The Development of the Masaklaw na Panukat ng Loob (Mapa ng Loob)

Gregorio E. H. Del Pilar
University of the Philippines, Diliman, Quezon City

Studies have shown that trait constructs measured by the two earlier Filipino personality inventories and a lexically based Filipino personality research instrument are well represented by the Five-Factor Model (FFM; Katigbak et al., 2002; Church et al., 1997). On this basis, a 188-item instrument that sets out to operationalize the FFM with Filipino trait constructs was developed, with a core of twenty facet scales, each with eight items, and grouped by four for each of the five domains. In six successive item-testing studies, considerations of internal consistency reliability, content validity, keying balance, and factor structure were addressed. While most of the samples across the six item-testing studies came from the national state university in Metro Manila, data for the last study (total $N = 576$) also included student samples from three other universities ($N = 192$), as well as an adult sample ($N = 192$). The reliabilities for the final version of the instrument ranged from .65 to .81, with a mean of .72. Keying balance for sixteen facet scales is perfect or near-perfect, with the remaining four having a balance of 2:6. A Principal Component Analysis of the twenty facet scales showed a clear five-factor structure, with each facet loading on its intended factor. Further work on the Mapa ng Loob, which includes the development of a 50-item short form, an English version, and validation studies, are briefly discussed.

Keywords: Big Five, Filipino trait constructs, Five-Factor Model, personality scales, personality traits, test development, validation studies

Like their counterpart instruments in other parts of the world, the two general Filipino multiscale personality inventories, Enriquez and Guanzon's *Panukat ng Ugali't Pagkatao* (PUP, 1985) and Carlota's *Panukat ng Pagkataong Pilipino* (PPP, 1987), attempt to comprehensively measure the important personality trait constructs in their target culture. Enriquez arrived at his list of 24 traits by using, as sources, interviews with college students, word associations, Filipino proverbs, the personality and social science literature, and dictionaries. On the other hand, most of Carlota's 19 trait constructs were identified from interviews with nearly 300 informants from ages 13 to 80, who had been asked to describe themselves, a person they liked, and a person they disliked.

The *Masaklaw na Panukat ng Loob*, or *Mapa ng Loob*, likewise aims to comprehensively measure personality trait constructs of theoretical and practical significance in Filipino culture, hence the qualifier "*masaklaw*" in the instrument's name. Towards the aim of comprehensiveness, it operationalizes the Five-Factor Model (FFM) of personality traits (Costa & McCrae, 1992; John & Srivastava, 1998), widely recognized as a very broadly encompassing model of personality trait organization. The decision to operationalize the Five-Factor Model was also based on the view recognizing the model's applicability to the organization of Filipino traits, an empirically based position that will be discussed in the next section. Much as a map indicates the location of geographical elements in two dimensions, the Mapa aims to locate both trait constructs and people in its five-dimensional space. Doing so would allow the users of the Mapa, as a research tool and as an instrument in the applied setting, to profit directly from the rapid accumulation of systematic findings that an integrative and consensual framework such as the Five-Factor Model makes possible (Gosling, Rentfrow, & Swann, 2003; Markey, Markey, & Tinsley, 2004; Ozer & Bennett-Martinez, 2007; De Haan, Dekovic, & Prinzie, 2012).

The *Mapa ng Loob* is made up of twenty facet scales, four for each of the five factors or *domains*. There are also two *interstitial* scales or scales that are blends of two factors. A Social Desirability Scale completes the 28-scale, 188-item inventory.

The following section discusses the results of the study that investigated the appropriateness of the Five-Factor Model in the Philippine setting. This is followed by a description of the initial phase of test development, consisting of the selection of target constructs, the generation of the initial pool of items for the various scales, and the five simultaneous item testing studies

for each of the domain scales that gave rise to the first draft of the complete instrument. The Methodology and Results sections deal with the item testing studies on successive drafts of the instrument that led to its final form. The main part of the Discussion section deals with the initial validation studies that have been done on the draft versions of the instrument, as well as on its final version.

The Five-Factor Model and Filipino traits

The adequacy of the Five-Factor Model in organizing indigenous Filipino traits was investigated in a study by Katigbak, Church, Lapeña, Carlota, and Del Pilar (2002). The Filipino traits investigated were those measured by Enriquez's PUP, Carlota's PPP, and Church and colleagues' *Panukat ng mga Katangian ng Personalidad* (PKP), an adjective rating scale developed for research purposes using a comprehensive lexical approach (Church, Katigbak, & Reyes, 1996; 1998). The Filipino version of the NEO PI-R or FNEO PI-R (McCrae, Costa, Del Pilar, Rolland, & Parker, 1998) was used as the main measure of the five-factor model. As the following section shows, factor analyses and correlational analyses suggested that Filipino traits, generally speaking, were well-represented by the five-factor model.

Evidence Based on the Panukat ng Pagkataong Pilipino (PPP)

The rotated factor matrix resulting from the factor analysis of the PPP scales is shown in Table 1. It will be seen that four, rather than five factors, were obtained (Katigbak et al., 2002). Loading highest on the first factor, which appears to be a blend of A and N, are the scales for *Pagkamagalang* (Respectfulness), *Pagkamatulungin (*Helpfulness), *Pagkamaunawain* (Capacity for Understanding), *Pagkamapagkumbaba* (Humility), and *Pagkapasensyoso* (Patience); and those for *Pagkamaramdamin* (Sensitiveness) and *Pagkamahinahon* (Emotional Stability).

To confirm whether the interpretation of this factor as a blend of Agreeableness and Neuroticism was correct, factor scores were computed for Factor 1 and correlated with the domain scores of the Filipino NEO PI-R (FNEO PI-R). Indeed, it turned out that the scores on Factor 1 correlated most with Agreeableness ($r = .53$), and with Neuroticism ($r = ".57$).

Table 1. *Rotated Factor Matrix for Four-Factor Solution for PPP Scales*

		Factor			
English (Filipino)	1	2	3	4	h²
Interpersonal scales					
Thoughtfulness (*Pagkamaaalalahanin*)	.27	**.66**	.22	.03	.56
Social Curiosity (*Pagkamadaldal*)	-.23	-.30	**.55**	.13	.46
Respectfulness (*Pagkamagalang*)	**.67**	.40	-.09	-.01	.61
Sensitiveness (*Pagkamaramdamin*)	**-.72**	-.05	-.17	-.20	.60
Obedience (*Pagkamasunurin*)	.34	.23	.03	**-.68**	.63
Helpfulness (*Pagkamatulungin*)	**.46**	.43	.33	-.04	.51
Capacity for Understanding (*Pagkamaunawain*)	**.68**	.20	.18	.18	.57
Sociability (*Pagkapalakaibigan*)	.16	.22	**.81**	.07	.74
Personal scales					
Orderliness (*Pagkamaayos*)	-.01	**.81**	.06	.01	.66
Emotional Stability (*Pagkamahinahon*)	**.80**	.04	.10	.04	.66
Humility (*Pagkamapagkumbaba*)	**.57**	.46	-.12	.20	.56
Cheerfulness (*Pagkamasayahin*)	.27	.06	**.75**	.22	.68
Honesty (*Pagkamatapat*)	.44	**.54**	-.22	.27	.61
Patience (*Pagkamatiyaga*)	**.65**	.33	.10	.16	.57
Responsibleness (*Pagkaresponsable*)	.22	**.76**	-.07	.15	.66
Intelligence/creativity scales					
Creativity (*Pagkamalikhain*)	.31	.31	.13	**.64**	.64
Risk-Taking (*Pagkamapagsapalaran*)	.31	.16	.28	**.52**	.48
Achievement Orientation (*Pagkamasikap*)	.32	**.56**	.10	.38	.57
Intelligence (*Pagkamatalino*)	.28	.27	.30	**.65**	.66

Note. N = 387. The highest loading of each variable is indicated in boldface. PPP = *Panukat Ng Pagkataong Pilipino.* This table is reprinted from "Are indigenous personality dimensions culture-specific? Relating Philippine inventories to the Five-Factor Model," by Katigbak et al., *Journal of Personality and Social Psychology*, 2002, 82 (1), p. 91.

Three of the five scales which load highest on the second factor are clearly related to Conscientiousness, namely, *Pagkamaayos* (Orderliness), *Pagkaresponsable* (Responsibleness), and *Pagkamasikap* (Achievement Orientation). The other two, *Pagkamaalalahanin* (Thoughtfulness) and *Pagkamatapat* (Honesty), are made up of items that deal with culturally valued behaviors as might be taught at home or in school. Thus, it is not surprising that these two scales load as well on what was interpreted as the Conscientiousness factor. Scores on this factor correlate most highly with the Conscientiousness domain score of the FNEO PI-R (r = .57), supporting the interpretation of the second factor as Conscientiousness.

The third factor, on which the *Pagkamadaldal* (Social Curiosity), *Pagkapalakaibigan* (Sociability), and *Pagkamasayahin* (Cheerfulness) scales have their highest loading, is evidently the Extraversion factor. Indeed, the factor scores on Factor 3 correlate .71 with the Extraversion domain score of the FNEO PI-R. Finally, the fourth factor, on which the *Pagkamalikhain* (Creativity), *Pagkamatalino* (Intelligence), and *Pagkamapagsapalaran* (Risk-taking) scales have their highest loading, seems interpretable as the Openness factor. The high negative loading of the *Pagkamasunurin* (Obedience) scale on this factor appears to reinforce this interpretation, since high O individuals, as is well-known, have a tendency not to conform. Indeed, the factor scores on Factor 4 correlate highest with the Openness domain score of the FNEO PI-R (r = .45).

The fusion of the expected Agreeableness and Neuroticism factors into one in the PPP was hypothesized to be attributable to the underrepresentation of the Neuroticism domain in the PPP (Katigbak et al., 2002). As had been mentioned, only the *Pagkamaramdamin* (Sensitiveness) and the *Pagkamahinahon* (Emotional Stability) scales seem related to N, while five scales appear to be related to A. The results reported below on the construction of the Mapa ng Loob scales, where equal numbers of Neuroticism and Agreeableness facets formed separate factors, validate the above hypothesis.

Evidence Based on the Panukat ng mga Katangian ng Personalidad (PKP)

The *Panukat ng mga Katangian ng Personalidad* began with 6900 person-descriptive terms culled from a Filipino dictionary and reduced to 1297 personality-related *adjectives* through consensual classification by Filipino judges and samples of college students. Versions of the instrument

containing different numbers of adjectives were factor analyzed in three samples, yielding seven lexical factors that replicated "fairly consistently" (Katigbak et al., 2002, p. 91). Six of these appeared to have substantial overlaps with measures of the five factors. In the study by Church, Reyes, Katigbak, and Grimm (1997), which used a subset of the 248 adjectives considered as markers of the replicating factors, the correlations reported were with scores on the NEO Five-Factor Inventory (NEO-FFI). The second column of Table 2 shows the highest correlation of each of the obtained lexical factors with the five FFI scores. One sees that each of the lexical factors correlates highest with the FFI scale that one would expect it to.

In the same study, a second set of scores on the Big Five was computed on another subset of the 248 scores that had also been consensually classified by nine judges according to Goldberg's 1990 five-factor taxonomy of adjectives. The correlations are shown in the third column of Table 2, showing once again the Big Five trait correlating highest with each Filipino lexical factor. It will be noted that the ad hoc Goldberg scales with which the Filipino factors correlate the most are identical to the FFI scales with which the Filipino factors were most correlated. An exception is the *Pagkas-umpungin* or Temperamentalness factor, which correlates most with Conscientiousness, then with Agreeableness, but still highly with Neuroticism. As a footnote, the seventh Filipino factor was labeled *Mga Katangiang di Kanaisnais* (Negative valence or Infrequency), made up of highly evaluative negative terms that are infrequently endorsed (e.g., troublesome, useless, drunkard, and stupid) and whose substantive status remains uncertain (Saucier & Goldberg, 2001).

Evidence BASED on the Panukat ng Ugali't Pagkatao (PUP)

The PUP was factor analyzed at the item level because many of its scales were too short to have adequate internal consistency reliability. Six factors were found to be interpretable, four of which resembled Agreeableness, Conscientiousness, Neuroticism, and Extraversion. These interpretations were confirmed by correlations between scores on these factors and the corresponding FNEO PI-R domain scores, with correlations ranging from .53 to .60. Scores on the fifth factor correlated highest with Openness to Experience ($r = .28$). However, since it was defined by a set of items that had very high rates of participant agreement or disagreement and, additionally, its correlation with Openness was quite modest and, in fact, counter-intuitive, it appears to be best interpreted as Communality and,

Table 2. Filipino Factors from the 248-item Version of the Panukat ng mga Katangian ng Personalidad (PKP), and the Five-Factor Scales with which each Filipino Factor Correlates Highest

Filipino Factor	NEO Five-Factor Inventory Scale correlating highest with Filipino factor ($N = 237$)	Ad hoc Filipino adjective scale constructed using Goldberg's Big Five taxonomy of adjectives correlating highest with the Filipino factor ($N = 1511$)
Makakapwa vs Makasarili (Concern for others vs. Egotism)	A (.54)	A (.81)
Disiplinado (Conscientiousness)	C (.33)	C (.77)
Tiwala sa Sarili (Self-Assurance)	N (-.33)	N (".58)
Pagkasumpungin (Temperamentalness)	N (.22)	C (-.54), A (-.45), N (.40)
Matalino (Intellect)	O (.34)	O (.56)
Kalog (Gregariousness)	E (.44)	E (.66)

Note. The figures in parentheses are the correlations of each Filipino factor (Column 1) with the NEO FFI factor (Column 2) and with the ad hoc Filipino adjective scale constructed using Goldberg's Big Five taxonomy of adjectives (Column 3, Church et al., 1997).

therefore, nonsubstantive as well (i.e., just like the PKP infrequency factor above). Finally, the last factor, defined by items indicating autonomy and will, was also correlated with the Agreeableness domain ($r =$ ".36) and, more specifically, with the Compliance facet ($r =$ ".40).

The above results appear to show that the five-factor model can well represent Filipino traits as they have so far been measured by the three existing Filipino inventories. In more technical terms, the five-factor model appears to capture a sufficient amount of variance in Filipino self-reports of typical behavior, as represented by traits. It thus becomes meaningful to have clear measures of these five factors using Filipino traits.

Preliminary Considerations and Procedures

The Mapa ng Loob began as a project in a graduate class in Personality Scale Construction taught at the national state university by the author, who also headed the team that saw the project to completion. Its construction was also participated in by undergraduate students enrolled in psychological measurement classes taught by the author at the same university. Initially meant to be completed at the end of the semester, it took instead seven item testing studies (including the preliminary study) and five successive semesters to complete.

Selection of the Target Constructs

The first concern in the creation of the *Mapa ng Loob,* as perhaps for any personality inventory, was the identification of the trait constructs to be measured. The selection of a trait construct for inclusion in the *Mapa ng Loob* was generally based on how good a marker it was of each of the five factors and, to a less explicit extent, its significance in Filipino culture.

The inventory was initially meant to be based on the *Panukat ng Pagkataong Pilipino* (PPP, Carlota, 1987).[1] The way the trait constructs were selected for the PPP, as previously mentioned, argues for their salience in Filipino culture. Relatedly, as the graduate class of six was made up of students from a variety of backgrounds, it could also keep well in sight, throughout the initial test construction process, the practical importance of the traits in a variety of settings (among students, in the counseling situation, in industry).[2] Thus, the following PPP scales, which were considered to be good markers of the five factors, were selected: *Pagkamaramdamin* (Sensitiveness) and *Pagkamahinahon* (Emotional Stability) for Neuroticism;

Pagkamasayahin (Cheerfulness) and *Pagkapalakaibigan* (Sociability) for Extraversion; *Pagkamaunawain* (Capacity for Understanding) for Agreeableness; and *Pagkamasikap* (Achievement Orientation), *Pagkamaayos* (Orderliness), and *Pagkaresponsable* (Responsibleness) for Conscientiousness.

Two more scales were selected from the PPP, although each one was significantly redefined and renamed. *Pagkamalikhain* (Creativity), for the Openness to Experience domain, was judged to be broader than the other facet constructs in the inventory and was thus reduced to one of its facets, namely, Original Thinking, and renamed *Kakaibang Pag-iisip*. *Pagka-mapagkumbaba* (Humility) was judged to be too psychologically complex and was thus reconceptualized and renamed as *Pagkadimayabang* (Modesty).

The selection of the remaining traits was likewise based, generally speaking, on the two criteria mentioned above. To complete the facet scales, initially set at fifteen for the inventory (i.e., three facets for each of the five domains), *Pagkamapag-alala* (Apprehensiveness) was added for Neuroticism, *Pagkamasigla* (Energy) was added for Extraversion, *Hilig sa Bagong Kaalaman* (Intellectual Curiosity) and *Lawak ng Isip* (Broad-mindedness) were added for Openness to Experience, and *Pagka-mapagtiwala* (Capacity for Trust) was added for Agreeableness. Replacements of some of the abovementioned trait constructs were made in the course of test development, primarily in order to obtain a clear five-factor structure. *Pagkamahinahon* was replaced by *Hina ng Loob,* and *Lawak ng Isip* was replaced by *Pagkamakasining* (Aesthetic Sensitivity; see the discussion on insuring five-factor structure in the Results section below). *Pagkamaayos* (Orderliness) was eventually replaced by *Pagkamapagplano* (Planfulness).

Development of the Preliminary Version of the Instrument

All six members of the graduate class, plus the author as the class instructor, constructed items for the different scales of the Mapa. Five of the students were each assigned a domain for which he or she reviewed the relevant local and foreign literature, in preparation for leading the class discussion on each of the target constructs making up the domain.[3] This was followed by a tentative formulation of the target constructs and then by item-writing in class as well as outside of class.

Additionally, students in two undergraduate classes in Psychological Measurement taught by the author, numbering 50 students in all, were each assigned to generate items for two facet scales. Thus, each scale had assigned to it 6–7 undergraduate students, each of whom was given the definitions formulated in the graduate class.

The above procedure generated about 650 individual items, which were reviewed for sets of highly similar items, with the intent of discarding all except the best representative for each set. To this reduced set were added the unique items and the items from the PPP scales that were originally to form part of the Mapa. All these items were then rated by teams in the graduate class on a five-point scale from 0–4 for prototypicality of the item as a manifestation of the target trait. Only those with ratings of 3 and 4, numbering 387, were eventually empirically tested. The number of items per domain ranged from 60 (Neuroticism) to 93 (Conscientiousness).

Five questionnaires of uniform length (105 items) were constructed, one for each of the domains of the five-factor model, and administered to a total of $N = 963$ students from UP Diliman and Colegio de San Juan Letran.[4] Following a strict sampling plan, each domain questionnaire was administered to approximately 200 students, about half of which came from each of the two institutions. Reliability analysis was performed on each scale, resulting in reliabilities that ranged from .74 to .89, with a mean of .82. Although the target length for the facet scales had been set to eight items, 15 items were chosen for each of the preliminary facet scales to allow the deletion of items that might pose problems for the five-factor structure envisioned for the inventory.

METHOD

Participants. A total of three thousand three hundred sixty-five ($N = 3365$) participants were administered successive drafts of the inventory that resulted from the preliminary item testing study. Roughly two-thirds of this sample were female, and about 90% were college students, most of whom were introductory psychology students from UP Diliman. The remainder were adults, most of whom were employees in call centers and business process outsourcing establishments in Metro Manila. Seventy-six percent of these participants contributed data that were analyzed as part of the six item testing studies that were conducted after the preliminary study.

Of the remaining 24%, about 14% were excluded from the last item testing study because of the relative unreliability of the data provided by the samples of which they were part, while the remaining 10% were not included in the random samples that were drawn for the final sample. These exclusions are discussed in the next paragraph.

Sixth and last item testing study. The last item testing study occupies a special place in the series of studies because sampling was extended beyond college students from UP Diliman and the Metro Manila area. For this last study, 576 college-age students and adults provided data. Sixty-seven percent were female, and 29% were male, with the remaining 4% not reporting. Three hundred eighty-four ($N = 384$) participants were classified as belonging to the college-age sample (age range: 16–23, five not reporting, mean = 18.3, $SD = 1.48$), while $N = 192$ were considered to be part of the adult sample (age range: 24 to 57, five not reporting, mean age = 30.4, SD = 7.62). For the college-age and adult samples combined, the mean age was 22.3 (SD = 7.63).

The composite sample of 576 came from three groups, namely, a subset of the UP Diliman sample who participated earlier in the semester in the fifth item testing study; a composite sample of college students from four universities in the Metro Manila area, three universities in Luzon, college student volunteers for a humanitarian organization based in a Visayan province, and a university in Mindanao; and an adult sample from the Metro Manila area. These nine college samples were first analyzed to find out in which among them were the scale reliabilities comparable to those obtained in the previous item testing studies. This was done in recognition of the fact that five of these nine college samples were recruited by students as part of a course requirement in an undergraduate Psychological Measurement course taught by the author and, as such, were tested under conditions that might not have been optimal. These analyses indicated that three samples, two from Metro Manila and one of the provincial samples, were acceptable; that is, scale reliabilities were mostly .60 or higher (average of .67) for the three samples. Since the scale reliabilities of the adult sample ($N = 192$) were also acceptable, it was decided to include this entire sample in the composite sample and randomly draw samples of the same size from the UP Diliman sample ($N = 413$) and the combined sample from the three universities in which the Mapa scales were found to be reliable (combined $N = 330$). Table 3 summarizes the above information in tabular form.

Table 3. The Sample for the Final Version of the Mapa ng Loob

Group	*N*	N selected for final sample	Gender (in percentage) in the final sample			Major
			M	F	Not reporting	
UP Diliman (16–23 years old)	**413**	**192**	**29**	**65**	**6**	**varied**
College non-UP (16–23 years old)	**330**	**192**	**18**	**78**	**4**	**varied**
Asia- Pacific College	83	48	24	65	11	Tourism Management
Far Eastern University	191	115	20	79	1	Psychology
Central Luzon State University	56	29	29	69	2	Agriculture-related
Adult (24 years old and older)	**192**	**192**	**38**	**62**	**0**	**Varied (for those who had college degrees)**
Total	**933**	**576**	**29%**	**67%**	**4%**	

Note. The information for each of the UP, College non-UP, and Adult samples are given in bold font.

Procedure. The successive drafts of the *Mapa ng Loob* were administered initially in pen-and-paper format and then subsequently in online format (although the last item testing study used both modes of administration).[5] For nearly all the student samples, the instrument was administered within the school premises, in a group or classroom setting. The sole exception to this was the Visayan college student sample from the humanitarian organization mentioned earlier, which was tested according to individual availability in the organization headquarters during a whole-day gathering. Students from UP Diliman were given course credit for participation, while those from other institutions were invited to participate as part of freshman orientation activities or for exposure to personality testing. For all samples, it was made clear that participation was purely voluntary and that it could be discontinued at any time.

As mentioned earlier, item selection was guided by considerations of internal consistency reliability, content validity, keying balance, and factor structure. Although what follows separates the discussion of reliability and content validity from the discussions on keying balance and insuring and/or verifying five-factor structure, it should be clear that scale construction and modification usually involved all four concerns simultaneously.[6]

Item selection for reliability and content validity. Software such as SPSS and its freeware counterpart PSPP makes possible a type of item selection procedure that results in a unique set of items from the pool that has an internal consistency reliability higher than any other set. It does this by indicating what the resulting Cronbach's alpha value would be if a particular item was to be deleted from the pool. It is thus possible to undertake an iterative procedure that removes, at each cycle, the "worst" item, that is, the item with the lowest item–total correlation. The removal of such an item increases the value of Cronbach's alpha to the greatest extent. When this procedure is continued until Cronbach's alpha no longer increases, it will leave a core of mutually intercorrelated items with the highest possible alpha that can be obtained from the pool.

The above procedure is not without its disadvantages, however. First, it capitalizes on the chance to arrive at the maximum value of alpha, so that shrinkage of the reliability estimate is likely to be observed for subsequent samples. This is because an item's correlation with the total, which is the basis for keeping or deleting an item, can attain a high value simply by chance. Second, unless the scale is meant to be unifactorial, the procedure risks removing all other facets of the target construct except the largest

one, thus reducing content validity. To deal with the first possibility, samples were randomly (split into two, with reliability analysis done on the first, and reliability estimates recalculated on the second. To insure content validity, the reliability analysis as described above was tempered by a deliberate attempt to cover all the important facets of the construct as set out in the construct definition.

Item selection for keying balance. Although the author and his team of graduate students subscribed from the outset to the widely held view that scales should have an approximate balance of items keyed in both the positive and negative directions, keying balance became a greater concern midway through the series of item testing studies, when it was noticed that the Neuroticism and Agreeableness facet scales were seriously unbalanced. In the former domain, all but one of the 24 items were keyed in the positive direction. On the other hand, in the latter domain, 17 of the 24 items were keyed in the negative direction. Thus, remedying the imbalance in the scales in these two domains became a primary focus during the third item testing study, and keying balance remained a concern for the succeeding item testing studies.

Insuring five-factor structure. Each of the six item testing studies ended with a Principal Component Analysis to verify whether the facet scales of the instrument grouped as intended. While the criteria used for item selection always included criteria related to reliability, content validity, and keying balance, in four of those studies, items were chosen also on the basis of convergence with one domain, and discriminant relationships with another. Specifically, selected items had to have acceptable correlations with scales from the domain of which they were part, and had to be relatively uncorrelated with scales from another domain with which they had a tendency to correlate. Examples of these unwanted correlations were A1 *Pagkadimayabang* items with extraversion, or O2 *Hilig sa Bagong Kaalaman* with Conscientiousness. In these studies, where selection also relied on convergent–discriminant considerations (i.e., in addition to reliability, content validity, and keying balance), item selection was done on one sample, while the verification of five-factor structure was done on a cross-validation sample, both samples resulting from randomly splitting the total available sample. This was done to increase the likelihood that the five-factor structure was generalizable to other samples, and not only obtainable from the item selection sample in which such a structure was, in a manner of speaking, "designed".[7]

RESULTS

Reliability. The *Mapa* scales, throughout the different versions, generally had satisfactory reliability. Rarely did the reliability of a scale fall below .60. Nevertheless, increasing reliability was a regular feature of the efforts to improve the scales. Notable among the projects in this category were six research projects by students in Psychological Measurement taught by the author. Significant item replacement was undertaken by Alarcon, Parlade, Rodis, Santos, and Tan (2012), on the E3 *Pagkamasigla* (Energy) facet, improving its reliability from .57 in the second prefinal version to .76 in the third; and by Bayani, Chua, and De Jesus, 2013, on the C1 *Pagkamasikap* (Achievement Orientation) facet, raising its reliability from .66 in the fifth prefinal version to .73 in the sixth and final version. Noteworthy as well were the contributions of three groups to the improvement of the O4 *Pagkamaharaya* (Imaginativeness) scale, those of Christenson, Habana, and Pascual (2013), De Guzman, Jarillas, Pancho, and Regalado (2013), and Guico, Lee, Masangkay, and Tansinco (2013). These groups, although contributing only one item each to the final scale, succeeded in raising the reliability of the scale from .62 to .70.

Table 4 shows the reliability of the final version of the Mapa ng Loob. The second column shows the Cronbach's alpha reliability of the twenty facet scales and the two interstitial scales of the inventory. As can be seen, 13 of the 22 facet and interstitial scales (59%) have a reliability of at least .70, usually considered to be the minimum for individual use for personality scales. This compares favorably with the NEO PI-R, where 17 of the 30 facet scales (57%) meet this standard (Costa & McCrae, 1992). It will be noted that no reliability estimate is less than .65. It is also important to note that a second sample resulting from a random split of the total sample was used to compute the above values, so as to obtain stable reliability estimates for each of the scales, rather than estimates that would likely suffer shrinkage had they been obtained from the item selection sample. Indeed, for those scales which were modified from the fifth prefinal version to the final version, the values reported in the table are lower compared to those obtained from the item selection sample.

Keying balance. As mentioned earlier, keying balance became a serious concern when it was noticed midway through the different prefinal versions that the Neuroticism and Agreeableness scales were greatly unbalanced. It was thus given particular emphasis during the third item testing study, and

Table 4. Cronbach's Alpha Reliability Estimate for the Final Version of
the Mapa Scales, and Number of Positively-keyed Items per
Scale

Scale	Cronbach's Alpha	Number of positively-keyed items
N1 *Hina ng Loob* (Vulnerability to Stress)	.67	3
N2 *Pagkamaramdamin* (Oversensitiveness)	.77	5
N3 *Pagkamapag-alala* (Apprehensiveness) .	75	3
N4 *Pagkasumpungin*(Moodiness)	.75	5
E1 *Pagkamasayahin*(Cheerfulness)	.79	4
E2 *Pagkapalakaibiga* (Friendliness)	.81	3
E3 *Pagkamasigla* (Energy)	.73	2
E4 *Pagkamadaldal* (Loquaciousness)	.67	5
O1 *Kakaibang Pag-iisip* (Original Thinking)	.66	2
O2 *Hilig sa Bagong Kaalaman* (Intellectual Curiosity)	.67	5
O3 *Pagkamakasining* (Aesthetic Sensitivity)	.65	4
O4 *Pagkamaharaya*(Imaginativeness)	.70	6
A1 *Pagkadimayabang* (Modesty)	.69	5
A2 *Pagkamapagtiwala* (Capacity for Trust)	.65	3
A3 *Pagkamaunawain (*Capacity for Understanding)	.66	4
A4 *Pagkamapagparaya (*Obligingness)	.70	3
C1 *Pagkamasikap (*Achievement Orientation)	.72	3
C2 *Pagkapamapagplano (*Planfulness)	.70	2
C3 *Pagkaresponsable (*Responsibleness)	.79	4
C4 *Pagkamaingat (*Carefulness) .	71	4
NA *Dalas Makaramdam ng Galit (*Proneness to Experience Anger)	.74	5
AC *Pagkamatapat (*Sincerity)	.67	3
Social Desirability	.74	5
Neuroticism	.90	16
Extraversion	.89	16
Openness to Experience	.81	17
Agreeableness	.86	15
Conscientiousness	.90	13

Note. n = 285. The scores on the domain scales are obtained by summing the component facet scores. Thus each domain scale has 32 items. The Social Desirability scale has 12 items. The letters *NA* and the *AC* that precede the scales after the twenty base scales stand for *Neuroticism–Agreeableness,* and *Agreeableness–Conscientiousness*, adjoining scales between which the designated scales are interstitial.

was also addressed during the fourth and fifth item testing studies. The last column of Table 4 shows the number of positively keyed items for each of the twenty-two facet and interstitial scales of the *Mapa ng Loob*. Eighteen of these scales, or 82%, are perfectly or near-perfectly balanced, while four have a 2:6 or 6:2 ratio. This percentage is similar to that in the NEO PI-R, where perfect or near-perfect keying balance is achieved for 80% of the facet scales, while 6 scales have a 6:2 preponderance of positively keyed items (Costa & McCrae, 1992).

Five-Factor Structure. The first prefinal version of the *Mapa ng Loob* was made up of fifteen scales, with three facet scales per domain. Each of the facet scales was made up of fifteen items, in excess of the envisioned length of eight items to allow the selection of those items per scale that would result in a clear five-factor structure. While a Principal Component Analysis on this version revealed a relatively clear five-factor structure, it left substantial room for improvement. In particular, as Table 5 shows, the O scales appeared particularly problematic, with its first two facet scales loading primarily on the Conscientiousness factor. The E3 Pagkamasigla (Energy) scale likewise loaded primarily on this factor, while the A1 Pagkadimayabang (Modesty) scale showed a secondary loading on the Extraversion factor.

Factor structure greatly improved with the second prefinal version, likely the result of item selection that took into consideration convergent–discriminant relationships between items and relevant domain scores. For example, in selecting the items for the O1 *Kakaibang Pag-iisip* (Original Thinking) scale, which loaded primarily on the Conscientiousness factor, items were selected if they correlated with Openness to Experience domain scores and did not correlate with Conscientiousness domain scores.

It is possible however that the more decisive factor in improving the facet scales' factor structure was the replacement of *Lawak ng Isip* (Broadmindedness) with aesthetic sensitivity as the third Openness to Experience facet. This replacement was prompted by low reliability values obtained from both a UP Diliman sample as well as a sample from St. Michael's College in Laguna during the second item testing study. It was hypothesized that the somewhat controversial topics contained in the scales' items (e.g., premarital sex, homosexuality, the role of the church in sociopolitical debates) might require a degree of reflection and maturity beyond what the college-age samples possessed for the effects of Openness to Experience to become manifest. On the other hand, a sensitivity to aesthetic

Table 5. Principal Component Analysis on the Mapa ng Loob Prefinal Version 1

		Component				
		1	2	3	4	5
N1	*Hina ng Loob*		.826			
N2	*Pagkamaramdamin*		.802			
N3	*Pagkamapag-alala*		.890			
E1	*Pagkamasayahin*			.854		
E2	*Pagkapalakaibigan*			.798		
E3	*Pagkamasigla*	.551		.461		
O1	*Kakaibang Pag-iisip*	.430				.390
O2	*Hilig sa Bagong Kaalaman*	.619				.425
O3	*Lawak ng Isip*					.855
A1	*Pagkadimayabang*			-.478	.552	
A2	*Pagkamapagtiwala*				.638	
A3	*Pagkamaunawain*				.697	
C1	*Pagkamasikap*	.800				
C2	*Pagkamaayos*	.828				
C3	*Pagkaresponsable*	.845				

Note: *N* = 804. Only loadings of .40 or higher are shown, except that for O1, included in italics to show the grouping of the three O facets.
The highest loading of each scale is highlighted. For those scales which do not have their highest loading on their intended factor, the second-highest loading is also shown

Table 6. Principal Component Analysis of Prefinal Version 2 of the *Mapa ng Loob*.

	Component				
	1	2	3	4	5
N1 *Hina ng Loob*		0.840			
N2 *Pagkamaramdamin*		0.824			
N3 *Pagkamapag-alala*		0.883			
E1 *Pagkamasayahin*			0.861		
E2 *Pagkapalakaibigan*			0.807		
E3 *Pagkamasigla*			0.621		
O1 *Kakaibang Pag-iisip*					0.684
O2 *Hilig sa Bagong Kaalaman*	0.495				0.425
O3 *Hilig sa Sining*					0.856
A1 *Pagkadimayabang*				0.832	
A2 *Pagkamapagtiwala*				0.588	
A3 *Pagkamaunawain*				0.744	
C1 *Pagkamasikap*	0.771				
C2 *Pagkamaayos*	0.809				
C3 *Pagkaresponsable*	0.825				

Note. *n* = 195, cross-validation sample; total sample was *n* = 381. Only loadings of at least .40 are shown

experience has been a reliable marker for the Openness domain, and appears to be so even for late adolescent samples. In any case, as Table 6 shows, the factor structure of the facets became much clearer for the second prefinal version.

The degree of clarity of the facets' factor structure remained essentially as above throughout the third, fourth, and fifth prefinal versions of the instrument. The introduction of the fourth facet scales did not pose problems, except for the Agreeableness domain's *Pagkamaaalalahanin* (Consider-ateness) scale. This scale cross-loaded on Conscientiousness, as did *Pagkamatapat* (Sincerity), its replacement in the fifth item testing study. The sixth item study tested items for two trial scales as candidates for the fourth Agreeableness facet, a revised *Pagkamatapat* scale, and a new set

of items for a *Pagkamapagparaya* (Imaginativeness) scale. While a
Principal Component Analysis with the *Pagkamatapat* scale once again
showed it to cross-load on Conscientiousness, the same procedure using
the *Pagkamapagparaya* scale finally showed a perfect five-factor structure
(see Table 7). At this point, the inventory was deemed completed.[8]

Table 7. Principal Component Analysis on the Sixth and Final version of the *Mapa
ng Loob*, with A4 Represented by *Pagkamapagparaya* (Obligingness)

	Component				
	1	2	3	4	5
N1 *Hina ng Loob*		0.794			
N2 *Pagkamaramdamin*		0.785			
N3 *Pagkamapag-alala*		0.795			
N4 *Pagkasumpungin*		0.650			
E1 *Pagkamasayahin*			0.801		
E2 *Pagkapalakaibigan*			0.811		
E3 *Pagkamasigla*			0.618		
E4 *Pagkamadaldal*			0.772		
O1 *Kakaibang Pag-iisip*					0.787
O2 *Hilig sa Bagong Kaalaman*					0.603
O3 *Pagkamakasining*					0.575
O4 *Pagkamaharaya*					0.670
A1 *Pagkadimayabang*				0.635	
A2 *Pagkamapagtiwala*				0.674	
A3 *Pagkamaunawain*				0.813	
A,4 *Pagkamapagparaya*				0.810	
C1 *Pagkamasikap*	0.753				
C2 *Pagkamapagplano*	0.830				
C3 *Pagkaresponsable*	0.830				
C4 *Pagkamaingat*	0.769				

Note: $N = 574$. Only loadings of .40 or higher are shown

DISCUSSION

The twenty facet scales that have been discussed as making up the five domains of the *Mapa ng Loob* are referred to as the *base* scales of the inventory. From its inception, it has been clear to the authors that additions to this base would likely be made, in terms of scales that measure important constructs that may lie outside its five-factor space, such as religiosity (Del Pilar, 2011a). Other additions could be so-called interstitial scales, those that measure constructs that are related to more than one of the five dimensions. In fact, two such interstitial scales are now part of the final version of the *Mapa ng Loob,* namely the *Dalas Makaramdam ng Galit* (Proneness to Experience Anger) scale, and the *Pagkamatapat* (Sincerity) scale. The first scale lies between Neuroticism and Agreeableness, while the second, which was tried out for the Agreeableness domain, lies between this domain and Conscientiousness.

Work to make the instrument ready for applied use, as well as to make it more adaptable to certain conditions of research, has been undertaken. Specifically, norms have been constructed for the college-age and adult populations, based on the sample of 576 used in the analyses for the final version.[9] A 50-item short form of the inventory has been constructed from the full version, made up of ten items measuring each of the five domain constructs (Sio, 2014). An English version of the inventory has also been completed, with adequate reliability and an excellent five-factor structure (Del Pilar, Sio, & Montenegro, 2016).

Since each of the five prefinal versions of the Mapa was potentially its final version, studies relevant to the question of their validity had been conducted from the beginning. Using the first three prefinal versions, scores on the *Dalas Makaramdam ng Galit* scale were shown to correlate consistently with both the Neuroticism and Agreeableness domains, as they generally have in both local as well as foreign studies (Del Pilar & Sio, 2013).[10] Using the first four prefinal versions, the use of the well-known expression *Bahala na* (Bostrom, 1968; Gorospe, 1966; Lagmay, 1993) was shown to be fairly consistently correlated with Conscientiousness and Neuroticism facets, negatively with the former, and positively with the latter, as one would expect (Del Pilar, 2011b; 2013; 2016). The domain scales of the third prefinal version were found to correlate, in the expected convergent–discriminant pattern, with the scales of the International Personality Item Pool (IPIP) Big 5 scales (Goldberg et al., 2006). This means that each

Table 8. Validation Studies on the Mapa ng Loob Investigating Multiple Scales

Validated scales	Study and sample size	Main findings	Mapa facet scales
Tested scales: all 20 facet scales, and all 5 domain scales Validated scales: Fifteen of the 20 facet scales and all of the domain scales: N1, N2, N4 E1, E2, E3, E4 O1, O4 A1, A3, A4 C1, C2, C3 N, E, O, A, C	Del Pilar, 2015, N = 98	Fifteen of the twenty facet scales (75%) correlated significantly with ratings from best friends, while only 3 of 320 discriminant correlations between facet scales from different domains did so (<1%). At the domain level, 100% of the results for the validity coefficients were significant (5 of 5, median = .34), while 4 of 20 discriminant correlations (20%) were so, with the median of the of the absolute values = .14.	N1 *Hina ng Loob* (Vulnerability to Stress) N2 *Pagkamaramdamin* (Oversensitiveness) N3 *Pagkamapag-alala* (Apprehensiveness) N4 *Pagkasumpungin* (Moodiness) E1 *Pagkamasayahin* (Cheerfulness) E2 *Pagkapalakaibigan* (Friendliness) E3 *Pagkamasigla* (Energy) E4 *Pagkamadaldal* (Loquaciousness) O1 *Kakaibang Pag-iisip* (Original Thinking) O2 *Hilig sa Bagong Kaalaman* (Intellectual Curiosity)
Tested scales: Nine facet scales and the two interstitial scales Validated scales: All the tested scales: N1, N2	Del Pilar & Mangahas, 2016, N = 245	All eleven scales of the *Mapa ng Loob* with equivalent or similar scales in the Panukat ng Pagkataong Pilipino correlated significantly with their corresponding scales (median correlation of the absolute value = .63).	

E1, E2
O1
A1, A3
C1, C3
Dalas Makaramdam ng
 Galit
Pagkamatapat

Tested scales: ten facet
scales and all the
domain scales
Validated scales: All the
tested scales:
N1, N2
E1, E2
O3, O4
A1, A4
C1, C4
All five domain scales

Del Pilar, 2016,
N = 167

The median absolute value discriminant
validity correlation per scale ranged from
.07 to .27, (median = .19)

All ten facet scales with counterparts
in the IPIP NEO PI-R scales
correlated significantly with their corre-
sponding scale, with Pearson
correlations ranging from .44 to .70.
All five domain scales correlated
significantly with their 20-item Big
Five Marker scales, with Pearson r's
ranging from .47 to .79 (median = .74).
The median of the absolute value of
discriminant validity coefficients
ranged from .07 to .20 for the facets,
and from .01 to .29 for the domains

O3 *Pagkamakasining*
(Aesthetic Sensitivity)

O4 *Pagkamaharaya*
(Imaginativeness)

A1 *Pagkadimayabang*
(Modesty)

A2 *Pagkamapagtiwala*
(Capacity for Trust)

A3 *Pagkamaunawain*
(Capacity for
Understanding)

A4 *Pagkamapagparaya*
(Obligingness)

C1 *Pagkamasikap*
(Achievement
Orientation)

C2 *Pagkamapagplano*
(Planfulness)

C3 *Pagkaresponsable*
(Responsibleness)

C4 *Pagkamaingat*
(Carefulness)

Validated scales	Study and sample size	Main findings	Mapa facet scales
Tested scales: the twenty facet scales Validated scales: N1, N2, N3, N4 E1, E2, E3, E4 A1, A4 C1, C2, C3, C4 See column 3 regarding the O facet scales.	Lee & Untalan, 2016	The Mapa facet scales were factor analyzed with the fifteen PID-5 facet scales that, in groups of three, make up the five domains corresponding to the five-factor domains (Negative Affect to Neuroticism, Detachment to Extraversion (-), Psychoticism to Openness to Experience, Antagonism to Agreeableness (-), and Disinhibition to Conscientiousness (-). The facets for Neuroticism, Extraversion, and Conscientiousness grouped perfectly with their corresponding domains. Two of the Agreeableness facets (A1 *Pagkadimayabang* and A4 *Pagkamapagparaya)* grouped with the PID-5 Antagonism domain, but the Openness facets formed a factor altogether separate from PID-5 Psychoticism. This last result, however, is consistent with findings reported by the American Psychiatric Association, as cited by Gore (2013).	

Tested scales:	Del Pilar, Bermudez,	All the Neuroticism and
Neuroticism and	Cajanding, Eco,	Conscientiousness facets were shown to
Conscientiousness facet	Guevarra & Larracas,	correlate significantly with the estimated
scales	in press	use of *bahala na* within a three-month
Validated scales:		period and within the preceding week. As
N1, N2, N3, N4		expected, the correlations with the
C1, C2, C3, C4		Neuroticism facets were positive, while
		those for the Conscientiousness facets
		were negative.

domain scale, with the exception of Agreeableness, had its highest correlation with its corresponding IPIP scale (Acoba, Cabiles, Lastimoza, Sayo, & Velasco, 2012).[11] While the final version is certainly not identical to the earlier versions, it is substantially similar to them, and thus gains some measure of validation based on these earlier studies.

A similar argument can be made based on the findings from a study on the English version of the Mapa ng Loob, which appears to be a good translation of the final Filipino version. Borlasa, Magayanes, Menorca, and Syjueco (2013) found that all domain scales of the English version had their highest correlation with their corresponding IPIP Big 5 scale. Since the correlations of the English version domain scales with their corresponding Filipino version scale were fairly high, ranging from .67 to .87 (mean = .78), the validity evidence for the English version could, to a considerable extent, be considered supportive of the Filipino scales' validity as well.

While the foregoing studies provide indirect evidence, 15 studies that *directly* bear on the validity of the scales of the Mapa ng Loob have been completed to date (Del Pilar, Sio, Cagasan, Siy, and Galang (2015) discuss nine of the studies). Table 8 summarizes the design and findings of the studies that tested multiple facet and domain scales of the instrument.

The only scale not appearing in the first column of Table 8, the O2 *Hilig sa Bagong Kaalaman* or Intellectual Curiosity scale, was shown by Guerrero, Guzman, Marino, and Sanchez (2013) to be significantly correlated with the Gough Creativity Scale ($r = .22, p < .05$) and the Biographical Index of Creative Behaviors ($r = .26, p < .01, N = 100$). To be sure, not all of the tested scales have come out significant. For instance, in the first study in Table 8 (Del Pilar, 2015), the rate was a mere 75%. However, the same table also shows that this rate is atypically low. In fact, of the remaining scales that have been studied, only one (Achacoso, Reyes, & Untalan, 2015), on the Extraversion domain scale, did not turn out significant. In any case, the studies in Table 8, and that by Guerrero et al. (2013), show that all the base, interstitial, and domain scales of the *Mapa ng Loob* have behaved as expected, using factorial and correlational designs.

FOOTNOTES

[1]It was eventually decided to keep the PPP and the Mapa ng Loob completely separate. See the Procedure section, Footnote 5.

[2]The class was made up of the head of student affairs of a college in UP Diliman, a practicing counselor, a member of the teaching staff of the business college of UP Diliman, a staff member of the testing office of a tertiary institution in Manila, a teacher at a tertiary institution in Manila, and a member of the teaching staff at UP Diliman who had worked in the corporate setting for more than ten years.

[3]The sixth member of the class, while also contributing items to the different domains, worked on the Social Desirability Scale (Cagasan, 2015).

[4]Most of the extra items for each of the domain questionnaires were made up of items of interest to some of the graduate students who were working on other topics, including items for the Social Desirability Scale (Cagasan, 2015). However, the Neuroticism questionnaire needed to include items measuring Agreeableness, in order to analyze trial *Pagkamahinahon* items relative to the commonly-held hypothesis (e.g., Costa and McCrae, 1992) that items related to anger *experience* would be related to Neuroticism, while those related to anger *expression* would be related to Agreeableness. The identification and deletion of such Agreeableness-related items from the *Pagkamahinahon* scale led to the renaming of the scale to *Hina ng Loob*.

[5]The decision to shift to the online format was motivated by the convenience of creating the data file for the item responses more readily, instead of having to manually encode them from the answer sheets. The authors were aware of the mixed results of the studies that looked into which between pen-and-paper and computer administration gave rise to a greater tendency towards socially desirable responding (SDR, e.g., Richman, Kiesler, Weisband, and Drasgow, 1999). This was a concern for the present study, since SDR could cause facets from socially desirable domains such as Agreeableness, Conscientiousness, and emotional stability (reverse of Neuroticism) to intercorrelate, giving rise to one large factor in place of these three. In that event, the resulting structure would have one, two, or three factors but definitely not five. In their meta-analysis, Richman et al. (1999) found that computer administration was associated with less SDR but only when participants were alone or could backtrack to previous

responses. The online administration in the present study had neither of these two features, but the shift from pen-and-paper administration was affected nonetheless because it was clear to the test authors, from the beginning, that a requirement for the instrument's completion was the demonstration of a clear five-factor structure. Since such a structure was obtained despite the shift during the third item-testing study, it was concluded that online administration did not lead to problematically high rates of SDR. Consequently, this mode of administration continued to be used for the succeeding studies.

[6]An additional concern introduced during the fifth item testing study was the elimination of all remaining overlap between the PPP and the Mapa ng Loob, mentioned in Footnote 1. The authors had come around to the decision that it was best to create the Mapa as a new Filipino personality inventory, rather than make the PPP a five-factor instrument, as originally planned. By all indications, this view was shared by the author of the PPP. In any case, by that time, the number of items that had come from the PPP had declined from 26 in the first prefinal version to 14, nine, and then, seven in the second, third, and fourth prefinal versions, respectively.

[7]It might be noted that the procedure for the reliability analysis earlier described, in which item selection was done on one sample and reliability estimates recalculated on a second sample, makes use of the same principle of verifying results on a subsequent sample obtained by design from a first sample.

[8]Subsequent analyses based on item content persuaded the team that both the *Pagkamaaalalahanin* and *Pagkamatapat* scales were truly interstitial between Agreeableness and Conscientiousness. It was decided to make the *Pagkamatapat* scale a second interstitial scale

[9]The instrument can be purchased at the University of the Philippines' Office of the Vice-Chancellor for Research and Development.

[10]This scale used to be called *Init ng Ulo* (Temperamentalness). See Footnote 6.

[11]The positive findings from this study are especially noteworthy because it used the IPIP Big Five scales, an instrument in English, to validate the *Mapa ng Loob* scales, which are in Filipino.

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APPENDIX A

SCALE DEFINITIONS (DEL PILAR ET AL., 2015)

NEUROTICISM (N) has traditionally referred to the tendency to frequently and readily experience negative emotions such as fear and sadness. They may share with those low in Agreeableness the tendency to feel anger and resentment with little provocation. Those high in N are particularly vulnerable to stress, reacting to physical and interpersonal stressors with greater intensity, and taking longer to get over them. They have greater difficulty dealing with their emotions, which tend to be quite changeable. As a consequence, they may be perceived as unpredictable, a perception that they themselves often share. Those low in N have a tendency to be relaxed and even-tempered, and are better able to direct their attention towards productive ways of dealing with stress, as well as away from distressing emotions whenever these are experienced.

N1 *Hina ng Loob* (Vulnerability to Stress) The tendency to be easily stressed. High scorers react to stress more intensely and need a

longer period to recover from it. They are easily frustrated or made afraid, while low scorers feel these negative emotions less easily and less intensely.

N2 *Pagkamaramdamin* (Oversensitiveness) The tendency to easily feel rejected by others. High scorers have high expectations that they will be treated with acceptance and consideration by others, and feel greatly offended and hurt when they perceive that they do not get such treatment. Low scorers have no such expectations, and thus hardly notice, or are not greatly bothered, by indifferent or unkind treatment from others.

N3 *Pagkamapag-alala* (Apprehensiveness) The tendency to constantly worry. High scorers often feel nervous and apprehensive about events that may transpire, or situations that may obtain, in the future, such as those related to personal and family safety, and one's capability to adequately respond to life's demands. Low scorers do not suffer from chronic and generalized anxiety, and are generally confident that they can deal with their problems.

N4 *Pagkasumpungin* (Moodiness) The tendency to experience negative emotions suddenly and inexplicably. High scorers feel confused by these sporadic bursts of resentment and anxiety and feel unable to control such feelings. Low scorers tend to have mild and steady affect, and feel in command of their emotions.

   EXTRAVERSION (E) is commonly understood as interest in engaging one's social as well as physical environment. People high in extraversion seek and enjoy social interaction, are typically upbeat, and have characteristically high levels of energy. On the other hand, introverted individuals are usually described as "quiet, reserved, retiring, shy, silent, and withdrawn" (McCrae and John, 1992, p. 196).

E1 *Pagkamasayahin* (Cheerfulness) The tendency to be light-hearted, cheerful, and optimistic; manifested in feelings of good humor, in the readiness to laugh, to engage in banter. Low scorers differ from high scorers in their relative infrequency of experiencing the positive emotions characterizing the trait.

E2 *Pagkapalakaibigan* (Friendliness) The tendency to be interested in establishing friendly relations with others, and having the appropriate social skills to do so; manifested in initiating friendly interactions with

others and in maintaining a broad social network. Low scorers feel shy and behave awkwardly with strangers.

E3 *Pagkamasigla* (Energy) The tendency to have high levels of energy, manifested in a preference for performing actions at a fast pace, to be constantly on the go, and to be sprightly in demeanor. Low scorers prefer doing things slowly, and seek frequent rest periods.

E4 *Pagkamadaldal* (Loquaciousness) The tendency to talk a great deal. High scorers easily verbalize their thoughts and usually initiate conversations, typically having something to say on just about any topic. Low scorers are generally not comfortable conversing, are more hesitant in articulating their views, and prefer to play the listener's role in conversations.

OPENNESS TO EXPERIENCE is a domain concerned with reactions to and attitudes about complexity and novelty. High O scorers have a tendency to seek out experiences that stimulate and absorb them intellectually and emotionally. This is often manifested by an active exploration of areas of human creativity (e.g. arts, literature, science, philosophical discourse, and religion, in both their "high" and popular forms). High scorers, more than low O scorers, will have a greater tendency to feel curiosity and awe when confronted with stimulating experiences, even in the context of the ordinary or seemingly banal. They find it desirable to elaborate or "play with" ideas or objects, and will often go out of their way to produce something new or different. It is difficult for high scorers to adjust to situations where they are expected to behave in predetermined and constrained ways. High O does need not be associated with a high degree of formal education, or exposure to "high culture"; a very open person with a modest level of education would tend be improvisatory, flexible, and interested in creating explanations about the world in their own terms. Low scorers prefer the familiar and expected, sometimes to the extent of distrusting change. People low in O make considerations based on practicality or expediency, and would prefer clear answers to imaginative speculations.

O1 *Kakaibang Pag-iisip* (Original Thinking) The tendency to think up of novel ways of looking at and doing things. High scorers think up of original solutions to problems, find imaginative ways of presenting ideas, see uncommon uses for familiar objects, and have a general preference for the unorthodox. Low scorers are more conventional in their conceptualizations and their approach to doing things.

O2 *Hilig sa Bagong Kaalaman* (Intellectual Curiosity) The tendency characterized by a strong desire to acquire varied information and knowledge. High scorers are interested in observing and figuring out how things work, and are eager for new experiences aimed to broaden and deepen what they already know. Low scorers tend to be uninterested in learning about that which is novel and unfamiliar to them.

O3 *Pagkamakasining* (Aesthetic Sensitivity) The tendency to place a high value on beauty and aesthetic experience, whether these be found in artistic creations, nature, or everyday objects. High scorers are interested in discussions of such experiences, in ways of doing things that have aesthetically pleasing effects, and in the possibilities of using one's senses to enjoy the environment. Low scorers are not moved by art, do not find it interesting, and are not very concerned about questions of aesthetics, design, or craft.

O4 *Pagkamaharaya* (Imaginativeness) The tendency to engage in fantasy. High scorers enjoy imagining fanciful and unusual scenarios, including living their lives under very different circumstances. On the other hand, low scorers find such mental activities unproductive, and prefer to deal with more concrete concerns.

AGREEABLENESS (A) describes a dimension of personality marked by empathy, altruism, and concern for others. Agreeable individuals are unpretentious, amiable, helpful, considerate, and forgiving. Their value for social harmony, complemented with an optimistic view of human nature, makes them trusting, tolerant, and easy to get along with. Consequently, highly agreeable persons find confrontations or competition uncomfortable, and they would be the first to give way to avoid conflict. Those who score low on A are concerned less with the needs of others than with their own. Generally uncooperative and unwilling to compromise their interests, they are seen as tough, unsociable, and antagonistic. They tend to be distrustful of others, and are often suspicious of people's underlying motives. They may also tend to ignore or go against prevailing social norms, such as those related to modesty, reciprocity, or sincerity.

A1 *Pagkadimayabang* (Modesty) The tendency to dislike and avoid presenting oneself as being better than others. High scorers feel uncomfortable talking highly about their abilities, traits, accomplishments, looks, and possessions. Embarrassed by being

praised in public, they also disapprove of self-promoting behavior in others. Low scorers tend to take credit for positive outcomes, and feel that it is natural and gratifying to speak and act in a manner that calls attention to their accomplishments and their valued attribute.

A2 *Pagkamapagtiwala* (Capacity for Trust) The tendency to be trusting of others' intentions, to believe in people's innate goodness, and in people's good intentions. Manifested in the general belief that other people's promises and statements can be relied upon, that one will not be placed by others in embarrassing or emotionally vulnerable situations. Low scorers believe that people generally take advantage of others to advance their own interests, and thus tend to be defensive and wary of disclosing personal matters to others.

A3 *Pagkamaunawain* (Capacity for Understanding) The capacity to take other people's positions, feelings and opinions into consideration in the conduct of interpersonal transactions. High scorers are able, and ready, to put themselves in the other person's shoes, and are thus more forgiving and tolerant of others' shortcomings. In contrast, low scorers, exercise less empathy in dealing with others. They are not welcoming of people's opinions and/or explanations, are quick to judge, and tend to react emotionally or aggressively when aggrieved.

A4 *Pagkamapagparaya* (Obligingness) the tendency to give in, yield, or comply, rather than assert oneself. High scorers value interpersonal harmony and cooperation, and willingly subordinate their own needs and desires to those of others. Low scorers, on the other hand, seek to advance their personal interests and concerns with less regard for other people's welfare. They have no reservations in seeking to get their own way, and expect consistently to prevail upon others.

CONSCIENTIOUSNESS (C). The highly conscientious individual has a developed ability to restrain impulses, delay gratification, and direct energy in order to attain desired ends. Such a person is used to foregoing comfort and exerting effort in order to honor commitments and achieve personal or group goals. The ability to focus and sustain attention results in the tendency to be planful in one's activities, and generally careful and cautious. Those low on the trait are more casual about goal-attainment and responsibility, are not used to planning their tasks and activities, and may be quite careless in their words and actions.

C1 *Pagkamasikap* (Achievement Orientation) The tendency to strive and persist towards goals and standards of excellence. High scorers have a desire to make something of themselves, seek excellence in many aspects of their life, and strive to finish tasks they have set for themselves. Low scorers typically dislike difficult work, prefer living in the moment to setting goals, and tend to aim for mere compliance rather than excellence in their work.

C2 *Pagkamapagplano* (Planfulness) The tendency to plan out one's activities in order to get tasks done and to achieve desired ends. High scorers typically prepare a work schedule, and may even budget expenses. Low scorers often scramble to prepare for tasks, and consequently often do not finish them.

C3 *Pagkaresponsable* (Responsibility) The tendency to have the desire and ability to perform one's duties and to fulfill one's commitments. High scorers keep their word, and can be relied upon to do tasks assigned to them. Low scorers typically lack initiative, often shirk responsibility, and may, as a consequence, perceive that they often let people down.

C4 *Pagkamaingat* (Carefulness) The tendency to exercise caution in the interest of personal safety, and correctness in words and actions. High scorers have a tendency to choose their words carefully, review their work for mistakes, and verify the safety of their destination. Low scorers may often misplace things, make mistakes in their work, and damage objects because of careless handling.

Interstitial scales

NA Dalas Makaramdam ng Galit (Proneness to Experience Anger) The tendency to easily feel anger, irritation, and frustration. High scorers are given to frequent and more intense bouts of anger-toned emotions, which take longer to dissipate. Those who score low, on the other hand, are typically even-tempered, finding it easier to shrug off annoyances, and move on more easily from experiences that cause hurt and frustration. *Dalas Makaramdam ng Galit* is interstitial between Neuroticism and Agreeableness, hence the "NA" before its construct name.

AC Pagkamatapat (Sincerity). The tendency, in words and actions, to stick closely to what one truly feels. High scorers typically avoid flattery and ingratiation, and keep to what they know as factual when recounting an event. On the other hand, those who score low may sometimes tailor what they say and do to get on the good side of others, or to gain their trust. They are not very strict in keeping to factual statements when recounting an event. *Pagkamatapat* appears interstitial between Agreeableness and Conscientiousness, and thus the "AC" before its construct designation.