

## Validity and Reliability Development of Extrovert and Introvert Personality Inventory among University Students

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### Abstract

The aim of this study is to develop and acquire content validity and reliability for Extrovert and Introvert Personality Inventory (IPEI). IPEI is developed based on the personality theory by Jung (1954). IPEI has 30 items comprising of two subscales. The first is an extrovert personality subscale (15 positive items) while the second is introvert personality subscale (15 positive items). In determining the content validity of the IPEI, it was evaluated by an expert panel of 11 people consisting of academicians and education practitioners; psychology and counseling at the Higher Education Institute (HEI) and the school. Reliability analysis of IPEI was tested on 40 respondents consisting of students at a university in the state of Perak, Malaysia. IPEI has a good overall content validity of 87.8 percent with cumulative value equal to 0.88. Content validity based on extrovert subscale were 88.6 per cent, while introvert subscale is 87.0 percent. This indicates that the IPEI have high expert content validity. The overall reliability analysis of IPEI is acceptable at .60. Analysis of the reliability of extrovert subscales show satisfactory results of .73 while introverts subscales was .80. As such, the study succeeded in producing IPEI with a good validity and reliability and useful to use for determining whether an individual personality is extrovert or introvert.

**Keywords:** Extrovert, Introvert, Personality Inventory.

### Introduction

Personality was originally derived from the Latin word "charm". "Charm" brought some meaning namely face cover, *personare* masks which produce sound. This definition describes the external appearance highlighted by an individual. According to psychologists, personality covers aspects such as motivation, individual intelligence, how individuals think, their opinions of things and values held. Mohd Zuri Ghani et al. (2008) stated that the concept of personality is a dynamic organization of psychophysical system where the system determines a person's thinking and his behavior. There are many personality traits which are aggressive, introverted, extroverted, analytical, and intellectual diversity.

Here are many studies that examine the human personality. The question is how human personality is studied? Is it only by understanding, interpreting or observing individual from external view? As such, Ahmad (2009) stated that the study on the human personality should have focus. The researchers studied the personality by focusing on two key aspects which are human differences and the formation of human personality. An understanding of the theory of personality and exploring the uniqueness of the individual is the basis for carrying out research on personality. Eysenck (2009) describes the development of personality inventory is to help individuals clearly recognize the personality based on special measuring tools to measure personality.

This study focused on two personality traits that are introverts and extroverts. According to Jung (1954), personality can be categorized into two which are extroverts and introverts. Extrovert individual is a person who does not like the inner world and more focused on the external world. Extrovert individuals are usually more active and more aggressive. They also love to socialize and often involved in various social activities. Extrovert individuals are also optimistic and like change for the better. Even so, an extrovert individual cannot be relied upon because they do not like to be bound by the rules or a situation.

Meanwhile, introverted individuals are individuals who are less active, emotional, not so talkative and less social. They would rather do some tasks individually without expecting help from others rather than working in groups. The introverted individual is a serious person, timid, thinking less into the future and dislike to think of the initiative to a problem. They also liked routine activities and emphasizes on neatness and order. In addition, the introverted individual has high self-control and stay bound by the rules.

Extrovert and Introvert Personality Inventory is developed with reference to the personality theory put forward by Jung (1954). IPEI has 30 items comprising of two subscales. Each subscale consists of 15 items which are all positive items. The first subscale is an extrovert personality, while the second subscale is introverted personality. The form of response provided for each item is the nominal scale with 'YES' or 'NO' options. This inventory was administered for a period of 10 to 15 minutes only. The environment whilst answering the inventory should be conducive, comfortable and unobtrusive to the subject. The instructions given should be brief, concise and clear to make it easy for the subject to understand. The time to answer IPEI is short, without taking a long time to provide an answer for each item.

### **Literature Review**

There are several studies conducted on extrovert and introvert personality. Among the studies conducted by Kalani et al., (2014). The researcher conducted a study to see whether there is a relationship between the personality type of Iranian students studying English Foreign Language (EFL) with their pronunciation. Studies have found that there is a significant relationship between the term EFL students with their personality character. The score on the pronunciation shows the positive relationship with the introvert student compared to the extrovert student. The findings show that the higher the introvert of a person, the better their pronunciation and their performance in the ESL achievement.

Maria Pappas (2013) has studied the introvert-extrovert dynamics and skills of general-workers on how to deal with pressure situation. This study has used Jung theory as a theoretical basis. The findings show that there is a unique relationship between introvert and extrovert personality in the environment and its impact on the skills of the force when depressed. The study also found that socioeconomic status also played a role. Low socioeconomic status is more likely to cause individuals to undergo certain types of stress and its occur over time. Individuals with introvert tricks are more likely to experience stress than extrovert individuals. Studies also show that the importance of positive environment for introvert and extrovert personality.

Azlin and Suhaida (2013) conducted a study on the career interests and students personality in the vocational and technical field in Pudu zone, Kuala Lumpur. 364 primary school childrens in the Pudu Zone were involved in this study. The study was conducted using quantitative methods which is distributed questionnaires to the students. The Holland Career Inventory and the Big Five Personality Inventory have been used to measure both variables. The results showed that there were no personal differences between male and female students. The results of this study are very similar to the study conducted by Asrul (2010), the outstanding students possessing high personality traits of Agreeableness, Extraversion, Conscientiousness and Openness as well as a moderate level of Neuroticism traits. In addition, the study also shows a significant relationship between all personality traits of Big Five except the personality traits of Neuroticism.

Another study was conducted to study extrovert and introvert personality tricks. The study conducted by Steele and Sylvester (2011) studied the types of professional music instructors and music therapist students as well as their comparison with undergraduate students based on Myers-Briggs. The study found that music instructors got high scores in the Extrovert-Intuition-Feeling-Assessment while the music therapists got Introvert-Intuition-Feeling-Assessment score. This may be due to maturity factors. In addition, the study also found that the difference between them is the introvert and extrovert tricks and how they see their life. Overall, it can be concluded that the personality capabilities between music instructors and music therapists are almost identical in many aspects.

The entire literature study was conducted indirectly as a guide for researchers to design IPE-I inventory based on the findings and validity of the original inventory and this value was improved after identifying improvements from previous studies. Based on the findings of the study, researchers are increasingly clear that there is still a lack of research related to extrovert and introvert personalities in Malaysia. Hence, the results of the study based on the previous study helped to improve the results of the study in controlling the variables in order to achieve better value and reliability of IPE-I and can be used in diversity of situations.

### **Problem Statement**

Everyone has a personality of its own. Personality gives various meanings. Most psychologists also have different opinions in describing the definition of personality. But clearly, psychologist uses the word "personality" to show something more than the role an individual play. Ahmad Amri (2009) noted personalities as part of the system that produces a behavior. Personality also refers to the pattern of permanent traits linked and unique character that are

both consistent and provide an overview of a person's behavior individually (Feist, J. & Feist, GJ., 2006). In other words, personality is something that represents an individual and always reflect the individual character from the aspects of thoughts, feelings and behavior. Personality can also change and modified but it requires time and effort.

Great scholars in the field of counseling are also talking about the personality of individuals. According to Svartberg and Stiles (1991), Freud defines personality as a result of the integration of the internal structure of the id, ego and superego. Individual personality is also viewed as reality and stable to develop the individual self. Eysenck (2009) also clarify the statement of Rogers's on personality as something that changes and evolves. This is in line with the self-concept and the potential that exists within the individual that is constantly evolving and changing according to the situation. It is important for the individual to know and understand their own personalities which contribute to the improvement of themselves. As a result, the field of personality has become an interesting and important field to be studied in order to find, measure and interpret the various dimensions of human personality.

The rapid development of personality measurement occurred during the First World War. There were a lot of personality measurement tools being developed based on the personality theories established by various well-known scholars. Chek Mat (2008) suggested that a personality test can be divided into objective or projective tests depending on the subject to be tested. Among the personality assessment that has been developed is Edward Personal Preferred Schedule (EPPS), Jackson Personality Research Form (PRF), the Myers-Briggs Types Indicator (MBTI), State Trait Anxiety Inventory (STAI), Cattell Sixteen Personality Factor Questionnaire (16PF), Eysenck Personality Questionnaire (EPQ), Comrey Personality Scales (CPS), NEO Personality Inventory-Revised (NEO PI-R), Minnesota Multiphasic Personality-2 (MMPI-2), the California Psychological Inventory (CPI) and Draw-a-Person (DAP ).

This study focuses on the personality of introverts and extroverts even though there are a lot of personality traits of an individual. Personality not only refers to the behavior patterns but also affect a person's character from the point of thinking, feeling, sensing and intuition whether visible or hidden. Both introvert and extrovert personality exists within each individual. However, only one personality trait is dominant in each individual. All individuals will not have both high or low extroverted and introverted personality traits. However, the probability of an individual to have half the introverted personality traits and half extroverted personality trait is high.

The classification of extrovert and introvert personality type performed by Jung is based on individual relationships or interactions with other people. Individuals who are extrovert can adapt socially and show interest in interacting. Individuals who have introvert characteristics are not interested in social interaction as they are more inclined to self-reactions. Mahani, Ramlah and Shahabuddin (2003) stated that individuals who dominated either the extroverted or introverted personality will not affect their self-development as long as they have the awareness to behave properly. This shows that each of the personality that individual has does not affect the way people behave and this is considered as the individual uniqueness which is distinctive and different.

Many studies have been conducted to look at the impact of the extroverted and introverted personality traits. However, these studies were all conducted abroad. The study of extrovert and introvert personality traits is lacking in Malaysia. If there is, such studies largely applied theoretical foundation such as the Five Main Theory and personality theory based on Eysenck. In-depth study based on Jung theoretical foundation is limited. Therefore, it is timely to conduct this study to determine the dominant traits among students whether extroverted or introverted personality.

### **THEORETICAL FOUNDATION OF THE DEVELOPMENT OF EXTROVERT-INTROVERT PERSONALITY INVENTORY**

Researchers have applied Jung's theory in the development of this theory. This theory is used as a guide so that the developed items correspond with the features contained in the subscale. Jung (1954) submitted a psychiatric theory that explains the theory of extroverts and introverts. Jung interprets extrovert as an attitude influenced by the outside world, other people and material. Introvert is an individual living conditions which are influenced by his action and reaction to his own world, thought, intuition, emotions, and feelings. Each individual usually has both types of the attitude. Individuals will tend to have an introvert or extrovert attitude.

Extroverted personality can be deeply understood as someone who is comfortable and like to interact with others. They are usually happy to communicate with others, passionate, enjoy activities that involve a lot of people such as party, community and political activities. Extroverted individuals are suitable in fields such as politics, teaching, sales and management. Tired of being alone are among the characteristics of an extrovert. Extroverted individuals tend to be positive in his life, but this does not mean that an introvert is not thinking positively. In behavior, people with extrovert characteristics usually dress for comfort and simple looks. They do not have a problem with noisy situations. Extroverted individuals easily start a conversation with other people. The studies which have been carried out states that extroverted individuals tend to feel happiness and have more confidence than introverted individuals. However, this study is biased because we cannot easily determine a person's happiness.

An introvert tends to be solitary and less prominent in group activities. They usually like activities such as reading, writing, hiking, and fishing. A writer, composer, engineer and painter is introverted individual. They usually like solitary activity and happy to have just close friends. Always think before speaking and acting, being quiet is also a characteristic of an introvert. Introverted individuals are more emotional because parts of the brain that regulate emotion which are the cingulate gyrus and the posterior (rear) thalamus have more blood flow. In behavior, introverted person like more artistic clothing. One interesting study noted that introverted individuals produce more saliva when looking at lemon juice drink. Happiness of introverted individual is usually neutral. Many are associating an introvert with a smart, genius and gifted individual.

### **Research Methods**

The study design was a descriptive study that aims to get the validity and reliability of IPEI. The study involved three phases namely Phase 1: Development of IPEI, Phase 2: Content Validity of IPEI, and Phase 3: Reliability Analysis of IPEI.

### **Phase 1: Development of IPEI**

The development of IPEI is accomplished through library research involving previous studies and theoretical approaches that are appropriate based on individual personalities. Individual personality can generally be divided into two parts, extrovert and introvert personalities. Individuals can be distinguished by two personalities which are extrovert and introvert personalities. Individuals tend to show their dominant personality in order to adapt to their environment. Individuals will put themselves in the environment through a variety of ways to socialize, talk, behave, act, respond to and receive information from others.

### **Phase 2: Obtaining Content Validity of IPEI**

The measurement of the concept is considered as an authentic measure when it managed to measure it in scientific terms. According to Azizi et al. (2006), the instrument used for measurement is important because it functions as an early indicator so that researchers can measure what is to be measured accurately and validly. He explains further that validity refers to the meaningful and useful things which are concluded from the test scores. Validity is an important concept in the context of the measurement of constructs or ideas such as attitude, motivation, perception, fitness and achievement.

The IPEI content validity was obtained by asking the views of 11 experts, five professionals in the field of counseling and six practitioners in the field of counseling. All of the experts have been selected based on the knowledge and practice of counseling they received. The researchers first prepare a letter of authorization to carry out the validity analysis. The validity is obtained through a process where the experts are required to mark the inventory according to the given selection scales of 1 to 10. Scale 1 represents strongly disagree while scale 10 represents strongly agree.

### **Phase 3: Reliability Analysis of IPEI**

The third phase was carried out with the aim of obtaining the reliability scores of IPEI. According to Sazali (2009), reliability means the ability of a measuring instrument to measure the phenomenon accurately and consistently so that different interpretation of the instruments by the respondents will not arise. The reliability obtained for the inventory was derived from over 40 students at a university in the state of Perak. The samples were selected using a simple random sampling method. The data were analyzed using SPSS to obtain the Cronbach Alpha value in order to assess the reliability of the IPEI.

### **Subjects and Place of study**

The subjects of study were only involved in the second and third phases of the study. In the second phase of the study, the subjects were 11 panel of experts consisting of academicians in higher education institutions and practitioners in psychology and counseling in schools and institutions of higher learning. While in the third phase, a total of 40 students from a university in the state of Perak, Malaysia, were randomly selected to obtain IPEI reliability data.

### **Research Instrument**

The research instrument used is Extrovert and Introvert Personality Inventory (IPEI) which contains 30 items consisting of two subscales. The first subscale is an extroverted personality (15 positive items) while the second subscale is the introverted personality (15 positive items).

**Research Findings****Phase 1 research findings: Development of scale, sub scale and item inventory**

The development of IPEI Survey was conducted based on library research and in-depth previous studies and corresponding theoretical approach has been the basis for the development of IPEI. Based on in-depth previous studies, the appropriate theoretical approach as the basis for the development of IPEI is Carl Jung's Personality Theory. This theory is clearly and distinctly formulated on the two main personalities that will dominate an individual.

The development of IPEI is based on theoretical background and its basis. Based on the recommendation made by the researchers, the developed IPEI contains 30 positive items and is divided into two subscales which is extrovert (15 items) and introvert (15 items).

**Phase 2 research findings: Content validity value**

Based on the agreement of expert panel, the IPEI value is as shown in Table 1:

TABLE 1

*Overall and Sub Scale Validity Value of IPEI (N=11)*

Scale / Sub-scale	Item No.	Value
Overall IPEI	30	8.78
Extrovert	15	8.86
Introvert	15	8.70

Table 1 shows the overall validity of the IPEI is 8.78 (87.8%). While the highest content validity is 8.86 (88.6%) of the extrovert sub-scale and the lowest is introvert subscale with 8.7 (87%). This indicates that the IPEI has high expert content validity.

**Phase 3 research findings: Reliability Value of Items in IPEI**

IPEI reliability analysis are shown in Table 2 below:

TABLE 2

*Overall Scale and Sub Scale Reliability Analysis of IPEI (N = 40)*

Scale / Sub-scale	Item No.	Cronbach Alpha
Overall IPEI	30	.60
Extrovert	15	.73
Introvert	15	.80

The IPEI reliability analysis shows that the Cronbach Alpha coefficients is at acceptable value of .60. This shows the IPEI has good internal reliability and proves that IPEI can clearly measure the individual personality. The IPEI reliability by sub-scale scores is also good where the extrovert reliability is .73 and .80 for Introverts. This indicates that these items are good and acceptable to conduct a study.

Next, based on Table 2 is the reliability analysis to test the quality level of the developed positive items. For IPEI, sub-scale item of 1-15 is for the extrovert, while 16-30 is for Introvert sub-scale. The results obtained are as follows:

TABLE 3  
*IPEI's Reliability for Each Items*

No.	Items	Cronbach's Alpha
1.	I'm a friendly person	.61
2.	I love outdoors activities	.58
3.	I love to start a conversation if I meet new people	.60
4.	I love to attend gatherings and parties	.55
5.	I love to give my views in a discussion	.57
6.	I have many close friends	.63
7.	I love a festive atmosphere	.59
8.	I like to get involved in volunteering activities	.57
9.	I'm comfortable when being in a crowded group	.58
10.	I like to joke with friends	.59
11.	I'm comfortable when many guests come to my house	.58
12.	I like to eat together	.58
13.	I like to help even though they are strangers	.60
14.	I really appreciate the time together with people around me	.59
15.	I am a jolly person	.61
16.	I'm more comfortable playing with pets than talking to people around me	.57
17.	I like to eat alone	.57
18.	I love to calm my mind in a quiet environment	.58
19.	I am a quiet person	.59
20.	I like to be alone	.56
21.	I rarely mingle with family members	.54
22.	I do not like to talk about myself	.57
23.	I prefer to indulge on my own feelings rather than talk	.56
24.	I do not like to mingle	.56
25.	I am stressed in a noisy environment	.61
26.	I do not have many friends	.57
27.	I easily get bored when I am in public	.56
28.	I listened more than talked	.58
29.	I'm happy when alone	.54
30.	I do not like exercising with friends	.58

Table 3 shows the lowest reliability value of .54 for item number 21 and 29 under the Introvert sub-scale. While the highest reliability is at .63, for item number 6 under the Extrovert sub-scale. The reliability value of medium-high for each item indicates the quality of the items that are developed at an appropriate level, can be understood and accepted by the respondent. Valette (1997) also stated that the reliability coefficient of .50 or more is acceptable. This is in line with the opinion expressed by Mohd Majid Konting (1990), who states that the value of reliability coefficient of 0.60 or more is good and acceptable.

## **Discussions**

This study could provide useful implications to the field of psychology, counseling and the community in Malaysia in terms of recognizing own personality. There are various personality tests developed to help individuals in recognizing their dominant personality. This is because personality plays a key role in the efforts to develop the potential of the individual. Individuals who are clear on their personality can contribute to their self-development in career selection, learning process, adapting to the environment and interpersonal relationships.

The strengths and weaknesses of both extroverted and introverted personality can be seen through the developed items. It does not aim to show the comparison between the two personalities, but focused more on the individuals' awareness about their personality. According to Feist and Feist (2006), every individual has both extroverted and introverted personality although either one of these will be the dominant personality of the individual. The personality that dominates an individual does not fully reflect the individual who is characterized as an extrovert base on the level of extrovert of the individual. Likewise, the dominant introverted personality of the individual does not mean that the individual does not have extroverted characteristics.

Based on the analysis done on both extrovert and introvert subscales, the validity and reliability value is at an acceptable value and is used to help individuals recognize their own personality traits. Jung (1968) indicated that both extroverted and introverted personality has its own unique function within the individual based on four key aspects of thinking, feeling, sensing and intuition. Friedman and Schustack (2012) described the main functionality of the individual in recognizing personality as it helps identify the individual in terms of motivation to achieve something. As a result, individuals can assess their own personality through the awareness of self-improvement and self-congruence to develop an attractive personality.

The development of IPEI inventory provides added value to individuals who want to know whether they have extroverted or introverted personality. Each developed item can provide a definition and understanding for the respondent to make an analysis about them in terms of thoughts, feelings, behavior, communication and personality. According to Chek Mat (2008), the personality measurement can be seen to provide a clear understanding of how individuals want to know their personality and thus are aware of things that are appropriate to their own personality. As a result, personality measurement tool is important in helping individuals to recognize and understand their personalities and provide useful input in the aspect of self-development.

The IPEI inventory ability to measure personality is not only important in developing the field of psychology and counseling, this effort is to look at the individual potential, especially in the fields of education and career development. This is because, the individual's personality is significant in making suitable career choices by looking at the overall working environment that suits the individual personality type. This is explained by Nor Azman (2012) on the extroverted and introverted personality in terms of the career inclination in which both personality types will affect the individual decision in choosing a career. The quality of work among government or private employees can be increased based on their personality suitability with the job which helps individuals to increase efficiency in the field of work they undertake.

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Based on the research findings which obtained high validity and reliability of the IPEI, the researchers recommended that the IPEI be used and implemented in a more comprehensive and extensive, especially in educational institutions such as higher education institutions, communities, the private sector and school students. Further research is also proposed to conduct an in-depth statistical analysis of the items that are developed in IPEI as an effort to make future improvements. This can contribute to the development of quality personality inventory and give positive impact that indirectly provides professional services in order to help individuals in recognizing their self-potential through their personality.

Efforts to improve reliability should also be made to strengthen the questionnaire reliability value of IPEI. The researchers need to conduct more research on the subject so that the reliability value can be improved. This is supported by Solomon (2003) who stated that the reliability features of a test refer to the subject achievement when the subject is consistently taking the same test twice or more in a week. Moreover, Mok Soon Sang (2010) also stated that the reliability feature of a test can also be enhanced by providing a reasonable number of items. Basically, a growing number of questions will make the consistency to be more accurate because it will reduce the opportunity for the subject to give an answer. As such, the subject can be said to be truly tested in a reliable way.

Learning through personality theory can help counselors provide guidance and counseling services in the aspect of recognizing and understanding one's personality. The study form to identify self-personality can be improved for future research through many considerations that could promote to a more quality research results. A study should also focus on the personality subscales which are varied as the individuals change over time. Important aspects should be considered to make improvements and changes that benefit the researchers to see individual personalities from various robust and effective techniques and methods. Reference to some of the personality theories and models should also be propagated so that the item development in the inventory is more open and accepted by the community.

### **Summary and Conclusion**

Overall, this study has successfully developed satisfactory and acceptable IPEI's content validity and reliability value. Thus, IPEI can measure the level of one's personality, especially among university students, school students and individuals who want to know their personality traits inclinations of either extroverted or introverted. Analysis of each item contained in IPEI has a high reliability value which indicates that IPEI can measure the

inclination level of an individual's personality traits which can be used for future related studies.

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