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Comparison of a Ranking and Rating Format of the 5Plus5:

A Personality Measure

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Comparison of a Ranking and Rating Format of the 5Plus5:
A Personality Measure

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This thesis has been examined and approved by the following members of the thesis committee.

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Abstract

The 5Plus5 is a multidimensional ranking personality measure consisting of 10 dimensions. The dimensions are similar to the Big Five personality constructs. In two studies, a version of the 5plus5 that uses an item-ranking format and a version of the 5Plus5 that uses an item-rating format were contrasted. In the first study, 213 college students completed the 5Plus5, and the IPIP Big-Five Factor Markers Survey. One group of the participants ($n = 116$) completed the ranking version of the 5Plus5, and the other group ($n = 97$) completed the rating version of the 5Plus5. Study One revealed that the rating and ranking measures shared a similar pattern of correlations with the Big Five personality measures on 7 of the 5Plus5 constructs, however drive, adaptability, and sensation seeking did not share any correlations. Additionally, the rating had 5 respondents dropout of the study compared to the total of 16 who dropped out of the ranking format. The second study is a within subjects design, in which 111 college students complete both the rating and ranking format versions of the 5plus5. Study Two's results showed that the rating and the ranking of the 5plus5 had low convergent validity. This ranged from .295 to .555. The two measures were also compared to the Schwartz Value Survey, in which eight constructs of the 5Plus5 shared a similar pattern with each other, with the exception of balance and intellectuality. Additionally, the ranking measure was found to have ipsative properties. Overall, the results reveal the two measure analyze the constructs differently.

Comparison of a Ranking and Rating Format of the 5plus5: A Personality Measure

Personality assessment tests are typically comprised of a series of statements and participants indicate the extent to which these statements describe their own behavior, interests, attitudes, and/or values. For example, a person who completes a personality assessment might be asked to indicate his or her agreement with statements like, “I often feel blue,” or “I am full of ideas” (Goldberg, 1992). Alternatively, people who complete personality assessments may be asked to indicate whether a series of self-descriptions are true/false, accurate/inaccurate, like me/unlike me. Participants may also be asked to indicate how frequently they perform various behaviors. What is consistent across these question formats for personality is that participants respond on rating scale. However, a number of personality researchers advocate the use of ranking methods rather than item rating methods (Caspi, Block, Block, Klopp, Lynam, Moffitt, Stouthamer-Loeber, 1992; Martinussen, Richardsen, & Varum, 2001). Instead of asking participants to indicate the extent to which a given statement is descriptive of the participant on a scale of least descriptive to most descriptive, researchers who advocate a ranking method ask participants to order a series of statements based on how descriptive they are of the participant. Specifically, in ranking format, items, each representing a different personality construct, will be grouped into blocks of three to five items. Participants will be asked to contrast the items based on how well the items represent the individual. Each item presented in this block represents a different personality construct. The following item is an example of the ranking format of personality.

Please rank the following statements with 1 being the most representative of you to 5 being the least representative of you.

1. I treat all people equally.
2. I remain calm under pressure.
3. I am always prepared.

4. I would describe myself as a career-oriented person.
5. I can perform a wide variety of tasks very well.

In the rating form, participants are asked to rate these items on a continuum ranging from “strongly disagree” to “strongly agree” on a 5-point Likert scale. The following item is in the rating format.

Please indicate the degree to which you strongly disagree (1) to strongly agree (5) with the following items.

I often analyze my own behavior.

1. Strongly Disagree
2. Disagree
3. Neither Agree or Disagree
4. Agree
5. Strongly Agree

Advocates of a ranking method suggest that the multidimensional forced-choice (MFC) personality test format tends to produce less socially desirable responding than a rating method (Bartram, 1996). More specifically, a ranking method does not allow a respondent to score high on every positively worded trait. Critics of the ranking format suggest that ranked items are accompanied with complex psychometric properties that make these measures difficult to analyze. Further, while ranking methods reduce the likelihood of socially desirable responding, ranking methods can mask the multidimensionality of personality constructs. With these issues in mind, this paper includes a discussion of the costs and benefits of rating and ranking methodologies. This paper also includes two studies contrasting ranking with rating methods, with the purpose of validating a new measure known as the 5Plus5. In the first study, I analyzed whether the ranking and rating method of the 5Plus5 would produce similar results with correlations with the Big Five Personality measure. In the second study, I analyzed the

convergent validity between the ranking and rating method of the 5Plus5, and checked if the two methods would produce similar results with correlations with the Schwartz Values Measure.

Multidimensional Forced-choice Ranking Format

Personality assessments based on a MFC ranking format requires respondents to rank order self-descriptive items within a block (Johnson, Wood, & Blinkhorn, 1988). For example, respondents who complete the Occupational Psychology Questionnaire (OPQ), are presented with a series of four-item blocks (Bowen, Martin, & Hung, 2002). Within each block, participants select one item that becomes the most representative; another that becomes the second most representative, and eventually all items would be ranked based on importance or on representativeness. A sample block is provided below:

I am the sort of person who

- a) prefers to keep active at work
- b) establishes good compromises
- c) appreciates literature
- d) keeps spirits up despite setbacks

Each item in the block represents a different personality construct. The multidimensional forced-choice format can also be presented in a different format besides the ranking format, which within each block a respondent has to choose one statement that is most representative of him or herself, and one that is least representative (Bowen, Martin, & Hung, 2002).

Benefits of Multidimensional Forced-choice Format

Social Desirability. Social desirability responding is defined as giving overly positive self-descriptions despite the situation (Bowen, Martin, & Hunt, 2002). A person who is responding in this manner will respond by claiming positive virtues and deny any mundane

characteristics he or she may have. Research has shown that there are not many solutions to handle distortions due to social desirability and faking in personality measures (Rosse, Stecher, Miller, & Levin, 1998). This is becoming an increasing concern in the administration of personality measures, since much of the distribution of these items are uncontrolled (i.e., internet administration). As a result, respondents tend to rate themselves high on positive items and low on negative items despite the fact that the rating may not represent their true selves. Social desirability responding has also been documented by Viswesvaran and Ones (1999) in a meta-analysis that stated that the average inflation is about half of the standard deviation of the scores.

Faking. In contrast to social desirable responding, faking is situation based. Respondents, who fake, will select the most appropriate answers based on their current circumstances (Bowen, Martin, & Hunt, 2002). Faking serves as a form of impression management in which participants alter their responses based on the impression they want to make to the audience. In reference to selection tests, participants may not choose an option that best represents themselves, but choose a response that make them look more favorable to others in that particular situation (McFarland, Ryan, & Ellis, 2002). When applicants are taking a test for selection, they are aware that their responses will have an effect on whether they will be hired or not. Consequently, individuals may alter their responses so that they will not be representative of the individual, but representative of the ideal responses of those who would be most suitable in the job. However, this does not mean that individuals will always rate themselves high on all scales, but will rate themselves in the most optimal way based on the situation, whether it is low or high on a particular item.

Transparency. Many single-item personality rating scales are rather transparent making it quite simple for respondents to understand the intention of the items (Rosse et al., 1998). The most commonly used rating personality questionnaires usually present one item at a time and has participants use a 5-point Likert scale to indicate the level of agreement they feel with that particular item. In this format, it is easy for the participant to see through the intention of the questions. For example, an individual who is applying for a sales position is not likely to respond, “strongly disagree” to this item, “Selling is one of my strong points.” Additionally, individuals who are pursuing a managerial position, will most likely respond highly to, “I am skilled at delegating tasks.” Even though a person may not be a very good salesperson or enjoy a managerial position, they will respond in accordance to what is most likely to land them the job.

An additional example of the transparency of the presentation of rating personality measures is the difference in the results of the MFC ranking and rating measures of Bowen, Maritn, & Hung (2002). Participants were placed in two different groups; one group would cause individuals to respond honestly, while the other would lead to fake responding. To get the “fake” or social desirable responses, subjects of the faking group were instructed that they were also to apply for a managerial position. The rating personality results revealed that individuals scored significantly higher in the faking group compared to the honest group, however, the difference between the faking and honest group of the MFC ranking personality measures did not differ significantly. Essentially, this means that respondents could easily see the intentions of the rating measure and could easily manipulate their answers in a form that would make them suitable for the manager position. However, it is more difficult for the respondents who took the MFC rating format because it much more difficult to understand the intentions of this type of measure.

Additionally, participants who are responding in a socially desirable manner may give largely uniform responses ('non-differentiation') (Ovidia, 2004). Essentially, responses to the personality items will underestimate the difference among the personality constructs. An MFC ranking personality questionnaire can help researchers deal with social desirable responding and faking. Because the MFC ranking format requires participants to give each personality item a different value, it prevents non-differentiation, irrespective of social desirability. Imagine that a student was asked to rank the following traits in terms of "the extent to which the traits were descriptive of yourself" (1 = least like me to 5 = most like me). Also, imagine that the same student was asked to rate the extent to which each trait "is descriptive of yourself" (1= not at all descriptive to 5 = very descriptive).

Rank		Rating	
	Conscientiousness	2	Conscientiousness
	Openness	4	Openness
	Agreeableness	1	Agreeableness
	Extraversion	3	Extraversion
	Emotional Stability	5	Emotional Stability
			5

As a result, the student who rated the big five personality traits stated that all the personality constructs were descriptive of him or herself because all the traits were found to be socially desirable. However, the ranking system caused the hypothetical student to make distinctions among five socially desirable traits. It also possible for the MFC ranking procedure to force individuals to overstate the differences between the personality items, make comparisons of values that the respondent considers non-comparable, or potentially make random responses to meet the requirements of measure (McCarty & Shrum, 2000). Though the MFC ranking format prevents non-differentiation responses, it also may be causing respondents to overestimate the differences between the items.

Problems with Ranking Systems

Ipsative Measures. The MFC ranking format has the benefit of reducing social desirability responding, but it also has psychometric difficulties. For instance, ranking measures are also known as ipsative measures. The most common attribute of an ipsative measure in the MFC ranking format is that, within a block, the scale scores for an individual will always add to the same total (Johnson, Wood, & Blinkhorn, 1988; Hicks, 1970). All the scores measured in all scales remain constant for any individual. In mathematical terms, the data will be ipsative if a set of responses always totals the same score (Meade, 2004). In practice, ipsative serves as a synonym for “interdependence.” Responses to ipsative items are dependent upon each other, meaning that how a participant responds to one item will affect how they respond to all the other items. The format that is the focus of this study is the MFC ranking format, in which statements’ rank-order items in a block, produces ipsative results. Regardless of how a respondent orders items within a block, item scores in the block always sum to the same number, and the total test score (sum of all the blocks) is exactly the same for each person who took the ipsative measure. Because of the interdependence of ipsative scales, every score can be predicted by a combination of the other scores (Johnson, Wood, & Blinkhorn, 1988). The severity of the issue increases when the number of scales is small. For example, if there are two scales in the measure, scoring high on one scale will automatically cause the other scale to be low.

Scoring dependency in ipsative is a serious issue in MFC ranking personality measures, but research has shown that as the number of scales increases and if there are low correlations among the scales, dependency becomes less of an issue (Saville & Willson, 1991). The scoring dependency effects were alleviated by using a large number of scales and having low correlations among the scales in two different studies that used computer-simulated data

(Bartram, 1996; Saville & Willson, 1991). Their results demonstrated that when using these methods, the ipsative scales had high correlations with the corresponding rating scale.

Measurement dependency becomes a minor issue under these conditions. However, when there are a low number scales, it is already determined that the data will be ipsative in nature (Bartram, 2007). According to Bartram (2007), his results revealed that the best practice for an ipsative measure of 12 or less scales use an accompanying rating measure. When there are few scales being analyzed, the comparison between individuals becomes very difficult. Hence, it is reasonable to use an additional rating measure with the ipsative measure.

Factor analysis. Another problematic psychometric issue of using an ipsative measures due to scale interdependency is that a factor analysis cannot be performed on the ipsative data. Because the measures are not independent, spurious correlations arise (Johnson, Wood, & Blinkhorn, 1988). The interdependency makes it unreliable to use in a conventional factor analysis. Because one score of a scale will affect the score of other scales, variance will be shared across scores creating a mixture of negative and positive correlations, becoming difficult to conduct a conventional factor analysis. This in turn, causes it to be difficult to statistically analyze whether the items are measuring what they intended to measure.

Reliability analysis. Reliability, like factor analysis, cannot be analyzed for ipsative data. In classical test theory, it is assumed that there is a degree of random error in all test scores, which is taken into account in rating measures. The purpose of estimating reliability is to get a better gage of the error and quantify it (Kline, 2005). However, reliability technically cannot be calculated in ipsative data due to not having any random error (Johnson, Wood, & Blinkhorn, 1988). Retest, alternative form, and internal consistency share the same reasoning of classical test theory, which is why none of these methods cannot be applied to ipsative data.

Earlier, in the research for multidimensional forced-choice formatted questionnaires, multiple researchers turned to using Cronbach's alpha as a measure of reliability, however recent studies have interpreted the use of Cronbach's alpha to be an undependable method of analyzing reliability for ipsative data (Saville & Willson, 1991; Brown & Bartram, 2009; Meade, 2004).

Face validity. One of the potential limitations of using a MFC ranking measure is it may have low face validity. Individuals applying for jobs prefer to know what they are revealing about themselves when completing selection personality measures (Bowen, Martin, & Hung, 2002). It is much more difficult for applicants to understand the purpose of ipsative measures in comparison to rating measures. This could possibly lead to negative feelings toward an organization that employs these MFC ranking techniques. Additionally, these scales tend to take longer to complete and it may be more difficult for some applicants to grasp the instructions of the measures. Organizations that plan to administer these measures should provide ample time to complete these measures as well as thorough instructions.

Reading ability. An additional issue of using the MFC ranking format is it might pose a challenge for those who do not have good reading and comprehension skills. This kind of measure may be more appropriate for those with a moderate to high educational level, unless the researcher is willing to change the size of the blocks within this format (Vasilopoulos, Cucina, Dyomina, Morewitz, & Reilly, 2006). By having fewer items within each block, individuals will have to make fewer comparisons between items. Additionally, it has been found that those with higher cognitive ability were more successful at faking their responses.

Effort. Compared to rating methods, the MFC ranking format requires a great deal of time and energy for participants to complete (McCarthy & Schrum, 2000). This difficulty increases significantly when the number of items to be ranked is more than four or five. In the

rating method, respondents are only required to analyze one item at a time. However, in the MFC ranking format, participants must compare all items to each other requiring multiple comparisons. As the number of items within a block increases, so does the amount of comparisons. As a result of the increased effort of taking MFC ranking measures, participants may be more likely to not complete it.

Within vs. Across Person Comparison. Within an ipsative measure, it possible to have comparison of the relative strength of traits within a person; however, people cannot be compared easily to each other using this type of measure. A person’s relative standing on a personality construct is determined with an ipsative measure; however, their absolute level cannot be determined. Conversely, the absolute level of a construct can be determined with a rating measure. In the example below, there are two responses of the same hypothetical participant. In one response, the participant is asked to rank the personality constructs, and in the other they rate the personality constructs. In the ranking example, the participant found conscientiousness to be the most important, relative to the other personality constructs. In the rating example, all the constructs were found to be equally important. The constructs were not compared across each other, but were rated based absolute level of importance.

Rank		Rating	
Conscientiousness	1	Conscientiousness	2
Openness	2	Openness	2
Agreeableness	3	Agreeableness	2
Extraversion	4	Extraversion	2
Emotional Stability	5	Emotional Stability	2

Hence, a person’s level of conscientiousness may be ranked as their highest construct, however it may be just as important as any of the others. The ranking method only reveals that

conscientiousness is the most important construct, however, does not disclose the actual level importance of the construct.

Overall, due to different presentation of the questionnaire and questionnaire instructions, the rating and MFC ranking formatted measures should not be seen as mirror images of each other. Instead, the correlation between the MFC ranking and the rating method should be seen as an index of convergent validity of two different methods of measuring the same construct (Bowen, Martin, Hung, 2002). In a study by Bowen, Martin, and Hung (2002), the average correlation between the Occupational Personality questionnaire MFC ranking scale and the corresponding rating scales was found to be .63 with a range of .25 to .69. Essentially, the two types of measures looked at the variables similarly, but not identically.

Development of the 5Plus5

The purpose of the following studies is to develop a MFC ranking measure known as the 5Plus5. The 5Plus5 (atrain, 2010) consists of five primary constructs, and five secondary constructs. The five primary constructs are agreeableness, balance, conscientiousness, drive, and energy. The five secondary constructs are business planning, adaptability, sociability, intellectuality, and sensation seeking. The table below provides the definitions of the constructs.

Table 1
Definitions of 5Plus5 Constructs

Agreeableness	Tolerance of other people, positive attitudes towards others, and altruism
Balance	Emotional stability, resilience, and tolerance of frustration
Conscientiousness	Discipline, rule boundedness, persistence, and consistency
Drive	The compulsion of achievement and career orientation
Energy	Self-efficacy and optimism
Business Planning	Measures the desire and ability to organize events and plan
Adaptability	Flexibility and the willingness and ability to deal with changing tasks and circumstances rather than dealing with routine tasks
Sociability	The desire to work with people and the ability to work with people and make friends
Intellectuality	cognitive complexity, the preference for difficult cognitive tasks, the motivation to learn, and problem solving

Sensation Seeking striving for strong sensations and variety, versus the ability to operate in monotonous environments

(Garvey, Sachau, & Campana, 2010)

Creating Multidimensional Forced-choice Ranking and Rating Format. To construct the MFC ranking format of the 5Plus5, items were grouped together using data from a study on the social desirability of 5plus5 items conducted by Garvey, Sachau, & Campana, (2010). In this study, twenty-five psychology faculty and graduate students served as subject matter experts and rated the social desirability of each of the 5plus5 items. Items representing each of the constructs, with similar social desirability means, were placed together in same block. In other words, the most socially desirable agreeableness item was grouped with the most socially desirable, balance, conscientiousness, drive, and energy items. The second most socially desirable agreeableness item was grouped with the second most socially desirable balance, conscientiousness, drive, and energy items and so on until we had 15 groupings. A similar method was used to create 15 groupings of the other five constructs: business planning, adaptability, sociability, intellectuality, and sensation seeking. A sample question (see Figure 1) in the multidimensional forced-choice format is shown below representing the five essential constructs (Agreeableness, Balance, etc.). Additional examples of the MFC ranking formatted 5Plus5 are available in Appendix A.

Participants were asked to rank five statements according to the degree that each statement was “representative” of themselves. (1 = Most representative, 3 = Representative and 5 = Least Representative). Only one item could denote a single point on the scale. For instance, only one item could be the most representative, only one item could be the second most representative, and eventually only one item could be the least representative. For the rating

format of the 5Plus5, participants rated each statement on the extent to which the item was “representative” of themselves. (1 = *most representative* to 5 = *least representative*).

Please rank the following statements with 1 being the most representative of you to 5 being the least representative of you.

- I rarely get irritated. (*Balance*)
- I sympathize with others’ feelings. (*Agreeableness*)
- I get chores done right away. (*Conscientiousness*)
- It is important to be recognized for special achievements in a team. (*Drive*)
- My optimism is contagious. (*Energy*)

Figure 1. Multidimensional Forced-choice Format of the 5Plus5

Method

Study One

This study investigated whether the MFC ranking format of the 5Plus5 will show the same validity of its rating or rating counterpart. Both forms of the 5Plus5 will be compared to the Big Five Personality measure. I hypothesized the rating and the MFC ranking 5Plus5 will share similar correlations with the Big Five Personality measure. Specifically, the hypotheses for the first study are provided in Table 1 and Table 2. An X indicates that the MFC ranking and rating 5Plus5 construct will be correlated with Big 5 Personality construct. For example, the 5Plus5 agreeableness construct, for both the rating and MFC ranking, will be correlated with the agreeableness Big 5 Personality construct.

Table 2

Hypotheses of the Relationship between Essential 5Plus5 (Rating an Forced-choice) and Big Five Personality Constructs

	Agreeableness	Openness	Extroversion	Emotional Stability	Conscientiousness
5Plus5 Constructs (Essential)					
Agreeableness	X				
Balance				X	
Conscientiousness					X
Drive			X		
Energy			X		

Table 3

Hypotheses of the Relationship between Additional 5Plus5 (Rating an Forced-choice) and Big Five Personality Constructs

	Agreeableness	Openness	Extroversion	Emotional Stability	Conscientiousness
5Plus5 Constructs (Additional)					
Adaptability		X			
Business Planning					X
Intellectuality		X			
Sensation Seeking		X			
Sociability			X		

Participants and Design

Two hundred and ten college students (156 women, 54 men; age $M = 22$ years, $SD = 4$) completed the 5Plus5 (Atrian, 2010), and the IPIP Big-Five Factor Markers Survey (Goldberg, 1992). One group of the participants ($n = 97$) completed the MFC ranking version of the 5Plus5 followed by the Big Five survey. The other group of participants ($n = 113$) completed the rating version of the 5Plus5 followed by the Big Five survey. Participants were recruited through an online research survey system (Sona Systems), and received extra credit in their psychology courses if they participated.

Measures

Participants either completed the 5Plus5 in the MFC ranking format or the rating format. In addition, to the 5Plus5 measures, participants also completed the IPIP Big-Five Factor Markers Survey. The IPIP Big-Five Factor Markers Survey (Goldberg, 1992) consists of the Big Five personality measures, which includes extraversion, agreeableness, conscientiousness, emotional stability, and openness. Participants rated each item on a Likert scale, which ranged from *Very Inaccurate* (1) to *Very Accurate* (5). The survey is composed of a total of 50 items, and has a total of 10 items per construct.

Procedure

Participants were recruited through an online research survey system to receive extra credit in an undergraduate psychology course. To allocate students to either the MFC ranking survey or the rating survey, participants were asked about their day they were born. Participants, who were born on an odd day, were allocated to the rating measure of the 5Plus5. Those who were born on an even day were sent to the multidimensional forced-choice format of the 5Plus5. All participants completed the survey online.

Study Two

The second study is intended to analyze the convergent validity between the MFC ranking and rating 5Plus5 measures. The previous study could not analyze the convergent validity due to individual differences of the between-subjects design. It is more appropriate to use a within-subjects design when administering the MFC ranking and rating format because the results of the study can be concluded to the manipulation of the study, while the results of a between-subject design may be due to differences of the groups and not the manipulation of the study. Furthermore, additional studies have used a within-subject design comparing the rating and MFC ranking format to each other to analyze convergent validity (Bartram, 1996; Saville & Willson, 1991; Bowen, Martin, & Hung, 2002; Brown & Bartram, 2009).

Additionally, the 5Plus5 (MFC ranking and rating) will be correlated with Schwartz Value Survey (Schwartz & Shalom, 2009). According to Schwartz (1992), values are defined as desirable, trans-situational goals that vary in their importance as guiding principles in people's lives. Research has found values to be related the big five personality traits (Roccas, Sagiv, Schwartz, & Knafo 2002). In Schwartz's research, 10 types of values were derived, which each expresses a distinct motivational goal: power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity, and security. The definitions of the different values can be found in Table 3. Several mechanisms link traits and personality traits to each other. First, personality traits and values may be linked due to inborn temperaments. For example, individuals who have a high need for arousal may have an excitement seeking personality trait as well as highly value stimulation (Roccas, et. al., 2002). Secondly, personality traits and values may mutually influence each other, such that values may affect traits because people try to act in ways that are consistent with their values (Schwartz, 1996). Values will

serve as ideals, and will cause individuals to self-regulate. Individuals will attempt to reduce discrepancies between their values and behavior by changing their behavior. For instance, if an individual values conformity, they will exhibit compliant behavior, rather than unconventional behavior. Thirdly, traits will affect values because individuals who consistently perform a behavioral trait are likely to increase the degree to which they value the goals that trait serves (Roccas, et. al., 2002). This allows the individual to justify their behavior. Additionally, self-perception theory suggests that individuals infer what is important to them from their consistent (trait-expressive) behavior (Bem, 1992). For example, individuals who exhibit extroversion-expressive behavior, such as being outgoing, they will match their values to this behavior. Thus, they may possibly value stimulation, achievement, or hedonism.

Table 4

Definitions of Motivational Schwartz Value Types

Power	Social status and prestige, control or dominance over people and resources (social power, authority, wealth, preserving my public image)
Achievement	Personal success through demonstrating competence according to social standards (successful, capable, ambitious, influential)
Hedonism	Pleasure and sensuous gratification for oneself (pleasure, enjoying life)
Stimulation	Excitement, novelty, and challenge in life (daring, a varied life, an exciting life)
Self-direction	Independent thought and action choosing, creating, exploring (creativity, freedom, independent, curious, choosing own goals)
Universalism	Understanding, appreciation, tolerance, and protection for the welfare of all people and for nature (broad-minded, wisdom, social justice, equality, a world at peace, a world of beauty, unity with nature, protecting the environment)
Benevolence	Preservation and enhancement of the welfare of people with whom one is in frequent personal contact (helpful, honest, forgiving, loyal, responsible)
Tradition	Respect, commitment, and acceptance of the customs and ideas that traditional culture or religion provide the self (humble, accepting my portion in life, devout, respect for tradition, moderate)

Conformity	Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms (politeness, obedient, self-discipline, honoring parents and elders)
Security	Safety, harmony, and stability of society, of relationships, and of self (family security, national security, social order, clean, reciprocation of favors)

(Schwartz & Bardi, 2001)

In the second study, I hypothesized that the MFC ranking scales would be correlated to its parallel rating scale. Additionally, I hypothesized that the rating and the MFC ranking 5Plus5 would share similar correlations with the Schwartz Value Survey (Schwartz & Shalom, 2009). The specific hypotheses can be viewed in Table 4 and Table 5. An X indicates that the multidimensional forced-choice and rating 5Plus5 construct will be correlated with value construct.

Table 5

Hypotheses of the Relationship between Essential 5Plus5 (Rating an Forced-choice) and Values

	BE	UN	SD	ST	HE	AC	PO	SE	CO	TR
5Plus5 Constructs (Essential)										
Agreeableness	X	X								
Balance		X								
Conscientiousness	X									
Drive						X	X			
Energy					X					

NOTE: BE=benevolence, UN= universalism, SD= self-direction, ST=stimulation, HE=hedonism, AC=achievement, PO=power, SE=security, CO=conformity, TR=tradition, and CS=conscientiousness.

Table 6

Hypotheses of the Relationship between Additional 5Plus5 (Rating an Forced-choice) and Values

	BE	UN	SD	ST	HE	AC	PO	SE	CO	TR
5Plus5 Constructs (Additional)										
Adaptability			X							
Business Planning			X						X	
Intellectuality		X								
Sensation Seeking				X						
Sociability					X					

NOTE: BE=benevolence, UN= universalism, SD= self-direction, ST=stimulation, HE=hedonism, AC=achievement, PO=power, SE=security, CO=conformity, TR=tradition, and CS=conscientiousness.

Participants and Design

The second study is a within-subjects design, which had 111 participants (90 women and 21 men age (M=23, SD= 4.42). College students complete both the rating and MFC ranking format versions of the 5Plus5. The purpose of this study was to analyze the correlations between the rating measure scales with the corresponding ranking scales of the 5Plus5. Participants were recruited through an online research survey system (Sona Systems), and received extra credit for their psychology courses if they participated.

Measures

Participants complete the 5Plus5 in its rating and MFC ranking format. Participants also completed the Schwartz Value Survey (Schwartz & Shalom, 2009). They were instructed to rate the items based on importance, from *Not Important* (1) to *Supreme Importance* (9). This survey consists of ten constructs, which include conformity, tradition, benevolence, universalism, self-direction, stimulation, hedonism, achievement, power, and security.

Procedure

Participants were recruited through an online research survey system to receive extra credit in an undergraduate psychology course. Participants were either sent to an online survey

where they took the rating personality measure first and then the MFC ranking measure second, or they took the MFC ranking measure first. All participants took to the Schwartz Value Survey thirdly. Participants were allocated to one of the two survey types based on whether they were born on an even or odd day. Participants, who were born on an odd day, were allocated to the survey where they took the rating measure first. Those who were born on an even day were sent to the survey where they completed the MFC ranking format of the 5Plus5 first.

Results

Study One

Rating and Ranking Comparison. The means and standard deviations for the rating and MFC ranking 5Plus5 measures are provided in Table 7 and Table 8. Cronbach's alpha ranged from .791 to .917 for the rating 5Plus5 measure Table 9. It was hypothesized for the first study that the rating and the MFC ranking 5Plus5 will share similar correlations with the Big Five Personality measures. Correlations are highlighted if the hypotheses are supported. See Table 10 through Table 19. Seven of the ten constructs shared similar correlations; however, three constructs of the ranking and rating formatted questionnaires did not share similar correlations with the Big Five Personality measure. The three constructs that did not share similar correlations are drive, adaptability, and sensation seeking.

Table 7
Study One Rating Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Agreeableness	116	1.00	3.33	1.92	0.48
Energy	116	1.00	3.93	2.21	0.58
Conscientiousness	116	1.07	4.27	2.33	0.63
Drive	116	1.07	4.13	2.45	0.55
Balance	116	1.27	4.33	2.62	0.68
Sociability	116	1.13	4.33	2.23	0.71
Intellectuality	116	1.13	3.93	2.32	0.53
Business Planning	116	1.00	4.33	2.42	0.71
Sensation Seeking	116	1.33	4.13	2.59	0.64
Adaptability	116	1.33	4.07	2.65	0.54

Table 8
Study One MFC Ranking Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Agreeableness	97	1.33	4.53	2.44	0.70
Energy	97	1.33	3.93	2.76	0.55
Conscientiousness	97	1.47	4.73	3.17	0.78
Drive	97	1.80	4.60	3.22	0.64
Balance	97	1.93	4.80	3.41	0.65
Sociability	97	1.33	4.27	2.72	0.74
Intellectuality	97	1.40	4.53	2.85	0.70
Sensation Seeking	97	1.53	4.40	3.02	0.64
Business Planning	97	1.40	4.73	3.11	0.81
Adaptability	97	2.07	4.40	3.30	0.44

Table 9
Internal Reliability of Study One

Construct	Cronbach's Alpha
Agreeableness	0.847
Energy	0.895
Conscientiousness	0.878
Drive	0.819
Balance	0.891
Sociability	0.916
Intellectuality	0.791
Business Planning	0.917
Sensation Seeking	0.856
Adaptability	0.801

Table 10

Correlations between the Big Five Personality Constructs and the Rating (N=116) and Ranking (N=97) Primary 5Plus5 Construct

	Agreeableness		Hypothesis
	Ranking	Rating	
Extraversion	.160	.114	
Agreeableness	.625**	.765**	X
Conscientiousness	-.203*	.189*	
Emotional Stability	-.078	.179	
Openness	-.001	.177	

Note. An X indicates the hypothesized Big Five personality construct the 5Plus5 is assumed to correlate with.

**Sig at a .01, * Sig. at .05 level

Table 11

Correlations between the Big Five Personality Constructs and the Rating (N=116) and Ranking (N=97) Primary 5Plus5 Construct

	Balance		Hypothesis
	Ranking	Rating	
Extraversion	-.145	.184	
Agreeableness	-.148	.132	
Conscientiousness	-.240*	.1118	
Emotional Stability	.629**	.685**	X
Openness	-.152	-.009	

Note. An X indicates the hypothesized Big Five personality construct the 5Plus5 is assumed to correlate with.

**Sig at a .01, * Sig. at .05 level

Table 12

Correlations between the Big Five Personality Constructs and the Rating (N=116) and Ranking (N=97) Primary 5Plus5 Construct

	Conscientiousness		Hypothesis
	Ranking	Rating	
Extraversion	-.315**	-.254**	
Agreeableness	-.189	.340**	
Conscientiousness	.654**	.812**	X
Emotional Stability	-.263**	.0009	
Openness	-.006	-.046	

Note. An X indicates the hypothesized Big Five personality construct the 5Plus5 is assumed to correlate with.

**Sig at a .01, * Sig. at .05 level

Table 13

Correlations between the Big Five Personality Constructs and the Rating (N=116) and Ranking (N=97) Primary 5Plus5 Construct

	Drive		Hypothesis
	Ranking	Rating	
Extraversion	.044	-.036	X
Agreeableness	-.286**	.151	
Conscientiousness	-.139	.355**	
Emotional Stability	-.525**	-.176	
Openness	.067	-.191*	

Note. An X indicates the hypothesized Big Five personality construct the 5Plus5 is assumed to correlate with.

**Sig at a .01, * Sig. at .05 level

Table 14

Correlations between the Big Five Personality Constructs and the Rating (N=116) and Ranking (N=97) Primary 5Plus5 Construct

	<u>Energy</u>		<u>Hypothesis</u>
	<u>Ranking</u>	<u>Rating</u>	
Extraversion	.363**	.398**	X
Agreeableness	-.019	.230*	
Conscientiousness	-.225*	.174	
Emotional Stability	.341**	.501**	
Openness	.112	.271**	

Note. An X indicates the hypothesized Big Five personality construct the 5Plus5 is assumed to correlate with.

**Sig at a .01, * Sig. at .05 level

Table 15

Correlations between the Big Five Personality Constructs and the Rating (N=116) and Ranking (N=97) Secondary 5Plus5 Construct

	<u>Adaptability</u>		<u>Hypothesis</u>
	<u>Ranking</u>	<u>Rating</u>	
Extraversion	-.237*	.421**	
Agreeableness	.032	.167	
Conscientiousness	-.191	-.158	
Emotional Stability	.221*	.129	
Openness	-.080	.357**	X

Note. An X indicates the hypothesized Big Five personality construct the 5Plus5 is assumed to correlate with.

**Sig at a .01, * Sig. at .05 level

Table 16

Correlations between the Big Five Personality Constructs and the Rating (N=116) and Ranking (N=97) Secondary 5Plus5 Construct

	<u>Business Planning</u>		<u>Hypothesis</u>
	Ranking	Rating	
Extraversion	-.316**	.127	
Agreeableness	-.100	.346**	
Conscientiousness	.575**	.395**	X
Emotional Stability	-.092	-.089	
Openness	-.155	.292**	

Note. An X indicates the hypothesized Big Five personality construct the 5Plus5 is assumed to correlate with.

**Sig at a .01, * Sig. at .05 level

Table 17

Correlations between the Big Five Personality Constructs and the Rating (N=116) and Ranking (N=97) Secondary 5Plus5 Construct

	<u>Intellectuality</u>		<u>Hypothesis</u>
	Ranking	Rating	
Extraversion	-.471**	.076	
Agreeableness	-.060	.280**	
Conscientiousness	.204*	.203*	
Emotional Stability	-.181	-.157	
Openness	.647**	.778**	X

Note. An X indicates the hypothesized Big Five personality construct the 5Plus5 is assumed to correlate with.

**Sig at a .01, * Sig. at .05 level

Table 18

Correlations between the Big Five Personality Constructs and the Rating (N=116) and Ranking (N=97) Secondary 5Plus5 Construct

	<u>Sensation Seeking</u>		<u>Hypothesis</u>
	<u>Ranking</u>	<u>Rating</u>	
Extraversion	.191	.416**	
Agreeableness	-.085	.032	
Conscientiousness	-.472**	-.176	
Emotional Stability	-.133	-.134	
Openness	-.165	.097	X

Note. An X indicates the hypothesized Big Five personality construct the 5Plus5 is assumed to correlate with.

**Sig at a .01, * Sig. at .05 level

Table 19

Correlations between the Big Five Personality Constructs and the Rating (N=116) and Ranking (N=97) Secondary 5Plus5 Construct

	<u>Sociability</u>		<u>Hypothesis</u>
	<u>Ranking</u>	<u>Rating</u>	
Extraversion	.768**	.870**	X
Agreeableness	.221*	.123	
Conscientiousness	-.299**	-.214*	
Emotional Stability	.254	.166	
Openness	-.251	.188*	

Note. An X indicates the hypothesized Big Five personality construct the 5Plus5 is assumed to correlate with.

**Sig at a .01, * Sig. at .05 level

Dropout Rate. Due to the difficulty and effort of MFC ranking measures mentioned in the literature (Ovadia, 2004), dropout rate was also analyzed. Five participants dropped out of the 5Plus5 rating measure compared to the sixteen participants who dropped out of the MFC ranking 5Plus5 measure. Only four percent dropped out of the rating questionnaire compared to the fourteen percent that dropped out of the ranking questionnaire.

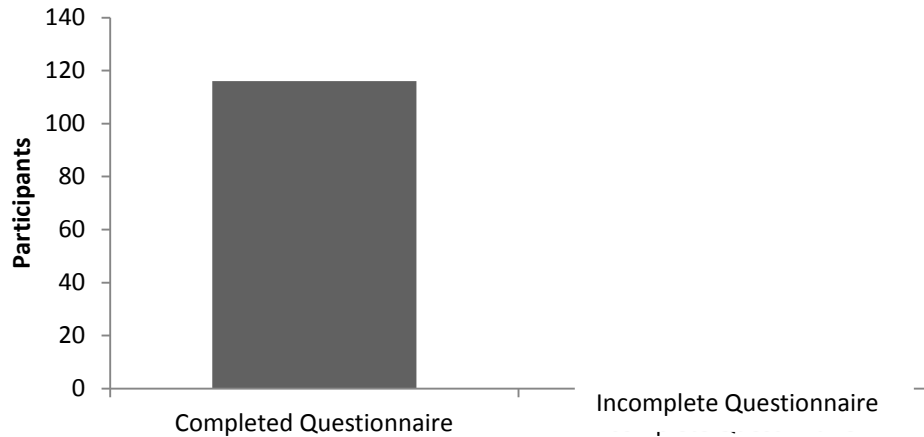


Figure 2. Completion rate of the rating 5Plus5 measure.

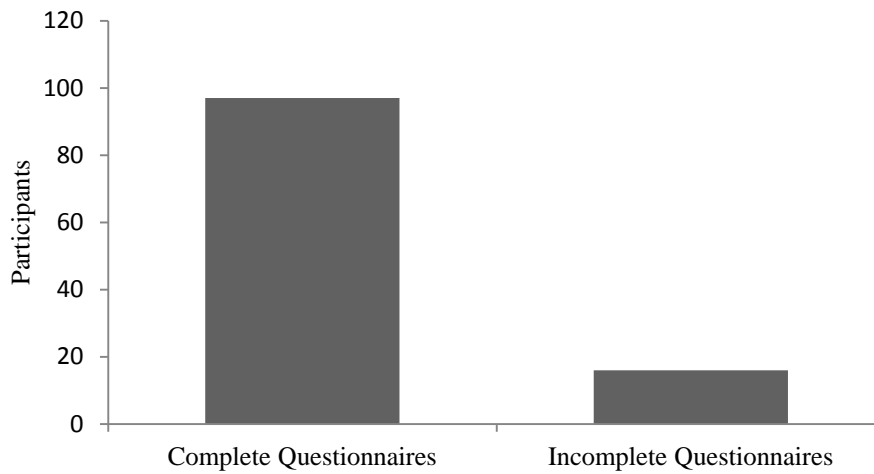


Figure 3. Completion rate of the MFC ranking 5Plus5 measure.

Measures of Ipsativity. To test the ipsativity of the MFC ranking measure, two tests were conducted, which include the limited value approach and zero totals correlation approach (Hicks, 1970). In the limited value approach, the average intercorrelations of the scales can be predicted from the number of scales using the limited value formula. The limited value formula is $-1/(m - 1)$. The actual average correlation may differ slightly from the predicted value, however, the value will always be negative. The limited value predicted by the formula is $-.25$ and the actual average intercorrelation between the primary constructs is $-.2476$. The average intercorrelation of the secondary constructs was also very close to the limited value, with the average intercorrelation of $-.2644$. These results convincingly lead to the conclusion that the MFC ranking 5Plus5 measure is ipsative. The intercorrelations of the rating and MFC ranking 5Plus5 constructs can be found in Table 20 and Table 21.

The second approach for testing ipsativity of a measure is the zero totals correlations approach. When an ipsative measure is correlated with another measure, the rows totals will roughly be around zero. To test the ipsativity of the MFC ranking 5Plus5, it was correlated with the IPIP Big Five personality measures and the rows were totaled. This data is illustrated in Table 22 and Table 23. Most of the values fall roughly around zero, with the furthest being $-.183$. These results, as well as the limited value approach, provide support for the 5Plus5 MFC ranking being ipsative.

Table 20

Intercorrelations between Scales for the Ranking (N=97) Primary 5Plsu5 measure

	Agreeableness	Balance	Conscientiousness	Drive
Balance	-.117			
Conscientiousness	-.405**	-.385**		
Drive	-.336**	-.454**	-.011	
Energy	-.169	.044	-.437**	-.186

The inter-correlations between the ipsative scales were tested against the predicted value of -.25.

* $p < .05$, two-tailed test; ** $p < .01$, two-tailed test.

Table 21

Intercorrelations between scales for Ranking (N=97) Secondary 5Plsu5 measure

	Adaptability	Business Planning	Intellectuality	Sensation Seeking
Business Planning	-.266**			
Intellectuality	-.029	-.052		
Sensation Seeking	-.057	-.546**	-.377**	
Sociability	-.233*	-.414**	-.545**	.125

The inter-correlations between the ipsative scales were tested against the predicted value of -.25.

* $p < .05$, two-tailed test; ** $p < .01$, two-tailed test.

Table 22

Correlations between the Big Five Personality Constructs and the Primary 5Plus5Ranking Constructs (N=97)

	Agreeableness	Balance	Conscientiousness	Drive	Energy	Total
Extraversion	.160	-.145	-.315**	.044	.363**	0.107
Agreeableness	.625**	-.148	-.189	-.286**	-.019	-0.017
Conscientiousness	-.203*	-.240*	.654**	-.139	-.225*	-0.153
Emotional Stability	-.078	.629**	-.263**	-.525**	.341**	0.104
Openness	-.001	-.152	-.006	.067	.112	0.02

* $p < .05$, two-tailed test; ** $p < .01$, two-tailed test.

Table 23

Correlations between the Big 5 Personality Constructs and the Secondary 5Plus5 Ranking Constructs (N=97)

	Adaptability	Business Planning	Intellectuality	Sensation Seeking	Sociability	Total
Extraversion	-.237*	-.316**	-.471**	.191	.768**	-0.065
Agreeableness	.032	-.100	-.060	-.085	.221*	0.008
Conscientiousness	-.191	.575**	.204*	-.472**	-.299**	-0.183
Emotional Stability	.221*	-.092	-.181	-.133	.254	0.069
Openness	-.080	-.155	.647**	-.165	-.251	-0.004

* $p < .05$, two-tailed test; ** $p < .01$, two-tailed test.

Study Two

The descriptive statistics of study two are provided in Table 24 and Table 25. Cronbach's alpha ranged from .765 to .929 for the rating 5Plus5 measure (see Table 26). In the second study, I hypothesized that the MFC ranking scales would be correlated to its parallel rating scale. The results of the analyses are shown in Table 27. Correlations between the ranking MFC and rating scales ranged from .249 to .555. The results revealed that the correlations between the rating and MFC ranking scales were generally low. Studies that did this approach stated that .60 would be a suitable correlation between the rating and corresponding MFC ranking scale (Brown & Bartram, 2009; Bowen, Martin, & Hunt, 2002; Saville & Willson, 1991).

Table 24

Study Two Rating Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Agreeableness	111	1.07	3.80	2.03	0.62
Energy	111	1.07	4.20	2.36	0.61
Conscientiousness	111	1.13	4.60	2.42	0.65
Drive	111	1.13	4.07	2.52	0.623
Balance	111	1.27	4.40	2.83	0.68
Sociability	111	1.13	4.47	2.47	0.73
Intellectuality	111	1.00	3.73	2.41	0.54
Business Planning	111	1.07	4.60	2.55	0.79
Sensation Seeking	111	1.40	4.47	2.57	0.62
Adaptability	111	1.53	4.20	2.77	0.54

Table 25

Study Two MFC Ranking Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Agreeableness	111	1.13	4.47	2.53	0.77
Energy	111	1.47	4.67	2.93	0.59
Conscientiousness	111	1.67	4.53	3.08	0.64
Drive	111	1.40	4.80	3.23	0.77
Balance	111	1.40	4.67	3.24	0.74
Sociability	111	1.33	4.53	2.87	0.73
Intellectuality	111	1.47	4.33	2.90	0.61
Sensation Seeking	111	1.20	4.67	2.97	0.64
Business Planning	111	1.40	4.80	3.08	0.92
Adaptability	111	1.67	4.60	3.18	0.57

Table 26
Internal Reliability of Study Two

Construct	Cronbach's Alpha
Agreeableness	0.900
Energy	0.869
Conscientiousness	0.865
Drive	0.823
Balance	0.881
Sociability	0.894
Intellectuality	0.794
Business Planning	0.929
Sensation Seeking	0.828
Adaptability	0.765

Table 27
Correlations the Rating and Ranking Primary and Secondary 5Plus5 Construct (N=111)

Construct	Correlation Between Rating and Ranking Scale
Essential 5Plus5 Constructs	
Agreeableness	.466**
Balance	.249**
Conscientiousness	.297**
Drive	.349**
Energy	.421**
Additional 5Plus5 Constructs	
Adaptability	.295**
Business Planning	.407**
Intellectually	.338**
Sensation Seeking	.555**
Sociability	.530**

(**Sig at a .01, * Sig. at .05 level)

Correlation between Values Survey and 5Plus5. Like the previous study, the 5Plus5 was correlated with another measure to see if the same pattern of correlations would occur in both the ranking and rating formats of the 5Plus5. The measure that was used was the Schwartz

Value Survey (Schwartz & Shalom, 2009). I hypothesized that the rating and the MFC ranking 5Plus5 would share similar correlations with the Schwartz Value Survey. All hypotheses were supported except for hypotheses associated with the constructs balance and intellectuality.

Correlations are highlighted if the hypotheses are supported in Table 28 through Table 37.

Table 28

Correlations between the Schwartz Value and the Rating and Ranking Primary 5Plus5 Constructs (N=108)

Value	Agreeableness		Hypothesis
	Ranking	Rating	
Conformity	.024	.069	
Tradition	.050	-.048	
Benevolence	.244***	.489***	X
Universalism	.239***	.277***	X
Stimulation	-.038	-.167**	
Hedonism	-.106	-.065	
Achievement	-.072	.021	
Power	-.314***	-.454***	
Security	-.197**	-.303***	
Self-Direction	-.035	.061	

* $p < .10$, one-tailed test; ** $p < .05$, one-tailed test; *** $p < .01$, one-tailed test.

Table 29

Correlations between the Schwartz Value and the Rating and Ranking Primary 5Plus5 Constructs (N=108)

Value	Balance		Hypothesis
	Ranking	Rating	
Conformity	-.075	.040	
Tradition	.061	-.057	
Benevolence	-.121	.043	
Universalism	-.055	.305***	X
Stimulation	-.036	.023	
Hedonism	.107	-.040	
Achievement	-.034	-.053	
Power	.073	-.343***	
Security	.128*	-.101	
Self-Direction	.026	.152**	

* $p < .10$, one-tailed test; ** $p < .05$, one-tailed test; *** $p < .01$, one-tailed test.

Table 30
*Correlations between the Schwartz Value and the Rating and Ranking
 Primary 5Plus5 Constructs (N=108)*

Value	Conscientiousness		Hypothesis
	Ranking	Rating	
Conformity	.167**	.344***	X
Tradition	.083	.107	
Benevolence	.106	.162**	
Universalism	-.071	-.064	
Stimulation	-.100	-.307	
Hedonism	-.208**	-.063	
Achievement	-.010	-.022	
Power	-.027	.001	
Security	.187**	.118	
Self-Direction	-.110	-.297	

* $p < .10$, one-tailed test, ** $p < .05$, one-tailed test; *** $p < .01$, one-tailed test.

Table 31
*Correlations between the Schwartz Value and the Rating and Ranking
 Primary 5Plus5 Constructs (N=108)*

Value	Drive		Hypothesis
	Ranking	Rating	
Conformity	.005	.051	
Tradition	-.149*	-.082	
Benevolence	-.175**	-.054	
Universalism	-.135*	-.185**	
Stimulation	.136*	-.136*	
Hedonism	.069	.087	
Achievement	.172**	.331***	X
Power	.255***	.273***	X
Security	-.031	-.038	
Self-Direction	.005	.051	

* $p < .10$, one-tailed test, ** $p < .05$, one-tailed test; *** $p < .01$, one-tailed test.

Table 32
*Correlations between the Schwartz Value and the Rating and Ranking
 Primary 5Plus5 Constructs (N=108)*

Value	Energy		Hypothesis
	Ranking	Rating	
Conformity	-.128*	.059	
Tradition	-.036	-.210**	
Benevolence	-.052	.092	
Universalism	.013	.048	
Stimulation	.027	-.007	
Hedonism	.141*	.174**	X
Achievement	-.080	.077	
Power	.011	-.131*	
Security	-.069	-.197**	
Self-Direction	.155*	.102	

* $p < .10$, one-tailed test; ** $p < .05$, one-tailed test; *** $p < .01$, one-tailed test.

Table 33
*Correlations between the Schwartz Value and the Rating and Ranking
 Secondary 5Plus5 Constructs (N=108)*

Value	Adaptability		Hypothesis
	Ranking	Rating	
Conformity	-.042	-.049	
Tradition	-.009	-.060	
Benevolence	.074	.166	
Universalism	.000	.233***	
Stimulation	.070	.282***	
Hedonism	-.106	-.044	
Achievement	-.105	-.045	
Power	-.011	-.403***	
Security	-.044	-.202**	
Self-Direction	.208**	.282***	X

* $p < .10$, one-tailed test; ** $p < .05$, one-tailed test; *** $p < .01$, one-tailed test.

Table 34
*Correlations between the Schwartz Value and the Rating and Ranking
 Secondary 5Plus5 Constructs (N=108)*

Value	Business Planning		Hypothesis
	Ranking	Rating	
Conformity	.094	.190**	
Tradition	.114	.136*	
Benevolence	.008	.192**	
Universalism	-.034	-.017	
Stimulation	-.317***	-.412***	
Hedonism	-.088	-.014	
Achievement	.059	.117	
Power	.034	-.039	
Security	.176**	-.016	
Self-Direction	-.232***	-.244***	X

* $p < .10$, one-tailed test, ** $p < .05$, one-tailed test; *** $p < .01$, one-tailed test.

Table 35
*Correlations between the Schwartz Value and the Rating and Ranking
 Secondary 5Plus5 Constructs (N=108)*

Value	Intellectuality		Hypothesis
	Ranking	Rating	
Conformity	.130*	.023	
Tradition	-.012	-.188**	
Benevolence	-.038	.166	
Universalism	.089	.177	X
Stimulation	.006	.077	
Hedonism	-.100	-.033	
Achievement	-.159**	.046	
Power	-.084	-.293***	
Security	.104	-.225***	
Self-Direction	.069	.347***	

* $p < .10$, one-tailed test, ** $p < .05$, one-tailed test; *** $p < .01$, one-tailed test.

Table 36
*Correlations between the Schwartz Value and the Rating and Ranking
 Secondary 5Plus5 Constructs (N=108)*

Value	Sociability		Hypothesis
	Ranking	Rating	
Conformity	-.002	-.007	
Tradition	-.108	-.234***	
Benevolence	-.024	.050	
Universalism	-.012	-.036	
Stimulation	.001	.178**	
Hedonism	.243***	.201**	X
Achievement	.101	.166**	
Power	-.006	-.160**	
Security	-.108	-.128*	
Self-Direction	-.055	.025	

* $p < .10$, one-tailed test; ** $p < .05$, one-tailed test; *** $p < .01$, one-tailed test.

Table 37
*Correlations between the Schwartz Value and the Rating and Ranking
 Secondary 5Plus5 Constructs (N=108)*

Value	Sensation Seeking		Hypothesis
	Ranking	Rating	
Conformity	-.219**	-.111	
Tradition	-.021	-.054	
Benevolence	-.014	.150	
Universalism	-.023	-.038	
Stimulation	.386***	.347***	X
Hedonism	.038	.078	
Achievement	.044	.038	
Power	.048	-.121	
Security	-.190**	-.169**	
Self-Direction	.146*	.231**	

* $p < .10$, one-tailed test; ** $p < .05$, one-tailed test; *** $p < .01$, one-tailed test.

Individual Rank Correlations. Each individual respondents' rating and ranking scales were correlated (Spearman rank-order correlation), to analyze if their individual rating constructs were

similar to the corresponding ranking constructs of the 5Plus5. The individual respondents' correlations are supplied in Appendix D. An overview of the results is provided in Tables 38 and 39. Most respondents matched their ranking MFC with the rating measure quite well, however, a proportion of the respondents tended to provide an opposite ordering of the constructs between the ranking MFC ranking and rating 5Plus5 measures.

Table 38

Descriptive Statistics of Individual Respondents' Spearman Rho Correlation Between the Essential Constructs

Lower	Upper	Midpoint	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-1.000	< -0.800	-0.900	9	8.1	9	8.1
-0.800	< -0.600	-0.700	8	7.2	17	15.3
-0.600	< -0.400	-0.500	4	3.6	21	18.9
-0.400	< -0.200	-0.300	3	2.7	24	21.6
-0.200	< -0.000	-0.100	1	0.9	25	22.5
-0.000	< 0.200	0.100	2	1.8	27	24.3
0.200	< 0.400	0.300	4	3.6	31	27.9
0.400	< 0.600	0.500	4	3.6	35	31.5
0.600	< 0.800	0.700	17	15.3	52	46.8
0.800	< 1.000	0.900	46	41.4	98	88.3
1.000	< 1.200	1.100	13	11.7	111	100.0

Table 39

Descriptive Statistics of Individual Respondents' Spearman Rho Correlation Between the Additional Constructs

Lower	Upper	Midpoint	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-1.000	< -0.800	-0.900	12	10.9	12	10.9
-0.800	< -0.600	-0.700	3	2.7	15	13.6
-0.600	< -0.400	-0.500	3	2.7	18	16.4
-0.400	< -0.200	-0.300	1	0.9	19	17.3
-0.200	< -0.000	-0.100	1	0.9	20	18.2
-0.000	< 0.200	0.100	3	2.7	23	20.9
0.200	< 0.400	0.300	4	3.6	27	24.5
0.400	< 0.600	0.500	11	10.0	38	34.5
0.600	< 0.800	0.700	15	13.6	53	48.2
0.800	< 1.000	0.900	49	44.5	102	92.7
1.000	< 1.200	1.100	8	7.3	110	100.0

Measures of Ipsativity. Like the previous study, ipsativity was tested with the limited value approach and zero totals correlation approach (Hicks, 1970). The limited value predicted by the formula is $-.25$ and the actual average intercorrelation between the primary constructs is $-.2476$. The average intercorrelation of the secondary constructs was also very close to the limited value, with the average intercorrelation of $-.2368$. These results leads to the conclusion that the MFC ranking 5Plus5 measure is ipsative. The intercorrelations of the rating and MFC ranking 5Plus5 constructs can be found in Table 40 and Table 41.

The second approach for testing ipsativity of a measure is the zero totals correlations approach. To test the ipsativity of the MFC ranking 5Plus5, it was correlated with the Schwartz Value Survey and the rows were totaled. This data is illustrated in Table 42 and Table 43. Most of the values fall roughly around zero, with the furthest being $.146$. These results, as well as the limited value approach, provide support for the 5Plus5 MFC ranking being ipsative.

Table 40

Intercorrelations Between scales for the Ranking Primary 5Plsu5 Measure (N=111)

	Agreeableness	Balance	Conscientiousness	Drive
Balance	-.210*			
Conscientiousness	-.258**	-.432**		
Drive	-.374**	-.518**	.141	
Energy	-.268**	.176	-.402**	-.331*

The inter-correlations between the ipsative scales were tested against the predicted value of -.25.

* $p < .05$, two-tailed test; ** $p < .01$, two-tailed test.

Table 41

Intercorrelations between scales for the Ranking Secondary 5Plsu5 Measure (N=111)

	Adaptability	Business Planning	Intellectuality	Sensation Seeking
Business Planning	-.361**			
Intellectuality	-.057	-.187*		
Sensation Seeking	-.121	-.516*	-.109	
Sociability	-.160	-.367**	-.449**	-.041

The inter-correlations between the ipsative scales were tested against the predicted value of -.25.

* $p < .05$, two-tailed test; ** $p < .01$, two-tailed test.

Table 42

Correlations between the Schwartz Value and the Essential 5Plus5 Constructs (N=108)

	Agreeableness	Balance	Conscientiousness	Drive	Energy	Total
Conformity	.024	-.075	.167**	.005	-.128*	-0.007
Tradition	.050	.061	.083	-.149*	-.036	0.047
Benevolence	.244***	-.121	.106	-.175**	-.052	0.002
Universalism	.239***	-.055	-.071	-.135*	.013	-0.009
Stimulation	-.038	-.036	-.100	.136*	.027	-0.011
Hedonism	-.106	.107	-.208**	.069	.141*	0.003
Achievement	-.072	-.034	-.010	.172**	-.080	-0.024
Power	-.314***	.073	-.027	.255***	.011	-0.002
Security	-.197**	.128*	.187**	-.031	-.069	0.018
Self-Direction	-.035	.026	-.110	-.017	.155*	0.019

* $p < .10$, one-tailed test; ** $p < .05$, one-tailed test; *** $p < .01$, one-tailed test.

Table 43

Correlations between the Schwartz Value and the Additional 5Plus5 Constructs (N=108)

	Adaptability	Business Planning	Intellectuality	Sensation Seeking	Sociability	Total
Conformity	-.042	.094	.130*	-.219**	-.002	-0.039
Tradition	-.009	.114	-.012	-.021	-.108	-0.036
Benevolence	.074	.008	-.038	-.014	-.024	0.006
Universalism	.000	-.034	.089	-.023	-.012	0.02
Stimulation	.070	-.317***	.006	.386***	.001	0.146
Hedonism	-.106	-.088	-.100	.038	.243***	-0.013
Achievement	-.105	.059	-.159**	.044	.101	-0.06
Power	-.011	.034	-.084	.048	-.006	-0.019
Security	-.044	.176**	.104	-.190**	-.108	-0.062
Self-Direction	.208**	-.232***	.069	.146*	-.055	0.136

* $p < .10$, one-tailed test; ** $p < .05$, one-tailed test; *** $p < .01$, one-tailed test.

Discussion

In two studies, I compared ranking and rating versions of the 5Plus5 personality measure. The ranking or MFC format is comprised of blocks of items with each block including five different constructs. The intention of the first study was to show how the MFC ranking format behaves similarly to the rating format of the 5Plus5. This was done in a between study design comparing the pattern of correlation between ranking and rating measures with the Big Five Personality measures (Goldberg, 1992). The second study was a within subjects design and went beyond the first study by not only looking at the similar correlation patterns the MFC ranking and rating 5Plus5 measures shared with the Schwartz Value Survey (Schwartz, 2009), but by also analyzing the convergent validity between the MFC ranking and rating 5Plus5 measures. The purpose of comparing the MFC ranking measure to the rating measure is to show that the ranking can produce similar results and that it can be used in and not just for relative measurement purposes.

Moreover, study one revealed that the rating and MFC ranking measure produced similar correlations with the Big Five Personality measure. Seven of the constructs shared similar correlations, but the constructs that did not share similar correlations between the rating and MFC ranking scales were drive, adaptability, and sensation seeking. These constructs tended to show different patterns between rating and ranking scales. When the constructs were positively correlated in the rating scale, they tended to be nonsignificant or negatively correlated in the MFC ranking scale. This may be because the Big Five Personality constructs may not serve as a good comparison for these particular measures. Though the ranking 5Plus5 measure had significant relationships

with the Big Five Personality measure, it also had multiple negative correlations with the Big Five Personality measure. It is unlikely that these constructs are actually negatively correlated with the constructs of the Big Five Personality measure, but instead resulted due to the psychometric properties of ranking data. Some constructs inevitably become unrepresentative of the individual because respondents must use the entire scale while ranking and are forced to make comparison between items participants feel that are not comparable (Ovadia, 2004). Participants are not required to use the entire scale for rating data and, consequently, will use the scale more modestly. Negative correlations will present themselves when using ranking data because participants are forced to use the entire scale.

According to Ovadia (2004), the ranking formatted questionnaire was found to be much more difficult to complete in comparison to the rating format, resulting in an increased number of respondent dropouts. The results of study one supported these findings. The rating 5Plus5 measure had five dropout of the study compared to the total of sixteen who dropped out of the MFC ranking 5Plus5 measure. Essentially, only four percent dropped out of the rating questionnaire compared to the fourteen percent that dropped out of the ranking questionnaire. Research has shown that completing a ranking measure can be much more difficult and arduous to answer. This eventually will lead to a greater amount of participants not finishing the measure. In future use of the 5Plus5, it would be useful to incorporate an additional section that surveys the respondents' disposition towards the measures. This may include trying to understand how easy respondents find both formats, confusing or complex.

The purpose of study two was to analyze the convergent validity between the MFC ranking constructs and the corresponding rating constructs of the 5Plus5. Results revealed a moderate to low level of convergent validity between the measures. Acceptable levels have been .60 or greater, but no correlation between the rating and MFC ranking 5Plus5 measures revealed this high of a level. As stated, the purpose of the comparison is to see if the ranking measure will be similar so that it can be used in an absolute context instead of for relative purposes. The MFC ranking 5Plus5 does not measure the construct in absolute terms but rather in relative terms. More specifically, the drive construct can only be said to be more prevalent than energy, but the actual level of drive cannot be measured. For practical implications, ranking measures may be more appropriate for creating profiles instead of using the measure for inter-individual comparison. Instead of using the measure for selection purposes, the MFC ranking 5Plus5 may be more useful in personal development and team building applications. It is important to note that the MFC ranking and rating of the 5Plus5 are not equivalent, however, the MFC ranking can serve additional purposes.

Study two also analyzed the correlation pattern the MFC ranking and rating shared with Schwartz Value Survey. Results revealed that the 5Plus5 MFC ranking and rating shared correlations on eight of the constructs, except for balance and intellectuality. These constructs are different from the constructs that did not correlate in the first study. However, like the previous study, the MFC ranking scales resulted in multiple negative correlations and the rating scales correlated with values survey to a greater magnitude.

Additionally in study two, each individual participants' rating and ranking scales were correlated (Spearman rank-order correlation), to analyze if their individual rating of constructs were similar to the corresponding ranking constructs of the 5Plus5. Many of the participants' rating and MFC ranking matched; however, a large portion of the participants resulted in negative correlations. For these individuals, their most important construct in MFC ranking measure became their least important in the rating measure of the 5Plus5. As previously mentioned, individuals tend to find ranking formats much more difficult and arduous to complete. These individuals may have found the ranking study to be too difficult to complete, and began providing random answers instead of answering them appropriately. In addition, respondents may have found the measure too complicated and may not have fully understood the purpose of the measure. Again, a questionnaire that measures the participants' disposition towards the measure may be very useful in this case, by trying to understand the difficulty of the measures. Furthermore, it may be helpful to see how much respondents believe that the two different measures allow them to present themselves in the way they desire.

The ipsativity tests for both study one and study two showed that the data produced ipsative properties. The two methods used to analyze the ipsativity of the measure were the limited value approach and the zero totals correlation approach (Hicks, 1970). Both approaches rendered results that revealed that the 5Plus5 was ipsative. Because of the ipsativity, it is necessary to alter the construction of the MFC ranking measure of the 5Plus5. Possible methods to decrease the ipsative nature of measure are to increase the number of constructs and intermix the constructs within the blocks. By increasing the number of constructs, the constructs will be less dependent on other

constructs. It is recommended that the number of constructs in one measure should be no less than fifteen (Brown & Bartram, 2009; Bartram; 2007; Saville & Willson, 1992).

Additionally, by intermixing the constructs within the block, the same constructs will not be represented in the same blocks repeatedly. If constructs are not in the same block, they will have less pull on other constructs. The results of both studies showed that the MFC ranking measure was ipsative, however, efforts that can decrease this are outlined.

Limitations. This study resulted in multiple demographic limitations. Both studies sampled college students in their first or second year of graduate school. It is very unlikely the results of this study would generalize to the overall public. The purpose of the 5Plus5 is to be used for selection or development purposes in an occupation setting and by analyzing only a student population, it may be very difficult generalize the results into this setting. Not only will it be difficult to generalize the results to the working population, but also to working populations in other parts of the world. Once this measure is efficiently validated, it will used in parts of South America, North America, and Western Europe. Because the two studies took place in the United States, it may be difficult to generalize the results to other countries. Additional studies are necessary to test the cultural differences of the 5Plus5. Moreover, the study suffered from a small sample size with majority of the sample being female.

Due to the ipsative nature of the MFC ranking 5Plus5 measure, a reliability analysis could not be analyzed with this data. Because of the interdependency of the measure, any reliability score that was computed would be seen as spurious or untrustworthy. These types of measures go against one of the basic assumptions of classical test theory: that error is random and that the true scores are independent.

However, in an MFC ranking measure, the error of one item carries over to other items in a block. Additionally, the score of one item is shared with all other items. The following formula illustrates this point. Where c is the number of item sets present (and thus the number of items measuring each construct), T_j is the true score of the construct being measured, e_j represents the error of the scale measuring construct j , and $\sum (T + e)$ represents the sum of the true and error scores of all other constructs being measured. Essentially, the actual score of any construct will not only be a result of its own true score and error score, but all other true and error scores in the measure.

$$X_j = \frac{c + T_j + e_j - \sum_{i \neq j} (T + e)}{2}$$

Future Research and Conclusion. In conclusion, the purpose of this study was to develop a MFC ranking personality measure that consisted of ten construct to be used for selection purposes. In two different studies, the ranking measure was compared to its counterpart rating measure. Results revealed that the ranking measure was ipsative, and was not equivalent to the rating measure.

The next step in the development of the MFC ranking measure would be to reduce the ipsative nature of the measure. This can be accomplished through increasing the number of constructs and not having the same constructs in the blocks repeatedly. Currently the 5Plus5 is set up as basically two different measures, where the primary constructs are only compared to each other, and the secondary constructs are only compared to each other. These constructs should be intermixed to help alleviate its ipsativity. Additional future studies should analyze the effects the MFC ranking has on

social desirability compared to rating measures. Other future studies will have to address issues of predictive validity by comparing the 5Plus5 constructs with measures of work performance, especially when used for personnel selection.

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Appendix A

Sample Items

1. Please rank the following statements with 1 being the most representative of you to 5 being the least representative of you.

- _____ I treat people fair. (*Agreeableness*)
- _____ I am a calm person. (*Balance*)
- _____ I am always ready (*Conscientiousness*)
- _____ I would consider myself driven in my career. (*Drive*)
- _____ I can do many things well. (*Energy*)

2. Please rank the following statements with 1 being the most representative of you to 5 being the least representative of you.

- _____ I am comfortable dealing with ambiguity. (*Adaptability*)
- _____ I keep my commitments. (*Business Planning*)
- _____ I quickly understand difficult concepts. (*Intellectuality*)
- _____ I try to do new things on a regular basis. (*Sensation Seeking*)
- _____ I enjoy being around people. (*Sociability*)

Appendix B

*Individual Respondents' Correlation
between the Rating and Ranking Measure
of Primary Constructs*

Participant Number	Spearman's Rho Correlation
1	0.975
2	-0.9
3	0.975
4	-0.975
5	0.7
6	0.6
7	0.9
8	0.6
9	-0.975
10	0.9
11	0.949
12	-0.9
13	-0.895
14	-0.7
15	0.667
16	-0.975
17	-0.359
18	-0.526
19	0.667
20	0.821
21	0.9
22	-0.359
23	-0.821
24	0.9
25	0.3
26	-0.205
27	-0.718
28	0.821
29	0.9
30	0.9
31	0.667
32	0.718
33	0.9

34	0.975
35	-0.711
36	0.7
37	0.9
38	0.975
39	1
40	0.3
41	0.7
42	0.7
43	0.564
44	0.41
45	0.3
46	0.921
47	1
48	0.821
49	0.8
50	0.975
51	0.667
52	0.7
53	1
54	1
55	-0.564
56	0.667
57	0.949
58	1
59	-0.7
60	1
61	0.9
62	0.975
63	1
64	-0.667
65	-0.9
66	0.8
67	1
68	-0.671
69	1
70	0.667
71	0.975
72	0.821

73	0.7
74	-0.9
75	0.975
76	0.9
77	-0.564
78	-0.7
79	-0.7
80	0.616
81	-
82	0.462
83	0.9
84	1
85	0.9
86	0.975
87	1
88	0.5
89	0.3
90	-0.41
91	0.9
92	0.9
93	0.9
94	0.821
95	-0.154
96	0.9
97	0.975
98	0.975
99	0.132
100	0.9
101	0.8
102	0.6
103	0.9
104	0.821
105	0.8
106	0.821
107	1
108	1
109	0.9
110	0.975
111	0.9

*Individual Respondents'
Correlation between the Rating and
Ranking Measure of Additional
Constructs*

Participant Number	Spearman's Rho Correlation
1	0.872
2	-0.5
3	0.7
4	-0.9
5	1
6	0.783
7	1
8	0
9	-0.8
10	0.7
11	0.658
12	-0.8
13	-0.9
14	-0.1
15	0.205
16	-0.975
17	-0.616
18	-0.4
19	-0.9
20	0.7
21	0.667
22	0.821
23	0.8
24	0.821
25	0.9
26	-1
27	-0.9
28	0.9
29	0.667
30	0.821
31	0.821
32	0.9
33	0.8
34	0.9
35	0.41

36	0.872
37	0.9
38	0.553
39	0.975
40	0.975
41	0.564
42	0.99
43	0.8
44	0.9
45	0.564
46	0.872
47	0.564
48	0.224
49	0.975
50	0.7
51	0.447
52	0.564
53	0.9
54	.553
55	0.5
56	0.975
57	0.9
58	0.821
59	-0.41
60	0.9
61	0.8
62	1
63	0.8
64	-0.9
65	-1
66	1
67	0.9
68	-1
69	0.763
70	0.9
71	1
72	0.289
73	0.975
74	0.564

75	0.616
76	0.975
77	-0.9
78	-0.9
79	-0.41
80	0.9
81	-
82	1
83	0.821
84	0.9
85	0.975
86	1
87	0.872
88	0.821
89	0.2
90	0.1
91	0.9
92	0.9
93	0.5
94	0.8
95	0.9
96	0.7
97	0.821
98	0.7
99	-0.821
100	0.1
101	0.9
102	0.667
103	0.821
104	0.921
105	0.975
106	0.6
107	0.86
108	0.975
109	1
110	0.6
111	0.9

***Participant 81 received the exact rank order, in which a Spearman rho correlation could not be conducted.*