

# Association of Perceived Interest Major Fit and Objective Interest Major Fit with Academic Achievement

Naghmeh Vahidi (Corresponding author)

Faculty of Educational Studies, University Putra Malaysia, Malaysia

E-mail: vahidinaghmeh@gmail.com

Samsilah Roslan

Faculty of Educational Studies, University Putra Malaysia, Malaysia

Maria Chong Abdullah

Faculty of Educational Studies, University Putra Malaysia, Malaysia

Zoharah Omar

Faculty of Educational Studies, University Putra Malaysia, Malaysia

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## Abstract

Recently, despite the high budget allocating for education in Malaysia, the educational performance among students is low (Blueprint, 2013). Pascarella and Terenzini (2005; 1991) have identified four theories and models that affect students' learning: (a) psychosocial, (b) cognitive-structural, (c) typological, and (d) person-environment interaction. This study focuses on person-environment interaction. The interactionist approach emphasizes that neither personal characteristics nor situational factors alone are unable to identify the attitudes or responses of people, but the interaction of them can be highly influential (Schneider, 1982; Terborg, 1981). Person-environment fit arguments were raised by interactionists who discussed that particular attitudes, behaviours and cognitions are the results of the interaction between situational factors and individuals (Chatman, 1989; Muchinsky & Monahan, 1987; Ostroff & Schulte, 2007). The present study used academic achievement that is one of the outcomes of person-environment (P-E) fit. This research employed different types of P-E fit such as objective and perceived interest major fit. The main aim of the present study is to examine the relationship between the P-E fit and academic achievement. The present study is carried out in The Universiti Putra Malaysia (UPM). The participants of the study were 2503 undergraduate students of 12 faculties at UPM. Findings of the relationship between the P-E fit and academic achievement have shown a highly positive relationship between the perceived interest major fit and the academic achievement, but there is no significant relationship between the objective interest major fit and the academic achievement.

**Keywords:** P-E fit, Objective interest major fit, Perceived interest major fit, Academic achievement

## 1. Introduction

Education plays a central role in countries pursuing economic growth and national development. In the current global economy, a nation's success depends basically on the knowledge, skills and competencies of its people. Nations with higher education levels can experience greater economic prosperity. Education can provide individuals with the opportunity to improve their lifestyle, and makes people become successful members of their society and active contributors to national development.

### 1.1 Statement of the Problem

Recently, the Malaysian education system has been watched and monitored more seriously than before due to the rise of expectations and employers' concern regarding the system's capacity to train qualified young Malaysians for the challenges of the current century (Blueprint, 2013). Furthermore, conducting research on Malaysian university students' performance seems to be important due to the commitment of the Malaysian Government to education by allocating a high budget to education, and reports on the emergence of a growing gap between the Malaysian education system and other more developed ones and the decline in Malaysian students' performance in recent years (Blueprint, 2013).

According to Pascarella and Terenzini (2005; 1991), four theories and models can influence students: (a) psychosocial, (b) cognitive-structural, (c) typological, and (d) person-environment interaction. This study examines on person-environment interaction factor in which person-environment (P-E) fit theory is used.

Several studies have suggested studying the relationship of multiple kinds of fit in a single model since each type of fit has a unique relationship with results (Kristof 1996, Kristof et al. 2005 and Cable and DeRue 2002). Furthermore, Li et al. (2012) argues that failure to deal with different kinds of P-E fit can affect its importance in predicting academic results of students. Most past studies have considered the fit related to the school or university setting and no study has examined the different sorts of fit in relation to student's field of study in a university context. Thus, this study attempts to examine how different P-E fit types are related to the students' academic majors associated with their academic outcome.

Regarding past studies on academic performance in the Malaysian context, no research was found about the different types of P-E fit on academic achievement. Thus, it is significant to consider all types of fit in a single model and identify the relationship between these type regarding major and academic performance of university students in Malaysia.

This study can make several contributions to the field of educational psychology. First, it can show the importance of choosing a major that should fit the students' interests. Second, for the first time, Major Fit is measured in different types of fit such as Perceive Interest Major Fit and Objective Interest Major Fit. Third, according to Kristof-Brown et al. (1996), there are different types of fit: Person-Vocation, Person-Organization, Person-Job, Person-Group, and Person-Supervisor. This study can develop the concept of Major Fit as a new type of fit.

### *1.2 Definitions of Terms*

The key terms used in this study are defined in this part.

#### *1.2.1 Person-Environment Fit*

Person-environment (P-E) fit is broadly defined as the compatibility between individuals and environments. This compatibility occurs when individuals' characteristics are well matched. There are different types of fit. In this study two types of fit were employed: perceived fit and objective fit.

#### *1.2.2 Perceived Interest Major Fit*

Kristof (1996) observes perceived fit as a direct measure of fit that directly asks people about the degree to which they think they can "fit" with their environment. Perceived interest major fit directly asks people about the degree to which they think their interests might "fit" with their major. The present research adapted and developed previous measurements to achieve perceived interest major fit measurements.

#### *1.2.3 Objective Interest Major Fit*

Several studies have examined the role of interest in identifying fit. Holland's Theory has been a wide theory of person-environment fit (Schmitt et al., 2008). Objective fit is when fit is assessed indirectly through the comparison of P and E variables (Kristof-Brown, Zimmerman, & Johnson, 2005). Objective fit relies less on the individual's perception, and instead it is a computed comparison between an individual's interests and a classification of the occupation (Ghandour, 2013). According to Hoeglund and Hansen (1999), Holland's classification of occupations and interests is typically the foundation for objective fit measures (as cited in Ghandour, 2013).

Objective fit in terms of congruence in Holland's Theory is the relative proximity in the hexagon between the person's dominated personality and the dominated type of his or her occupational or college environment. In the present research, congruence is identified by utilizing Holland's first letter agreement based on the hexagon. In this index, congruence is comprised of four levels. To use this index, the first letters of the person and environment codes are compared and assigned a value of one if they are opposite to the hexagon, two if they are alternative to the hexagon, 3 if they are adjacent to the hexagon, and 4 if they are a perfect match.

#### *1.2.4 Academic Achievement or Academic Performance*

Academic achievement or academic performance shows the result of education to the extent to which a teacher, student or academia has achieved their educational objectives. To calculate academic achievement, cumulative grade point average (CGPA) was used.

### *1.3 Research Objectives*

Two objectives are considered in the present research:

1. To describe the level of P-E fit and CGPA among undergraduate students.
2. To determine the relationship between P-E fit and academic achievement.

### *1.4 Research Hypothesis*

Two hypotheses are considered in the present research:

- H1. There is a positive relationship between perceived interest major fit and academic achievement.
- H2. There is a positive relationship between objective interest major fit and academic achievement.

## **2. Literature Review**

### *2.1 Objective and Perceived Fit*

Person-environment fit is the degree of congruence between individual and situational variables in achieving significant outcomes (Muchinsky & Monahan, 1987). P-E fit conceptualizations are different in terms of whether fit points to

objective fit or perceived fit.

John Holland's Theory "has attracted the most attention and underpins a substantial body of research on college students" (Pascarella & Terenzini, 1991, p. 39). The present study employs Holland's Theory as objective fit. This theory includes three major factors; people, environments, and the fit or congruence between individuals and environments. According to Holland (1997), congruence shows the similarity between an individual's personality type and the environment. Thus, the degree of congruence is calculated by identifying people's personality types and comparing it to their academic major (environment).

Holland (1997) argues that this theory considers the interaction of people with their environments leading to such results as vocational choice, vocational stability and achievement, educational choice and achievement, personal competence, social behavior, and susceptibility to influence. These results can be predicted and understood through our knowledge of the personality types and the environmental models (John L Holland, 1997). According to Holland, this theory can be applied to both vocational and educational environments. Holland's Theory is helps people select vocational and academic environments in which they can have the greatest possibility of stability, satisfaction, and success (John L Holland, 1997).

Smart et al. (2000) argued that Holland's Theory considers human behaviors as a result of the interaction between people and their environments. Therefore, the theory is an evaluation of people, their environments, and the interaction or fit between people and their environments (Smart, Feldman, & Ethington, 2000). According to this theory, first, people are identified based on their resemblance to each of six personality types including Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. The more a person is adapted to a type, the more he/she can show the personal behaviors and traits associated with that type. Second, the environments where people work or live in are identified by their resemblance to six model environments including Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. Finally, the combination of personality types and environments can lead to such results as vocational choice, vocational stability and achievement, educational choice and achievement, personal competence, social behavior and susceptibility (Holland, 1997).

### *2.2 Previous Studies of Objective Fit on Academic Achievement*

Several studies have been conducted on objective fit since its emergence in 1959. Frantz and Walsh (1972) examined students and faculties in six graduate departments but did not observe any significant relationship between congruence with achievement. Walsh and Hanle (1975) also conducted a study on 53 female undergraduate students. They did not observe any statistical significance in the congruent group with incongruent or undecided groups on their CGPA and their academic aptitude.

Furthermore, Schaefer (1976) used SDS on 166 junior class students. She could not also see any significant differences between level of congruence and level of achievement.

Reuterfors et al. (1979) studied 392 male and 424 female college freshmen regarding their choice of college and Holland personality types. They observed that congruent students had higher grade point averages than incongruent students.

Bruch and Krieshok (1981) examined 158 students with Investigative and Realistic types in engineering major. They found that Investigative type (high congruence) achieved higher grade point averages than Realistic students in engineering major over a two-year period.

Henry (1989) studied 157 students in medical/dental major to examine whether personality type congruence could predict academic achievement. Students with a dominant Investigative type were considered as congruent with their academic major. Results indicated that the congruent students had more academic achievements than incongruent students.

Tracey and Robbins (2006) investigated 8,574 students from 87 different higher education institutions. They found that congruence is a significant predictor of GPA (after first year, after second year, and at graduation), even after accounting for institutional differences.

Allen and Robbins (2010) studied 3,860 students from 28 different two- and four-year institutions. They observed that higher levels of person-environment fit were related to higher GPA.

### *2.3 Meta-Analyses of Objective Fit on Academic Achievement*

Spokane (1985) reviewed 63 studies of Holland's Theory (40 correlational and 23 change studies). Those studies were published in six major journals from 1962 to 1983. Four of 40 correlational studies considered the impact of person-environment congruence on academic achievements among college students, while 10 correlational studies dealt with academic satisfaction or stability; 14 studies investigated vocational satisfaction or stability. The rest of the correlational studies considered such results as high school achievement, locus of control, personality, and self-esteem. The 23 change studies explored the congruence impact on personality change in vocational arena. The studies showed positive relationships between congruence and academic performance and persistence, job satisfaction, stability of choice, perceived congruence, and personality. Spokane (1985) argued that although "large and significant F ratios are found in some congruence studies, correlations between congruence and various outcomes rarely exceed .25-.35, and congruence accounts for roughly 5-10% of variance in outcomes" (p. 328-329).

Assouline and Meir (1987) carried out a meta-analysis on 41 congruence studies and in all they found 77 correlation coefficients between person-environment congruence and well-being (satisfaction, stability, and achievement). Among

these 77 correlations, 53 correlations (69%) were between congruence and satisfaction, 17 correlations (22%) were between congruence and stability, and seven correlations (9%) were between congruence and achievement. Spokane's (1985) meta-analysis revealed a significant richness of satisfaction and remarkable lack of achievement. Furthermore, Assouline and Meir's (1987) study indicated correlations between congruence and satisfaction ranging from -.09 to .51 with a mean correlation of .21, correlations between congruence and stability ranging from .06 to .24 with a mean correlation of .15, and correlations between congruence and achievement ranging from .01 to .12 with a mean correlation of .06 (p. 324). The correlation ranges were low in the studies on stability and achievement, while the correlations on satisfaction studies were higher. Assouline and Meir (1987) argued that this idea of Spokane (1985) that "correlations between congruence and various outcomes rarely exceed .25 - .35" (pp. 328-329) is unjustified due to high correlation mean on satisfaction. Regarding the relatively low correlations in studies of congruence on stability and achievement, Assouline and Meir (1987) suggested that correlations of satisfaction, stability, and achievement could be higher if methods of measuring the variables were more reliable.

Spokane et al. (2000) carried out a meta-analysis of 66 studies published from 1985 to 1999. Forty-one of the 66 studies examined the relationship between congruence and satisfaction, stability, and success in careers. Only 10 of the 66 studies were about the congruence on satisfaction, stability, and success in college. Among these 10 studies, only six studies considered congruence in academic achievement among college students. Five of these six studies measured achievement through grade point averages. Results of the studies were mixed. Spokane et al. (2000) also stated that the "relationship between congruence and satisfaction in traditional correlational studies is around .25, or 5% of variance" (p. 179). They suggested that, "if appropriate procedures were used, in a number of instances correlations between congruence and satisfaction or other well-being variables (satisfaction, stability, achievement) substantially exceed the .25 or even .30 plateau and reach correlations of .40" (p. 179).

Nye et al. (2012) revealed the results of an analysis of 60 studies. They observed a close relationship between students' interests and their performance at both work and academic environments. Moreover, congruence between interest and major (and work type) was a stronger predictor of academic (or job) performance than just levels of interest. Therefore, these studies showed that the fit between people and their environments is a stronger predictor of their academic performance and for retention.

#### *2.4 Previous Studies of Perceived Fit on Academic Achievement*

Perceived fit was investigated primarily by Schmitt (2008) in an academic environment. However, recently other types of fit except objective fit have been examined by other researchers. This suggests that further research combining different fit types in academic environments are required.

Regarding perceived fit, Schmitt et al. (2008) indicated that perceived academic fit can lead to academic satisfaction, which in turn can lead to GPA. They showed that academic satisfaction highly mediates the relationship between perceived academic fit and GPA.

Nadler (2013) indicated that perceived fit at the university was positively associated with university satisfaction, which was related to academic self-efficacy, and academic self-efficacy was highly related to GPA. Nadler revealed that university satisfaction was used as a mediator between perceived university fit and academic self-efficacy. Moreover, academic self-efficacy was employed as a mediator between university satisfaction and GPA.

Furthermore, Wessel et al. (2008) investigated the impacts of objective and perceived fit with college major on GPA. Results showed just one type of objective fit (WWM) was correlated with GPA ( $r=.21$ ), but C-index of objective fit and perceived fit was not correlated with GPA.

Additionally, Li et al. (2012) examined interest-major [I-M] fit. They revealed that I-M fit correlated positively with the academic performance ( $r = .14, p < .05$ ).

As the previous studies show, there is a lack of study about combining different types of fit in a single model while it is very important that combining different types of fit be considered because each type of fit have a unique relationship with academic outcomes.

### **3. Method**

#### *3.1 Population*

There are two types of universities in Malaysia: public and private. Public universities were selected for the present research as they have more students than private universities. Among public universities, Research Universities (RU) was selected since having access all public universities was impossible. The characteristics of RUs as defined by the Ministry of Higher Education (MOHE) include the field of study, which focuses on research, competitive enrollment which ensures the quality of students and lecturers and ratio of 50:50 for undergraduate and postgraduate students. RUs provide the role model to which most universities aspire and attempt to promote their characteristics.

The following five universities are known as research universities in Malaysia: Universiti Putra Malaysia (UPM), Universiti Kebangsaan Malaysia (UKM), University Malaya (UM), Universiti Sains Malaysia (USM), and Universiti Teknologi Malaysia (UTM).

According to Holland (1997), utilizing all personality types to achieve precise results among research universities in

Malaysia, UPM offers the most majors. Thus, the greater number of majors can lead to a greater number of personality types. For Bachelor degree (except Doctor and Diploma), UPM, UKM, UM, USM and UTM offer 72, 67, 70 and 32 and 53 majors, respectively. Among all majors in UPM, 12 majors including Holland's six personality types were selected randomly. According to the office of Admission for Academic and International students of UPM, 2,503 undergraduate students study in these 12 selected majors.

### 3.2. Sample Size

To determine the sample size, Cochran's formula (1977) was employed to evaluate the appropriate sample size of population.

To calculate sample size, Cochran (1977) suggested Formula 1:

$$\text{formula 1: } n_0 = \frac{z^2 pq}{e^2}$$

Where  $n_0$  is the sample size,  $Z$  is the abscissa of the normal curve cutting off an area at the tails ( $1 - \alpha$  equals the desired confidence level, e.g., 95%),  $e$  is the desired level of precision,  $P$  is the estimated proportion of an attribute present in the population, and  $q$  is  $1-p$ . The value for  $Z$  is found in the statistical table containing the area under the normal curve. Thus,  $P = 0.5$  (maximum variability), at 95% confidence level and +5% precision would be assumed. The result of calculation is as follows:

$$n_0 = \frac{z^2 pq}{e^2} = \frac{(1.96)^2 (.5)(.5)}{(.05)^2} = 384$$

After a precise calculation, Formula 2 can be employed to measure the final sample size. In this formula,  $n$  is the sample size and  $N$  is the population size.  $N = 2503$  (in the 12 selected majors). Therefore, the sample size is 333.

$$\text{formula 2: } n = \frac{n_0}{1 + \frac{(n_0-1)}{N}} = \frac{384}{1 + \frac{(384-1)}{2503}} = 333$$

Hair (2010) believed that 10 to 30% extra samples would be enough to account for the margin of errors. Thus, by collecting 30% extra samples, the number of sample size is 433. After data collection, 385 questionnaires were filled completely by students.

### 3.3 Sampling

A main step in inferential statistics is to determine the sample which is the population representative (Ary, Jacobs, Sorensen, & Walker, 2013). To draw the sample, probability sampling was employed. Probability sampling is a type of sampling that gives equal chance of being selected to every member of the population (Ary, et al., 2013). The types of probability sampling were most frequently used in simple random sampling, cluster sampling, stratified sampling, and systematic sampling.

In the present research, cluster random sampling was used. According to Ary et al. (2013), there are particular procedures for using the cluster sampling technique: the clusters of the study should be randomly selected, and all the members of the cluster must be included in the sample. Thus, in this study, first, all majors in UPM were written based on Holland's personality types. Then, two majors were randomly selected, and students were randomly selected from among these majors. Eight-two majors were offered to undergraduate students in 15 faculties at UPM. The majors that take less (diploma) or more than four years (doctor) were omitted, in order to have a homogeneous sample, and only majors that take four years (bachelor degree) were retained. Ultimately, 72 bachelor degree majors were identified. Moreover, the first semester students were ignored since they have not yet received any CGPA. After that, from the list of the majors based on the six personality types at UPM, two majors were randomly selected using List Randomizer (Haahr). The List Randomizer of Dr Mads Haahr arranged the items of a list randomly. Then, the researcher selected the first 2 majors of each personality type. The six personality types (Holland codes) for these 72 majors at UPM were determined using Educational Opportunity Finder (EOF) (Rosen, Holmberg, & Holland, 1997). The two majors randomly selected for each personality type were: Realistic (Mechanical engineering, Electrical and Electronic engineering), Investigative (Physics, Mathematics), Artistic (Industrial Design, Landscape Architecture), Social (Human development, Physical education), Enterprising (Bachelor of Business Administration, Environmental Management), and Conventional (Accountancy, Statistics).

In cluster sampling, 15% of the clusters were recommended by Creswell (2002). In fact, 15% of 72 majors were 10.8. Thus, 12 majors met the criteria of 15%. Holland (1997) suggests that various types of personalities should be focused in order to obtain more precise and accurate outcomes. The 12 selected majors consisted of all Holland's environmental

types: including Conventional, Enterprising, Artistic, Social, Investigative, and Realistic.

According to the office of Admission for Academic and International students of UPM, 2503 undergraduate students study in the 12 selected majors. As the populations of majors were highly different from each other in number, proportionate technique was employed. To calculate the percentage of students in each major, the researcher divided the number of students of each major by the total population of 12 majors, and then multiplied it by 100. For instance, to calculate the percentage number of students in Accountancy, the number of students in this major (405) was divided by the total number of students in 12 majors (2503), and then multiplied by 100. The result (16.18) is the percentage number of students in Accountancy ( $\frac{405}{2503} \times 100 = 16.18$ ).

In order to determine the number of students selected for each major, the researcher divided the number of sample size by the total number of students in 12 majors, and then multiplied it by the number of each major. For instance, in Accountancy, the number of sample size (433) was divided by the total number of students in 12 majors (2503), and then multiplied by the number of students in Accountancy (405). The result (70) is the number of students selected for Accountancy ( $\frac{433}{2503} \times 405 = 70$ ).

Furthermore, in cluster sampling, 15% of the clusters were recommended by Creswell (2002) and the number of students selected for the sample based on proportionate technique met the criteria of 15%.

Finally, the main purpose of cluster sampling is to select potential respondents randomly. In order to ensure the randomization of respondents' selection, the list of students with their contact information was obtained from the office of Admission for Academic and International students of UPM. After calculating the number of students required in each major, respondents were randomly selected from the list of students using List Randomizer (Haahr). Then, selected students were contacted with the purpose of arranging a meeting to distribute the questionnaires.

### 3.4 Instruments

This research used the following instruments:

#### 3.4.1 Objective Interest Major Fit

To calculate the six personality types, the O\*NET Interest Profiler Short Form was applied. The O\*NET Interest Profiler short form is a 60-item document calculating each personality type (RIASEC) with 10 items. This is a questionnaire with high reliability and validity (Rounds, Su, Lewis, & Rivkin, 2010).

The highest score obtained in all six personality types was the dominant personality type that was compared with the major Holland code obtained from the Educational Opportunity Finder. Objective fit in terms of congruence based on Holland's Theory is defined as the relative proximity in the hexagon between the person's dominated personality type and the major of study. In the present research, congruence is determined using Holland's first letter agreement based on the hexagon. In this index, congruence includes 4 levels: 1) when the dominant personality type and major code are opposite to the hexagon; 2) when the dominant personality type and major code are the alternatives to the hexagon; 3) when the dominant personality type and major code are adjacent on the hexagon, and 4) when the dominant personality type and major code are highly matched.

#### 3.4.2 Perceived Interest Major Fit

Perceived interest major fit has eight items: items 1 and 2 are adapted and modified from academic perceived fit of Schmitt (2008), and from interest major fit of Li et.al (2012); items 3, 4 and 5 are adapted and modified from person-organization fit of Cable & DeRue (2002); items 6, 7 and 8 are adapted and modified from perception of organization fit of Saks and Ashforth (1997), from person-organization internship fit of Resick (2007), and from supplementary organization fit of Uysal Irak (2010), respectively. All these questionnaires showed high reliability and validity. Appendix (A) indicates the sources from which the items were adapted and modified.

#### 3.4.3 The Educational Opportunity Finder

The Educational Opportunity Finder (EOF) was utilized to determine the Holland code for the majors (Rosen et al., 1997). The EOF makes clients enable to determine the areas of study matching their interests, abilities, and personalities. It lists 750 post-secondary areas of study listed by Holland code.

#### 3.4.4 CGPA

To calculate academic achievement, cumulative grade point average (CGPA) was used. CGPA is based on scale ranging from 0.0 to 4.0.

## 4. Findings

This study initially benefits from descriptive statistics to describe Objective 1 of the study and for this purpose IBM SPSS (V20) was used. Furthermore, SEM – AMOS (V22) was used to test the hypotheses of the study (Objectives 2). Descriptive analysis with SPSS 20 was used to explain the level of P-E fit and CGPA among undergraduate students.

According to Table 1 the respondents' scores on perceived interest major fit scale range from 8 to 45, with a mean of 26.51 and standard deviation of 5.29. Total perceived interest major fit scores are classified as: low (8 - 20.33), moderate (20.34 - 32.66), and high (32.67 - 45). The descriptive analysis showed that out of the 385 respondents, 55 (14.3%) are in

low level, 281(73.0%) are in the moderate level, and 49 or 12.7% are in the high level. Thus, the majority of the respondents (73.0%) are in the moderate level of perceived interest major fit scale.

Table 1. Descriptive Analysis for Perceived Interest Major Fit

Construct Code	Frequency and Percentage			Mean	Standard Deviation
	Low Level	Moderate Level	High Level		
PIMF	55 (14.3%)	281 (73.0%)	49 (12.7%)	26.51	5.29

Based on Table 2, objective interest major fit has a mean of 2.83 and a standard deviation of 0.92. Congruency includes four levels: opposite congruency (1), alternate congruency (2), adjacent congruency (3), and perfect match congruency (4).

The descriptive analysis revealed that out of the 385 respondents, 32 are in opposite congruency (9.4%), 96 are in alternate congruency (23.9%), 157 are in adjacent congruency (40.8%), and 100 are in perfect match congruency (26.0%). Thus, the majority of the respondents (40.8%) are in adjacent congruency.

Table 2. Descriptive Analysis of Objective Interest Major Fit

Construct Code	Frequency and Percentage for Congruency Categories				Mean	Standard Deviation
	Opposite	Alternate	Adjacent	Perfect Match		
OIMF	32 (9.4%)	96 (23.9%)	157 (40.8%)	100 (26.0%)	2.83	0.92

Based on Table 3, CGPA has a mean of 3.325 and a standard deviation of 0.324. In the present research, CGPA has four levels: CGPA below 2.5, between 2.51 and 3, between 3.01 and 3.5, and CGPA higher than 3.51. Descriptive findings showed that none of the respondents have CGPA below 2.5, 16.364% of respondents have CGPA of between 2.51 and 3, and the majority of respondents (56.104%) have CGPA of between 3.01 and 3.5.

Table 3. Descriptive Analysis of CGPA

Construct Code	Frequency and Percentage for CGPA Categories				Mean	Standard Deviation
	$\geq 2.5$	2.51 to 3	3.01 to 3.5	$\leq 3.51$		
CGPA	0 (0%)	63 (16.364%)	216 (56.104%)	106 (27.532%)	3.325	0.324

AMOS 22 was used to investigate the hypothesis of the study. The first hypothesis considers the relationship between Perceived Interest Major Fit and Academic Achievement. The results reveal that Perceived Interest Major Fit has a positive relationship with Academic Achievement ( $\beta$  0.291,  $p < 0.000$ ). Thus, Hypothesis 1 is supported.

The second hypothesis explores the relationship between Objective Interest Major Fit and Academic Achievement. According to the results, Objective Interest Major Fit has no significant relationship with Academic Achievement ( $\beta$  - 0.008,  $p > 0.844$ ). Thus, Hypothesis 2 is rejected.

## 5. Discussion

The main objective of this paper was to investigate the relationship between P-E fit on academic achievement. This research was conducted in UPM. The participants of the study were 2503 undergraduate students of 12 majors at UPM. The sample size for data analysis was 333 and by collecting 30% extra samples, a sample size of 433 was reached; 385 students out of 433 students replied to the questionnaires completely. Data were analyzed using SPSS 20 and AMOS 22 software.

The descriptive analysis for Perceived Interest Major Fit reveals that out of the 385 respondents, 55 (14.3%) are in low level, 281(73.0%) are in the moderate level, and 49 or 12.7% are in the high level. Thus, the majority of the respondents (73.0%) are in the moderate level of perceived interest major fit scale. The findings of this study show that 73.0% of students in Malaysia have moderate level of Perceived Interest Major Fit while only 14.3% of students have high level of Perceived Interest Major Fit. It indicates that much work must be done to achieve a high level in Perceived Interest Major Fit in Malaysia.

Descriptive analysis for Objective Interest Major Fit reveals that objective interest major fit has a mean of 2.83 and standard deviation of 0.92. Congruency has four levels: (1) opposite congruency, (2) alternate congruency, (3) adjacent congruency, and (4) perfect match congruency. The descriptive analysis shows that out of the 385 respondents, 32 are in opposite congruency (9.4%), 96 are in alternate congruency (23.9%), 157 are in adjacent congruency (40.8%), and 100

are in perfect match congruency (26.0%). Thus, the majority of the respondents (40.8%) are in adjacent congruency while only 26.0% of students are in perfect match congruency. It indicates that much work must be done to achieve perfect match congruency in Malaysia.

The Descriptive analysis for CGPA shows CGPA has a mean of 3.325 and a standard deviation of 0.324. In the present paper, CGPA has four levels: CGPA below 2.5, between 2.51 and 3, between 3.01 and 3.5, and CGPA higher than 3.51. Descriptive findings reveal that none of the respondents had CGPA below 2.5, 16.364% of respondents had CGPA of between 2.51 and 3, and the majority of respondents (56.104%) had CGPA of between 3.01 and 3.5. It indicates that much work must be carried out to reach a high level in CGPA (CGPA higher than 3.51) in Malaysia.

The SEM – AMOS (V22) was used to test the hypotheses of the study.  $H_1$  is accepted as there is a positive significant relationship between perceived interest major fit and academic achievement. This is in line with Li et al (2012) ( $r=.14$ ,  $p<.05$ ) who showed a significant relationship between perceived interest major fit and GPA.

$H_2$  is rejected because there is no positive significant relationship between objective interest major fit and academic achievement. This is in line with previous studies such as Frantz and Walsh (1972), Walsh and Hanle (1975), and Schaefer (1976) who could not find any significant relationships between objective fit and CGPA.

In this case Kristof et al. (2005) argued that objective fit can have a weaker relationship with outcomes such as CGPA than perceived fit.

## 6. Conclusion

The current research was conducted to investigate the relationship between P-E Fit on academic achievement. The findings of the relationship between the P-E fit and academic achievement have shown a highly positive relationship between the perceived interest major fit and the academic achievement, but there is no significant relationship between the objective interest major fit and the academic achievement.

Pervin (1968) assumed that for each individual there are environments which more or less match with their personality and this agreement in turn results in higher performance, higher satisfaction, and less stress. In other words, Pervin (1968) argued that performance is the function of the interaction between the characteristics of the individual and their environment (Pervin, 1968). On the other hand Kristof et al. (2005) noted that objective fit can have a weaker relationship with outcomes such as CGPA than perceived fit.

The findings of this study can be valuable for future research in the area of educational psychology. They can be used both theoretically and practically. Theoretically, Kristof-Brown et al. (1996) argued that there are different types of fit: Person-Vocation, Person-Organization, Person-Job, Person-Group, and Person-Supervisor. The present study used Major Fit that can be added to the previous classification of types of fit.

Moreover, in this research all types of Major fit were used since it is recommended to use various types of fit in a single model as each type of fit establish a unique relationship with outcomes (Kristof, 1996; Kristof et al. 2005; Cable and DeRue, 2002). Furthermore, failure to consider various types of P-E fit can underestimate its importance in predicting students' academic outcomes (Li et al, 2012).

Practically, the findings of this study can be used by education advisors and counselors to help students select majors that fit with their interests. Furthermore, the descriptive analysis in the present paper indicates that the levels of perceived interest major fit, perfect match congruency, and CGPA must be improved.

Several recommendations are proposed to fill the existing gaps and expand the results of this study. It is suggested that further studies should be conducted in private and non-research universities. Furthermore, this research was carried out in Malaysia context. Thus, it is recommended to conduct this research in other contexts.

Additionally, as Kristof-Brown et al. (1996) noted that there are various types of fit: Person-Vocation, Person-Organization, Person-Job, Person-Group, and Person-Supervisor, and in this study Major fit as a type of fit was used, therefore researchers can use Major fit as a type of fit in educational studies.

In this study the researcher adapted and modified previous questionnaires to achieve a measurement of perceived interest major fit. Thus, researchers can use these questionnaires to measure these concepts in their future studies.

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**Appendix A.** Sources Adapted and Modified for Perceived Interest Major Fit

Adapted and Modified item	Original Item
Item 1. The courses available in this major match my interests.	<ul style="list-style-type: none"> <li>- The courses available at this school match my interests (Questionnaire: academic perceived fit, Author: Schmitt et al., 2008).</li> <li>- The courses available at this school match my interests (Questionnaire: interest major fit, Author: Li et al., 2012).</li> </ul>
Item 2. My current courses in this major are not really what I would like to do.	<ul style="list-style-type: none"> <li>- My current courses are not really what I would like to do (Questionnaire: academic perceived fit, Author: Schmitt et al., 2008).</li> <li>- My current courses are not really what I would like to do (Questionnaire: interest major fit, Author: Li et al., 2012).</li> </ul>
Item 3. The things that I am interested in life are highly similar to the interests of my major.	<ul style="list-style-type: none"> <li>- The things that I value in life are highly similar to the things that my organization values (Questionnaire: person-organization fit, Author: Cable &amp; DeRue, 2002).</li> </ul>
Item 4. My personal interest matches my major's interest.	<ul style="list-style-type: none"> <li>- My personal values match my organization's values and culture (Questionnaire: person-organization fit, Author: Cable &amp; DeRue, 2002).</li> </ul>
Item 5. My major's interest provides a good fit with the things that I am interested in life.	<ul style="list-style-type: none"> <li>- My organization's values and culture provide a good fit with the things that I value in life (Questionnaire: person- organization fit, Author: Cable &amp; DeRue, 2002).</li> </ul>
Item 6. The interests of this major are similar to my own.	<ul style="list-style-type: none"> <li>- To what extent are the values of the organization similar to your own values? (Questionnaire: perception of organization fit, Author: Saks &amp; Ashforth, 1997).</li> <li>- The values of this organization are similar to my own values (Questionnaire: person-organization internship fit, Author: Resick et al., 2007).</li> <li>- The values of this organization are similar to my own values (Questionnaire: supplementary organization fit, Author: Uysal Irak, 2010).</li> </ul>
Item 7. I feel my interest matches the interest of this major.	<ul style="list-style-type: none"> <li>- To what extent does your personality match the personality or image of the organization? (Questionnaire: perception of organization fit, Author: Saks &amp; Ashforth, 1997).</li> <li>- I feel my personality matches the personality or image of this organization (Questionnaire: person-organization internship fit, Author: Resick et al., 2007).</li> <li>- I feel my personality matches the personality or image of this organization (Questionnaire: supplementary organization fit, Author: Uysal Irak, 2010).</li> </ul>
Item 8. I think the interest of this major reflects my own interest.	<ul style="list-style-type: none"> <li>- Do you think the values and personality of this organization reflect your own values and personality? (Questionnaire: Perceived organization fit, Author: Cable &amp; Judge, 1996).</li> <li>- I think the values and personality of this organization reflect my own values and personality (Questionnaire: Person-organization internship fit, Author: Resick et al., 2007).</li> <li>- I think the values and personality of this organization reflect my own values and personality (Questionnaire: Supplementary organization fit, Author: Uysal Irak, 2010).</li> </ul>