2. Factor 2 consists of four items; 3, 13, 26, and 28, in which item no 3, 13, and 28 originated from conscientiousness and item no 26 originated from extraversion. Factor 2 has a high positive correlation with extraversion and conscientiousness since the items were composed from those two factors. Factor 2 has a positive correlation with factor 3 because those two factors were composed from extraversion. Factor 2 has a negative correlation with factor 5 since factor 2 consists of items of conscientiousness and factor 5 consists of items of neuroticism. Factor 2 is called "conscientiousness" based upon factor composition and item content. Factor 2 measures carefulness, perseverance, firmness, consistency within self in finish-

Table 5
Variance Explained by Five Factors and Seven Factors

	Variance Explained by Five Factors	Variance Explained by Seven Factors
Factor 1	15.284%	17.073%
Factor 2	10.567%	12.682%
Factor 3	7.069%	7.436%
Factor 4	5.592%	7.162%
Factor 5	4.891%	6.061%
Factor 6	-	5.492%
Factor 7	-	4.258%
Total	43.405%	60.191%

ing a job. Factor 2 has a high correlation with conscientiousness, since those two measures the same thing.

Factor 3. Factor 3 consists of three items (7, 32, and 42) originated from agreeableness and two items (1 and 36) originated from extraversion, therefore explain the high positive correlation between extraversion with agreeableness. Besides, factor 3 has a positive correlation with factor 1 since factor 1 consists items originated from openness and factor 3 consists of items originated from extraversion. There is a high correlation between factor 3 and factor2 and factor 4 because those three factors originated from items of extraversion. Since items that construct factor 3 are a blend of extraversion and agreeableness, so factor 3 is called friendliness. This factor measures interest to socialize and help other people. The term is inspired from sub-factor extraversion in blueprint of IPIP (Mastuti, 2005).

Factor 4. Factor 4 consists of two items, 6 and 21, originated from extraversion. Factor 4 has a pretty high correlation with Factor 3 since those two originated from extraversion. Factor 4 has a negative correlation with extraversion since the items originated from unfavorable items of extraversion, so factor 4 is called introversion.

Factor 5. Factor 5 consists of four items, 4, 9, 24, and 34. These items originated from items of neuroticism with three unfavorable items , so factor 5 has a high negative correlation with neuroticism meaning that those two factors measure the opposite things. Factor 5 has a high positive correlation with conscientiousness. Factor 5 has a negative correlation with factor 7 (vulnerability) meaning that those factors measure the opposite things. Factor 5 is called emotional stability.

Factor 6. Factor 6 consists of three items, 2, 12, and 37. Those three items were the unfavorable items of agreeableness, so factor 6 has a high negative correlation with agreeableness and measure the opposite of agreeableness. Those three items explain verbal and nonverbal assault on others. So, it is called "aggressiveness". Aggressiveness also has a negative correlation with conscientiousness, indicating a negative correlation between self-control and aggressiveness.

Factor 7. Factor 7 consists of three items, 18, 19, and 39 in which number l9 and 39 originated from neuroticism, and item number 18 originated from conscientiousness, unfavorable in character. Those three items measure the same thing since factor 7 has a negative correlation with conscientiousness and a positive correlation with neuroticism. Based on content, factor 7 describes anxiety and carelessness, so it is called vulnerability with the assumption that individuals with anxiety would work carelessly, and being vulnerable to environmental stress. It is inspired from the word vulnerability as sub-factor of neuroticism in the blueprint of IPIP (Mastuti, 2005).

Hypothesis Test

Internal structure test shows that five factor model does not have a significant goodness of fit while seven factor models have a significant goodness of fit as big as .051. This means that seven factor model is more appropriate to the data collected than five factor model, so the research hypothesis is accepted.

Discussion

Reliability test on five factor model shows that factor agreeableness and openness to experience have alpha coefficient < .7 meaning that those two factors are not reliable, whereas in seven factor model, Factor 1 through 6 have alpha coefficient > .7 meaning reliable, and Factor 7 as big as .577 meaning not reliable. As a whole, reliability test shows that seven factor model has a better internal consistency than five factor model.

Table 5 shows the variance explained by five factor and seven factor. Based on variance that can be explained, seven factor models can explain more than five factor model. So, seven factor model can mapped personality better than five factor model.

Items of extraversion are spread in three factors and extraversion has correlation with factor 1, factor 2, factor3 and factor 4. It indicates that extraversion does not fit the subjects, factor 4 shows that factor that should be measured is the opposite of extraversion, that is introversion.

Agreeableness is split into two factors, factor 3 and 6. Favorable items go to factor 3, measuring friendliness, and unfavorable items go to factor 6, measuring aggressiveness. In the reliability test, total and items, agreeableness is the weakest factor in five factors, this makes agreeableness split and form two factors which are more consistent.

Conscientiousness is a pretty strong factor as seen in factor 2. The essence is still available although the items are trimmed. Conscientiousness has unpredicted pattern of correlation, with factor 6. So, it is concluded that there is a positive correlation between conscientiousness and aggressiveness. Based on item spread and correlation between factors, neuroticism is divided

into factor 5 and 7, but not so with agreeableness since those two factors measure almost the same thing and those factors are positively correlated. Factor 7 is the only factor that has reliability less than .6, explaining 5 % of the variance. It is assumed that factor 7 is a sub factor of factor 5 (Siaputra, personal communication, 2011) although it cannot be proved by maximum likelihood method.

Openness is the strongest factor because its items spread clustered in factor 1 even though three items has been trimmed, and it has a high positive correlation with factor 1. So, factor 1 is openness

Fusion, cleveage, or unchanging of five factors that form seven factors lead to two alternative meaning even though they are not free from weaknesses that could threaten internal validity of the results of this study. First, difference in the essence of meaning and translation of items form the seven factors. Difference in meaning given could give different interpretation upon items in the BFI. For example, item 6 that say "is reserved" could give several interpretations. One, the subject does not like noise or festivity. Two: he subject does not like to interact or speak with others. Different interpretation gives different response that could threaten the validity based on response. Second, personality characteristics of Big Five are very broad so that there is a possibility of overlapping between base factors that could bring different factors to emerge (Siaputra, personal communication, 2011). Analogy of this is color. Three base colors can give many other colors when they are mixed. Items in Big Five could result in different personality characteristics if items in the factor have multi-interpretation, so that one factor could represent another factor.

Conclusion

Through reliability and validity tests of the internal structure, five factor model does not fit in explaining subject variation. Seven factor model is more appropriate to measure and explain subjects' personalities. Those seven factors are openness, conscientiousness, friendliness, introversion, neuroticism, aggressiveness, and vulnerability. Accuracy of the seven factors has been tested through convergence validity test. The internal structure of BFI does not match with personality construct of BFI. The more appropriate internal structure of BFI is seven because the seven factor model is in accordance with the data and has the ability to explain more personality variance. Even so, personality cannot be directly attributed through seven characteristics because there are two alternative meanings that has been explained.

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