# THE VALIDATION OF THE TEN-ITEM PERSONALITY INVENTORY (TIPI) IN THE NIGERIAN SAMPLE

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**Abstract**
This study examined the validation of the Ten-Item Personality Inventory (TIPI) in the Nigerian sample. A total of 517 students from University of Nigeria, Nsukka was served as the participants in the study; 252 of them, representing 49% were males and 265 in number representing 51 % of them were made up of females. Their ages ranged from eighteen (18) to thirty-five (35) years and their mean age is 30.1064. The standard deviation of their age is 5.88177. Three instruments were employed in the research. They were Ten-Item Personality Inventory (TIPI), forty-four-item Big-Five Personality Inventory and Neuroticism domain (Domain J) of the SCL 90. The design of the study is cross-sectional and factor analysis, Pearson correlations, Cronbach Alpha and split-half reliabilities were adopted as the standard tools for testing the hypotheses. The results indicated that TIPI has construct validity at 627[**] (p<.001) significant level. On concurrent validity, the five domains of TIPI concurred with the five domains of the forty-four-item Big-Five Personality Inventory at 271[**],.419[**],.436[**] , .163[**] and .251[**] (p<.001)significant level. On discriminant validity, the five domains of TIPI discriminated with Neuroticism domain of the SCL 90 except the Emotional Stability domain at -.428[**], -.243[**], -.047, .447[**] and -.505[**] (p<0.01) significant level. Finally, on reliability, TIPI is reliable within the acceptable protocol with Cronbach Alpha of r=.71 and Split-Half of r=.76.
**Keyword:** Short Big-five Personality Inventory, Cross validation, Discriminant Validity, Concurrent Validity

## Introduction

### Background to the study
Personality is the dynamic organization of features owned by an individual that affect the person's cognition, motivation, and behavior in various situations (John, Donahue & Kentle, 1991; Kerber, Roth & Herzberg, 2021). It is the totality of a person's behaviour and cognitive qualities that distinguish one person from another (Colman, 2003). Also, it entails the totality of behavioural, emotional, social and cognitive characteristics that make an individual unique (Mao, Pan, Zhu, Yang, Dong & Zhou, 2018). The manner through which one can know a person's position on a personality trait may involve a simple inquiring in a direct manner about their trait. Yet, this process is not consistent with the objective procedures for tapping an individual's trait (Pilarska, 2018). Though, the construct extraversion may be broadly known, it is non straight-forward and simple to ask a person if he/she enjoys the companionship with others, goes to party often, is loquacious, sociable, outgoing, and passionate than asking "how extraverted he/she is" (Gosling, Rentfrow & Swann, 2003). This is the reason why it is necessary to inquire from somebody a straight question concerning an attribute than a lot of questions concerning numerous, constricted or parochial aspects of that trait leading to multiple items (Gosling, Rentfrow & Swann, 2003; Brown & Cinamon, 2016).

Though, the widely acceptable answer and belief is that instruments with many items have higher psychometric properties than the ones with fewer. But, brief instruments always are not at the terrifying side when it comes to the issues of conducting research with them as well as participants' willingness to respond to them due to their fewer items (Buriseh, 1984a, 1984b, 1997; Holman & Hughes, 2021). The brief measure of personality (Ten-Item Personality Inventory, TIPI) comprises of ten items, each of them being a pair of adjectives (Gosling et al., 2003). The adjectives were not selected out of the items of already existing measures, but chosen in such a manner that they: (1) reflect as diverse characteristics constituting a given trait as possible; (2) constitute a description of both the negative and the positive pole of a given trait; (3) are not descriptions of extreme intensity of the trait; (4) do not contain negations; (5) minimize the redundancy of trait descriptors. Since its publication in 2003, the measure has been validated by many researchers in different cultures (Romero, Villar, Gómez-Fraguela, & López-Romero, 2012). It comprises ten pairs of adjectives constructed on a 7-point likert format the highest being 7 (strongly agree) and the lowest being 1 (strongly disagree). A person's result on each scale becomes the mean of two items, one of which is negatively keyed.

Validation is the process of assessing and evaluating the degree/extent to which a psychological scale accurately assesses the construct it was developed to assess; it is the process of establishing the validity of a test (Colman, 2003). The essence of validation of a psychological instrument is essential since, any undue generalization either due to differences in ethnicity, gender, etc. is capable of destroying lives and organization among other life threatening issues. According to Anastasi and Urbina (1997) validity involves insuring what a test measures and how well it does so. It also implies all that concerns how a psychological test measures what it purports to measure. So, every research instrument should have validity, but, the reality and circumstances surrounding research is that there are no ideal opportunities. This makes the researchers to always be in the dilemma of using a short instrument or carrying out a study without any instrument (Robins, Hendin, & Trzesniewski, 2001).

Morris (2002) stated that short measures are useful when studying cultural or ethnic identity across cultures. Relationship studies have been carried out using brief instruments (Aron, Aron, & Danny, 1992). Pattern of attachment has been studied with the use of short measures (Hazan & Shaver, 1987). Other studies done with short instruments include; Self-esteem and intelligence (Paulhus, Lysy, & Yik, 1998; Robins, Tracy, Trzesniewski, Potter, & Gosling, 2001). Indeed, instruments with fewer items are given more responses by the participants and they are of utmost importance when time factor is considered.

Finally, when there is need to perform a research in short–term period, possibly because of limited time, there is no FFM personality inventory that is valid and reliably available in this part of the world, and because of this researchers end up sampling a limited number of participants since many who would have responded always end up dumping them because of their multi-item nature (Paulhus & Bruce, 1992), due to the above problems, therefore, is a pressing need to validate a brief measure of Big-Five Personality Inventory (BFPI) in this part of the world.

The general aim of the research is to validate the Ten-Item Personality Inventory (TIPI) by Gosling et al (2003) using Nigerian sample. Specifically, this study is aimed at determining;
1. The construct validity of the instrument.
2. The concurrent validity of the instrument.
3. The discriminant validity of the instrument.
4. The reliability of the instrument.

The study will provide practitioners and researchers a valid and brief measure of Big-Five Personality Inventory in their practice and research respectively (Marcionetti & Rossier, 2016). Also, it will help curb and ameliorate fake responses due to the bulky nature of multi-item personality inventories. Finally, the study to will avail researchers an access to more current literature on validation research.

**Theory**
The main theory that supports TIPI is the Big-Five Personality Theory. The theory asserts that human personality has five dimensions and these domains are: Conscientiousness, Agreeableness,

Neuroticism, Openness to experience and Extroversion (Goldberg, 1981; Digman, 1990; Carver & Scheier, 2013, Zhang, 2016). These dimensions are characterized thus; Conscientiousness involves conformity to group and social values and norms and complying with principles and rules. Agreeableness entails exhibition of tolerant and harmonious associations with individuals. Neuroticism is characterized with psychological unsteadiness which involves emotional negativity such as fright, shame, guilt, unhappiness and anxiety.

Openness is the dispositional state which entails permitting new and novel thoughts to both internal and external environments (world) and related imaginary concepts; it involves being curious and high goal oriented. Extraversion indicates the degree to which an individual is disposed to engaging or interacting with others persons or individuals (Goldberg, 1990; Costa, McCrae & Dye, 1991; Hong, Paunonen & Slade, 2008; Ryckman, 2008). These Big Five dimensions are necessary in explaining the behaviours of humans from cradle to late adulthood in several cultures (John & Srivastava, 1999; McCrae & Costa, 2003). The Big Five traits even seem useful in describing the personalities of other species, including; chimpanzees, dogs, cats, fish, and octopi (Gosling, 2008; Gosling & John, 1999; Weiss, King, & Figueredo, 2000).

### Empirical Research on TIPI

TIPI is a brief measure comprising ten items, each of them being a pair of adjectives (Gosling et al., 2003). The adjectives were not selected out of the items of already existing measures, but chosen in such a manner that they: (1) reflect as diverse characteristics constituting a given trait as possible; (2) constitute a description of both the negative and the positive pole of a given trait; (3) are not descriptions of extreme intensity of the trait; (4) do not contain negations and (5) minimize the redundancy of trait descriptors. According to Muck, Hell and Gosling, (2007) and Romero, Villar, Gómez-Fraguela, and López-Romero (2012), since its publication in 2003, many researchers have adopted it for different studies including ones that involve cultures and adaptations and its development was done by Gosling etal (2003). In their study, they developed a brief measure that comprising 10 items which assesses personality in the Big-Five taxonomy (BFI). Three scales were used in their study and they established the convergent and discriminant validity as well as the reliability of the instrument.

Firstly, they assessed its discriminant and convergent validity and secondarily established the test-retest reliability six weeks after the first administration. The study which had two samples (1 and 2) reviewed that sample one comprises a total number of 1813 participants from Texas University who were undergraduates. Among them, 65% were females and 35% were males. Further description of the sample showed that Asians were 18%, Hispanics were 12.7%, Whites were 62.3%, other culture were made up of the remaining 6.5%. The norm values of the instrument were gotten by six-week test retest of a 180 member sample group who responded to NEO-PI-R by Costa and McCrae (1992) and TIPI. This second sample was made up of 69.9% of females and 30.1% of males. Whereas, Asian, Hispanic, White and other ethnicities were; 17.3%, 11%, 63.6% and 8.1% respectively. They obtained absolute mean convergent correlation of .77, indicating that the instrument has similar convergences when compared with other long measures (Gosling et al, 2003).

The reliability coefficients obtained for the domains of the instrument were; 0.77, 0.71, 0.76, 0.70 and 0.62 for extroversion, agreeableness, consciousness, neuroticism and openness respectively. Also, the external correlates showed that the instrument has the highest number of expected correlations with the domains of NEO Personality Inventory Revised (NEO-PI-R) and the Big-Five Inventory (BFI). The validity of the measure was further based on the variable external to it. The reliability of the instrument was below the precision level which is 0.70 (Urbina, 2007), but, was supported by Gosling et al. (2003) who stated that it is usually difficult to have high reliability in measures with limited number of items as exemplified by TIPI.

The research reported by Carvalho, Nunes, Primi, and Nunes (2012) was based on analyzing the internal configuration, accuracy and disparities of TIPI across age and gender. A total number of 404 participants from a high school in São Paulo, Brazil with the average age of 15.9 were involved in the

study. Their study was able to establish three factors instead of the expected five factors and they are related to construct of adjustment problems, social desirability and emotional stability.

The study reported by Łaguna, Bak, Purc, Mielniczuk and Oleb (2014) on TIPI was meant to develop the polish version of this brief measure of this BFI. They called this TIPI-Polish (TIPI-P). A total sample of 500 bilingual students participated in the study and the original version of TIPI was converted to polish with the aim of assessing the psychometric properties of the scale. The study provided a test retest reliability of the after 2 weeks, but, the internal consistency of scale was low in consonance with the original instrument. The correlations between the scale and NEO-FFI established that the instrument has discriminant and convergent validity with the conclusion that the scale is a useful tool in conducting scientific research among students.

Jonason, Teicher and Schmitt (2011) reported a study on the nomological validity of TIPI. The study comprises a total number of 360 students of Psychology and 61% of them were females. Their minimum age was 18 years and their maximum age was 50 years with mean age of 21 years and standard deviation of 4. They correlated TIPI with the single-item instrument for self-esteem and due to the high value of the alpha; they concluded that TIPI possess nomological validity with respect to other related instruments. Summarily, many literatures have been reviewed on TIPI as an instrument and on Big-Five as a theory with many empirical findings, but, none of them obviously was able to solve the problems identified above, hence, the need for this study.

The following research questions are considered in the study;
3. Will TIPI have construct validity?
4. Will TIPI have concurrent validity?
5. Will TIPI have discriminant validity?
6. Will TIPI be reliable?

The following research hypotheses are considered in the study;
4. TIPI will have construct validity
5. TIPI will have concurrent validity
6. TIPI will have discriminant validity
7. TIPI will be reliable?

**Method**

A number of 517 undergraduate students (both males and females) from different levels, Departments and Faculties of UNN were selected using a convenience sampling and voluntarily participated in the study. Their age ranged from eighteen (18) to thirty-five (35) years. Males were 252 in number representing 49%, while, females are 265 in number representing 51 %. Their mean age was 30.1064 with the standard deviation approximating 5.9.

Three instruments employed for the research were; the Ten-Item Personality Inventory (TIPI) by Gosling etal (2003), they provided the original psychometric of the instrument. They reported the concurrent validity of Extraversion of .76, Agreeableness of .66, Conscientiousness of .70, Emotional Stability of .71 and Openness of .43 with the BFI domains of John and Srivastava (1999). The reliability of the instrument was also reported by them as test retest of .72. A forty-four-item BFI by John, Donahue and Kentle (1991), they provided the original psychometric properties but, Umeh (2004) provided the psychometric properties for the Nigerian sample. He reported the concurrent validity of .75 and .85 with BFI of (Costa & McCrae, 1992) as well as Goldberg (1992) with the discriminant validity of Extraversion of .05, Agreeableness of .13, Conscientiousness of .11, Neuroticism of .39 and Openness of .24. The reliabilities of the instrument are Cronbach Alpha of .80 and Test-retest of .85. The instrument has a likert response pattern; 1= Disagree Strongly, 2= Disagree a little, 3= Neither disagree or agree, 4=Agree a little, 5= Agree Strongly.  A 7-item neuroticism domain (Domain J) of the SCL 90 by Derogatis, Lipman and Covi (1973), they provided the original psychometric properties but, Erinoso (1996) provided the psychometric properties for the Nigerian sample. He reported the concurrent validity of .47 with Retirement Stress Inventory by Omoluabi (1996). The Cronbach Alpha reliability of .77 was also reported.

A letter was collected from the Department of psychology, UNIZIK and send to the hospital for formal permission. Immediately the hospital's ethical committee approved the letter with the evidence of ethical clearance certificate, the researcher brought out some days and went to the school and shared the questionnaires using convenience sampling technique. Six-hundred questionnaires were shared, five-hundred and twenty-five were returned but, five-hundred and seven-teen were valid. At the end of collection and collation, the valid ones were analyzed for the study. The research is a survey and a cross-sectional design was adopted. The statistics used include; Confirmatory Factor Analysis, Cronbach Alpha, Split-Half and Pearson Correlations.  The results of the study were indicated below;

**Table 1 :**  A table of mean and standard deviation of males and females on TIPI

| SOURCE | MEAN | SD | N |
|--------|------|-----|-----|
| MALES | 5.4488 | .33178 | 252 |
| FEMALES | 5.5758 | .31143 | 265 |
| TOTAL | 5.5139 | .32743 | 517 |

The table above indicates that males have higher mean and standard deviation than females, whereas, females are higher than males in N (number).

**Figure 1:** A scree plot showing confirmatory factor analysis of TIPI
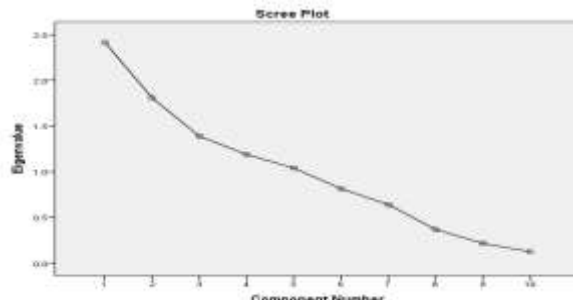


The table above indicates that TIPI has a positive confirmatory factor analysis in support of the five domains of the instrument at eigenvalue value greater than one.

**Table 2 :**   A table of construct validity between TIPI and John Oliver's 44 item BFI

| SOURCE | JOHN OLIVER |
|--------|-------------|
| TIPI | .627** |

The table above indicates that TIPI has construct validity when correlated with John Oliver's 44-item BFI at .627 (p<.001).

**Table 3 :** A table of concurrent validity among the five domains of TIPI and five domains of John Oliver's 44 item BFI

| SOURCE | EJ | AJ | CJ | NJ | OJ |
|--------|------|------|------|------|------|
| EG | .271** | | | | |
| AG | | .419** | | | |
| CG | | | .436** | | |
| ESG | | | | .163** | |
| OG | | | | | .251** |

The table above indicates that the five domains of TIPI have concurrent validity with the five domains of John Oliver's 44-item BFI at (P<0.01)

**Table 4 :** A table of discriminant validity among the five domains of TIPI and SCL 90

| SOURCE | SCL 90 | SCL 90 | SCL 90 | SCL 90 | SCL 90 |
|--------|--------|--------|--------|--------|--------|
| EG | -.428[**] | | | | |
| AG | | -.243[**] | | | |
| CG | | | -.047 | | |
| ESG | | | | .447[**] | |
| OG | | | | | -.505[**] |

The table above indicates that the five domains of TIPI have discriminant validity with the domain J of the SCL90 at (P<0.01), except the ESG domain due to their positive relationship.

**Table 5:** A table of reliability of TIPI

| SOURCE | RELIABILITY | N OF ITEMS |
|--------|-------------|------------|
| CRONBACH'S ALPHA | .71 | 10 |
| SPLIT-HALF | .76 | 10 (5[a] vs 5[b]) |

The table above indicates that TIPI has acceptable reliability.

The hypothesis one stated that TIPI will have construct validity. The results above (figure 1 and table 7) showed that both confirmatory factor analysis that extracted five domains and the relationship between TIPI and John Oliver's BFI at .627 (p<0.01) support the assertion, hence, the hypothesis is accepted.
 The hypothesis two stated that TIPI will have concurrent validity. The results above as shown in table 8, indicates that the five domains of both TIPI John Oliver's BFI have concurrent validity as following; .271[**],.419[**],.436[**] , .163[**] and .251[**] respectively at (p<0.01). These support the assertion, hence, the hypothesis is accepted.
 The hypothesis three stated that TIPI will have discriminant validity. The results above as shown in table 9, indicates that the five domains of TIPI have discriminant validity with SCL 90 (Domain J) as following; -.428[**], -.243[**], -.047, .447[**]   and -.505[**] respectively at (p<0.01); these support the assertion; hence, the hypothesis is accepted.
The hypothesis four stated that TIPI will be reliable. The results above as shown in table 10 indicates that it has Cronbach Alpha of r=.71 and Split=Half of r=.76. These support the assertion, hence, the hypothesis is accepted.

**Conclusion**
The outcome of this study which is based on the validation of the Ten-Item Personality Inventory (TIPI) in the Nigerian sample was discussed below.  The result indicated that TIPI has construct validity in the Nigerian sample. This means that the first hypothesis was confirmed. The interpretation of this result is that TIPI as a BFI can be used in Nigeria for personality research and diagnosis and this is in consonance with the findings of Gosling etal (2003) which showed that TIPI has construct validity across different cultures and ethnicities of the world such as; Hispanics, Asians, Whites and Blacks nationalities.

In addition, the Confirmatory Factor Analysis supports the construct validity of the instrument. As indicated by the Scree Plot, five domains were extracted at eigenvalue greater than one using the Varimax Rotation and it is consistent with the findings of Gosling etal (2003) and Chiorri etal  (2014) in their Factor Analysis to assess the factorial validity of the instrument. They concluded that the instrument has factorial validity, though, is has limited number of items.

Also, the result indicated that TIPI has concurrent validity in the Nigerian sample. This means that the second hypothesis was confirmed. The interpretation of this result is that any of the five domains of TIPI can be used independently in Nigeria for any research or diagnosis if the need be and it is in agreement with the findings of Muck etal (2007) in their concurrent validation of TIPI using undergraduates. They concluded that the instrument has concurrent validity across its domains after correlating them with the domains of the domains of another BFI.

Furthermore, the result indicated that TIPI has dicriminant validity in the Nigerian sample. This means that the third hypothesis was confirmed. This is consistent with the study of Jonason etal (2011). They reported a study on concurrent and discriminant validity of TIPI using Self-esteem. They found that Self-esteem has a concurrent validity with Extraversion but, has a discriminant validity with Neuroticism (Emotional Stability; ES), showing that construct such as Self-esteem which concurs with the normal (positive) domains of BFI such Extraversion will naturally discriminate with the abnormal (negative) domain of BFI which is the ES and vice versa.

Finally, the result indicated that TIPI has acceptable reliability in the Nigerian sample. This means that the fourth hypothesis was confirmed. The interpretation of this result is that the consistency of the instrument over time is of no doubt, and it is consistent with the work of Denissen etal (2008) whose study on the reliability of TIPI showed that its test-retest ranged from 0.58 to 0.75. Laguna etal (2014) supported this finding in their work on TIPI. 500 hundred students participated in their study and they concluded that it has an acceptable test-retest reliability in consistent with Gosling etal (2003) and can be used for scientific research.

More research should be done in the area of personality inventories as it (personality) is one of the commonest psychological constructs that cut across all humans and specialties in the field of Psychology. Also, research should be directed in developing personality inventories that are mother-tongue oriented to enhance success of personality research/ diagnosis in Nigeria.

The findings of the research have great implications on personality research and clinical diagnoses. The instrument being valid will allow the researchers to leverage on its briefness whenever there is a limited time for research delivery. It will reduce the degree of fake responses and enhance speedy, accurate and timely delivery of diagnoses for Clinical Psychologists and other allied users in the areas of research.

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## APPENDICE A:

**Instruction:**
Please answer the following questions as they apply to you. Leave none of the questions unanswered for any answered question will render the questionnaire invalid.
**SECTION A:**
The response options are: 1. Disagree strongly 2. Disagree moderately 3.Disagree a little 4. Neither agree nor disagree 5.Agree a little 6. Agree moderately 7. Agree strongly
*I see myself as:*

| S/N | ITEMS | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-----|-------|---|---|---|---|---|---|---|
| 1 | Extraverted, enthusiastic. | | | | | | | |
| 2 | Critical, quarrelsome. | | | | | | | |
| 3 | Dependable, self-disciplined. | | | | | | | |
| 4 | Anxious, easily upset. | | | | | | | |
| 5 | Open to new experiences, complex. | | | | | | | |
| 6 | Reserved, quiet. | | | | | | | |
| 7 | Sympathetic, warm. | | | | | | | |
| 8 | Disorganized, careless. | | | | | | | |
| 9 | Calm, emotionally stable. | | | | | | | |
| 10 | Conventional, uncreative. | | | | | | | |

## APPENDICE B:
### NORMATIVE DATA FOR THE TEN-ITEM PERSONALITY INVENTORY (TIPI)
**Table 1:** A table of mean and standard deviation of males and females on TIPI

| SOURCE | MEAN | SD | N |
|--------|------|-----|---|
| MALES | 5.4488 | .33178 | 252 |
| FEMALES | 5.5758 | .31143 | 265 |
| TOTAL | 5.5139 | .32743 | 517 |

The table above indicates that males have higher mean and standard deviation than females, whereas, females are higher than males in N (number).

**Table 2:** A table of mean and standard deviation of males and females on the E domain of TIPI

| SOURCE | MEAN | SD | N |
|--------|------|-----|---|
| MALES | 5.2619 | .57924 | 252 |
| FEMALES | 5.1226 | .66219 | 265 |
| TOTAL | 5.1905 | .62643 | 517 |

The table above indicates that males have higher mean but, lower standard deviation than females on the Extraversion Domain (E) of TIPI.

**Table 3:** A table of mean and standard deviation of males and females on the A domain of TIPI

| SOURCE | MEAN | SD | N |
|--------|------|------|-----|
| MALES | 5.6587 | .48339 | 252 |
| FEMALES | 6.0434 | .57817 | 265 |
| TOTAL | 5.8559 | .56722 | 517 |

The table above indicates that females have higher mean and standard deviation than males on the Agreeableness Domain (A) of TIPI.

**Table 4:** A table of mean and standard deviation of males and females on the C domain of TIPI

| SOURCE | MEAN | SD | N |
|--------|------|------|-----|
| MALES | 5.6548 | .64048 | 252 |
| FEMALES | 5.9453 | .42842 | 265 |
| TOTAL | 5.8037 | .56087 | 517 |

The table above indicates that females have higher mean but, lower standard deviation than males on the Conscientiousness Domain (C) of TIPI.

**Table 5:** A table of mean and standard deviation of males and females on the ES domain of TIPI

| SOURCE | MEAN | SD | N |
|--------|------|------|-----|
| MALES | 5.4206 | .44593 | 252 |
| FEMALES | 5.3075 | .51192 | 265 |
| TOTAL | 5.3627 | .48375 | 517 |

The table above indicates that males have higher mean but, lower standard deviation than females on the Emotional Stability Domain (ES) of TIPI.

**Table 6:** A table of mean and standard deviation of males and females on the O domain of TIPI

| SOURCE | MEAN | SD | N |
|--------|------|------|-----|
| MALES | 4.8452 | .30575 | 252 |
| FEMALES | 4.9151 | .25256 | 265 |
| TOTAL | 4.8810 | .28166 | 517 |

The table above indicates that females have higher mean but, lower standard deviation than males on the Openness Domain (O) of TIPI.