

GENDER AND PERSONALITY TYPE AMONG PURE AND APPLIED SCIENCE AND SOCIAL SCIENCE STUDENTS IN A PUBLIC UNIVERSITY IN MALAYSIA

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Introduction

The gender gap explains the differences between males and females, usually in terms of statistics concerning the roles, decisions, styles, and behaviour. In addition to the biological characteristics, males and females are different due to various factors, such as personal discipline, thinking method, emotional level, and behaviour, which may lead to a significant gender gap (Stumpf *et al.*, 2010). At the same time, the gender gap is also influenced by the cultural norms and practices of the society in addition to individual personality, all of which influence the individual thoughts, emotions, cognitive skills, behaviour, and action towards something (Daly & Wilson, 1988).

Individuals with different personality types may show differences in behaviour (Oliver & Srivastava, 1999) as well as in choosing a programme at the university level (Ciorbea & Pasarica, 2013; Weisberg, Deyoung, & Hirsh, 2012). There is a huge gender gap in career choice among males and females in science and engineering related careers (Xie & Shauman, 2003), and there are always fewer females than males (Barres, 2006). However, the student population in the Malaysian National University currently shows a huge gender gap that is dominated by female students in many programmes (Latifah, 2015). Consequently, there could be fewer professional males in the job market in the future (Zumilah, Norehan, & Faten Bazlin, 2016).

Due to the employability problems of Malaysian fresh university graduates concerning their lack of creativity (Giselle & Fay, 2014), inability to meet the industry expectations (National Economic Action Council, 2003), and lack of soft skills (Zumilah *et al.*, 2016), it is important to understand the personality of university students in order to design programmes that relate to them and

can assist them; for example, independent learning, critical thinking, innovative problem solving, and information and digital literacy are intrinsic to creative behaviour (Allen & Coleman, 2011), and are related to a positive personality.

Therefore, this paper attempts to profile each personality type and the sex of the respondents by programme clusters disaggregated. The programme clusters concerned are the Applied and Pure Science Cluster and the Social Science Cluster. The aim of this paper is to profile each personality type and the sex of the respondents in the Applied and Pure Science Cluster and the Social Science Cluster. The intention of this paper is to share the descriptive statistics for future studies to assist university students to obtain relevant skills and competencies that facilitate their acceptance in the job market or enable them to run a business.

Big Five personality type (BFPTs)

Psychologists categorise personality according to type, and different people have different personality types. This paper uses the personality types underlined by Costa and McCrea (1992), which were categorised into five categories – Extraversion Personality Type, Conscientiousness Personality Type, Agreeableness Personality Type, Openness Personality Type, and Neuroticism Personality Type. These personality types are known as the Big Five Personality Types (BFPTs). The BFPTs are commonly used in measuring individual personality types (Costa & McCrae, 1992) (Figure 1).

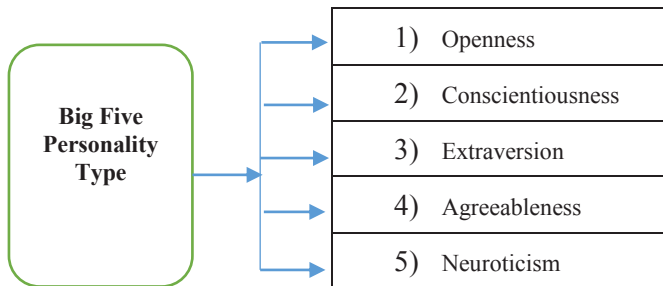


Figure 1: Big Five Personality Model

Sources: Big Five Personality Model (Costa & McCrae, 1992)

The BFPTs were developed naturally and experience in learning that have an effect on an individual's personality type (McAdams & Pals, 2006). In the BFPTs, each personality type explains the factors that influence an individual's behaviour; as follows:-

- i) Extraversion Personality Type includes individuals who are excitable, sociable, talkative, assertive and emotionally expressive;
- ii) Agreeableness Personality Type pertains to individuals who are trusting, altruistic, kind, and affectionate;
- iii) Conscientiousness Personality Type comprises individuals who are thoughtful, goal-directed, and who have beneficial impulse control;
- iv) Openness Personality Type includes individuals who have imagination, insight, intelligence, and who are creative;
- v) Neuroticism Personality Type comprises individuals who have unstable emotions, and who are subject to anxiety, moodiness, and sadness.

Gender and personality type

According to the Evolutionary Psychology Theory of Gender (Daly & Wilson, 1988) males and females are different due to their biological and social environment in that they display different behaviours in similar situations. There are differences in the success seeking of males and females and how they present themselves in the community (Eagly & Wood, 1999). Feingold and Alan (1994) found that age, educational level, and nationality had a significant effect on the personality type of male and female individuals. Other studies, by Weisberg, Deyoung, and Hirsh (2012), and Stumpf *et al.* (2010), found differences between males and females in terms of emotions, conflict management style, and self-control, which may also relate to the gender gap in the personality type because females tend to display emotions, such as anxiety, worry, and tender-mindedness, while males are more prone to certain feelings, such as self-confidence and success seeking.

There is also a gender gap in terms of personality disorders, for example, females suffer from body image, eating disorders, and are influenced by sexual relations more than males (Ambwani *et al.*, 2007). The significant difference in personality disorders is about major depression. This is explained by the Neuroticism Personality Type, which is more common among females than males (Goodwin & Gotlib, 2004). The gender gap in personality type was explained by Costa, Terracciano, and MacCrae (2001) as follows:

- i) **Extraversion Personality Type** – there is no huge gap between male and female scores in this personality type. However, females usually achieve high scores in warmth, gregariousness, and positive feeling, while males achieve high scores in assertiveness and excitement seeking.

- ii) **Conscientiousness Personality Type** – there is only a small gap between males and females with females reporting a higher score for attitudes such as self-discipline.
- iii) **Agreeableness Personality Type** – a high score in tender-mindedness attitude is always associated with females.
- iv) **Openness Personality Type** – a high score in aesthetics and feelings is associated with females, while a high score for curiosity and imagination is associated with males.
- v) **Neuroticism Personality Type** – a high score is usually associated with females, but, sometimes, some attitudes, such as high anxiety and low self-esteem, are associated with males and females.

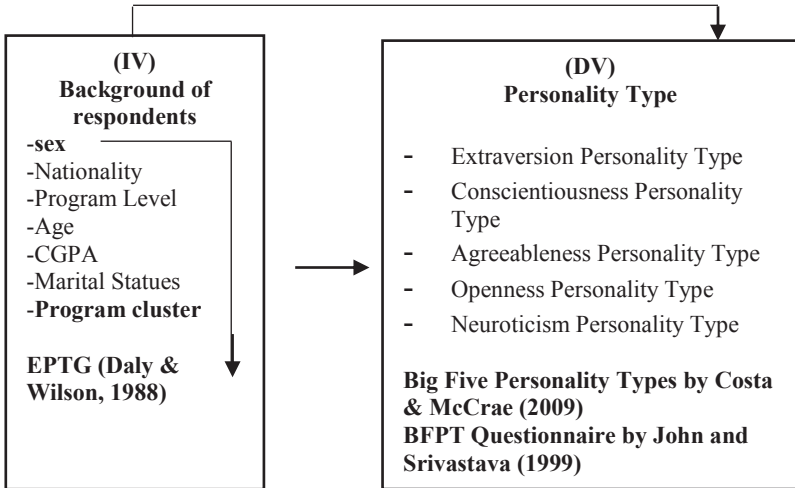
Program cluster and personality types

Personality type is one of the important factors in an individual's decision concerning their university academic major (programme clusters). A study by Pringle et al. (2010) showed that business students had a high level of Extraversion Personality Type and that art students had a high level of Openness Personality Type (Myers and McCauley as in Pringle *et al.* (2010). According to Almlund, Duckworth, Heckman, and Kautz (2011), individuals are interested in programmes that fit with their vision of their future occupation. Arcidiacono (2004) found that cognitive skills play an important role in choosing the programme cluster and that personality type is only associated with this decision. Vedel (2016) categorized the personality type by the academic cluster as follows:-

- i) Arts/humanities students have a high score in Openness Personality Type and Neuroticism Personality Type
- ii) Economics, law, political science, and medicine students have a high score in Extraversion Personality Type
- iii) Medicine, psychology, arts/humanities, and science students have a high score in Agreeableness Personality Type
- iv) Arts/humanities students have a high score in Conscientiousness Personality Type
- v) The study of Skatova and Ferguson (2014) shows that females choose certain programme clusters because they want to help other people, or based on personal interests and self-motivation, whereas males choose certain programme clusters for career purposes or laziness.

Research framework

This paper presented descriptive findings on the variables in research framework – the independent variables (IV) are sex and programme cluster, and the dependent variable (DV) is the personality type of the respondent, which is measured using the BFPT questionnaire (John & Srivastava 2009) (Figure 2).



Note:

- i) Evolutionary Psychology Theory of Gender (EPTG) (Daly & Wilson, 1988)
- ii) Big Five-Personality Type (BFPT) (John & Srivastava, 1999)

Figure 2: Research Framework

Other variables pertaining to the background of the respondents were reported in their profiles. The Evolutionary Psychology Theory of Gender by Daly and Wilson (1988) was used to justify sex as the independent variable in this paper.

Method

Population and sampling

This paper uses an exploratory research design by means of the quantitative data collection method. The questionnaire includes the background of the respondents and a scale to measure the personality type according to the BFPT. The background of this paper is students in one of Malaysia's Public

Universities in 2013. There are 12 faculties in the Applied and Pure Science Cluster and four in the Social Science Cluster in the university. The population of this paper was all the students of September 2013-2014 academic calendar intake. According to the Krejcie Table (Krejcie, 1970), based on a population of 30,000, $n=380$ respondents. Table 1 shows the numbers and percentages of respondents from the stratified sampling procedure.

Table 1: Stratified Sampling Table

No.	Faculty	Male		Female		Total
		%	n	%	n	
1.	SSC	10.1	39	25.6	93	35.68
2.	APSC	24.5	92	40.0	156	64.65
	Total	34.6	131	65.6	249	100

Note:

- i) APSC (Applied and Pure Science Cluster), SSC (Social Science Cluster)
- ii) Ratio: APSC: SSC=2:1
- iii) Ratio: Male: female =1:2
- iv) $n=380$

Instrument development

The questionnaire used in this study consists of two parts; as follows:

- i) Background of respondents includes sex of respondents, nationality (male and female), level (Bachelor, Master or Ph.D), programme Cluster (Applied and Pure Science Cluster or Social Science Cluster), age, Cumulative Grade Point Average (CGPA), and marital status,
- ii) Big Five personality type (BFPT) developed by John and Srivastava (1999), consists of 46 questions that measure Extraversion Personality Type, Conscientiousness Personality Type, Agreeableness Personality Type, Openness Personality Type, and Neuroticism Personality Type.

Data collection

The data were collected through self-administered questionnaire by seven trained enumerators. The questionnaires were distributed in the sampled faculties of the Applied and Pure Science Cluster and the Social Science Cluster. Due to the sensitive issue of cyber love addiction to many individuals, the return risk of the survey using the self-administered questionnaire approach, and the number who were expected to decline being involved in the study, the questionnaires were distributed in triple number by

the enumerators. The data were collected at the best locations in the sampled faculties by distributing the questionnaires to the respondents.

Each enumerator focused on one location and the first student passing by was selected as the first respondent. If he/she refused, the next student was selected as the respondent. If he/she agreed to answer the questionnaire, then the second student who passed by after the respondent was selected as the second respondent. This process continued until the enumerator collected adequate data amounting to triple the sample size for that particular sampled faculty. The enumerators waited for the respondents to return the questionnaire to the same location that he/she distributed the questionnaire on an agreed date. The respondents were given a small token of appreciation for their involvement in this study.

Findings

Respondents' profile

Table 2 demonstrates the distribution of respondents by sex, nationality, programme level, and programme cluster. Most of the respondents are females (64.9%), Malaysian (82.4%), undergraduate level (73.1%), and from the Applied and Pure Science Cluster programme (65.2%). In terms of their counterparts, there are 35.1 percent males, 17.6 percent international students, 22.0 percent at the graduate level, and 34.8 percent of the respondents are in the Social Science Cluster programme. There are 62.0 percent female respondents in the Applied and Pure Science Cluster programme and 70.2 percent of the female respondents in the Social Science Cluster programme, whereas only 38.0 percent of the male respondents are in the Applied and Pure Science Cluster programme and 29.8 percent are in the Social Science Cluster programme.

From the stratified random sampling procedure, the findings of this paper show that the majority of the respondents are female. The Applied and Pure Science Cluster programme is acknowledged to be a masculine cluster, and the Social Science Cluster is acknowledged to be a feminine cluster (Abouchedid, Kamal, & Ramzi Nasser, 2000). Accordingly, in this study, there is a higher percentage of females in the Social Science Cluster programme than in the Applied and Pure Science Cluster programme. There is also a gender gap in salary between the Applied and Pure Science Cluster and the Social Science Cluster programmes (Buser, 2014), and, by frequency, there are many more females in the Applied and Pure Science Cluster, which may explain why female workers have 'low pay' in the job market.

Table 2: Respondents Distribution by Sex, Program Level and Program Clusters (n=376)

Variables	Items	n	%	Mean	Std. Deviation
Sex	Male	132	35.1		
	Female	244	64.9		
Nationality	Malaysian	313	82.4		
	International	67	17.6		
Program Level	PhD	36	9.6		
	Master	49	13.0		
	Bachelor	275	73.1		
Program Cluster	APSC	245	65.2		
	SSC	131	34.8		
	Male APSC	93	38.0		
	Female APSC	152	62.0		
	Male SSC	39	29.8		
	Female SSC	92	70.2		
CGPA	Male CGPA	117		3.42	0.39
	Female CGPA	204		3.51	0.34
	All CGPA	321		3.48	0.36
Age	Male Age	130		24.23	4.54
	Female Age	240		23.61	3.85
	All Age	370		23.83	4.11
Marital Status	Single	339	90.2		
	Married	31	8.2		
	Divorced/separated	2	0.5		
	Others	4	1.1		
Current Intimate Relationship (Partner/Love)	Single	339	90.2		
	Love relationship	142	37.8		

Note:

- i. SSC is a Social Science Cluster
- ii. APSC is Applied/Pure Science Cluster.

Table 2 shows that the respondents' mean age is 23.83 years old (SD =4.11 years old) and that the mean age of the female students is slightly lower (mean=23.61 years old, SD=3.85 years old) compared to that of the male respondents (mean=24.23 years old, SD=4.54 years old). The respondents'

mean CGPA=3.48 (SD=0.36). The mean CGPA for females is slightly higher (mean=3.50, SD=0.34) compared to that of their male (mean=3.42, SD=0.39) counterparts. According to Table 2, the majority of the respondents are single (90.2%), and only 8.2 percent are married. A total 0.5 percent of the respondents were divorced or separated from their spouse, and 1.1 percent had other type of marital status.

Personality type and sex by program cluster

The personality type was categorised into two levels using the 80 percent cut-off point, which was based on the 5-point Likert Scale (1-strongly disagree; 2-disagree; 3-neither disagree/nor agree; 4-agree and; 5-strongly agree). The scores ≥ 80 percent were categorised as high level and scores < 80 percent were categorised as low level in terms of personality type. The personality type percentage scores were derived from the total sum score divided by the maximum total score of each personality type (Table 4).

Table 3: Personality Types and Sex by Program Cluster of Respondents

Personality type	Sex	<i>n</i>	Mean	S.D	Program Cluster	<i>n</i>	Mean	S.D
EPT	Male	132	69.92	10.29	SSC	131	70.71	10.35
	Female	244	70.38	9.64	APSC	245	69.96	9.64
APT	Male	132	67.44	10.09	SSC	130	67.56	9.28
	Female	243	67.43	8.49	APSC	245	67.37	8.98
CPT	Male	132	64.39	10.20	SSC	131	63.65	9.13
	Female	244	63.76	8.48	APSC	245	64.16	9.11
OPT	Male	132	66.06	10.45	SSC	131	65.59	9.59
	Female	244	65.86	8.34	APSC	245	66.11	8.87
NPT	Male	132	60.35	9.34	SSC	131	60.83	8.41
	Female	244	60.70	8.04	APSC	245	60.44	8.58

Note:

- i) APSC = Applied and Pure Science Cluster
- ii) SSC = Social Science Cluster
- iii) EPT= Extraversion Personality Type, APT=Agreeableness Personality Type, CPT=Consciences Personality Type, OPT= Openness Personality Type, NPT=Neuroticism Personality Type

Table 4: Distribution of PT in 5-Likert Scale and Maximum Score

PT	Highest Likert Scale	Number of Question	Maximum Total Score
Extraversion Personality Type	5	8	40
Conscientiousness Personality Type	5	9	45
Agreeableness Personality Type	5	10	50
Openness Personality Type	5	8	40
Neuroticism Personality Type	5	9	45

The low level of Openness Personality Type is explained by characteristics, such as conforming, practical, narrow interest, preference for routine, bored, intolerant, uninterested, and closed to new ideas. A high level of Openness Personality Type refers to individuals who are imaginative, independent, have broad interests, and who are open to new ideas (Ciorbea & Pasarica, 2013). The findings concerning the Extraversion Personality Type and Openness Personality Type may explain the low employability issues among fresh graduates from Malaysian public universities. The gender gap in salary and competition in promotion among male and female Social Science Cluster respondents and Applied and Pure Science Cluster respondents may lead to various problems, such as stress, anxiety, and low self-esteem (Margaret, 2014, Beede *et al.*, 2011).

According to Alon and DiPreteb (2015), Chapman, Duberstein, Sörensen, and Lyness (2008), and Costa, Terracciano, and McCrae (2001), females are always associated with a high level of Neuroticism Personality Type; however, this paper found that Applied and Pure Science Cluster male students are also suffering from high Neuroticism Personality Type meaning they are prone to being emotionally reactive and vulnerable to stress. High attention should be given to this group of students in terms of student activities and counselling programmes because they will be in exclusive professions, such as Medical Doctors and Engineers, who need a high level of focus and to be emotionally stable to conduct their duties efficiently, as well as to reduce the on job risk for other people.

Conclusion and Recommendations

Nevertheless, the descriptive statistics show that a high majority of the students exhibit a low level of Openness Personality Type, Extraversion Personality Type, and Neuroticism Personality Type instead of a high level of each personality type. From the findings, it may be concluded that the respondents show a significant relationship between personality type and sex

by programme cluster disaggregated. This paper recommends further research on the relationship between Neuroticism Personality Type and sex among Applied and Pure Science Cluster students. According to Ciorbea and Pasarica (2013), and Millon, Grossman, Millon, Meagher, and Ramnath (2004), individuals choose the university cluster according to their personal expectations and in accordance with their personality type, which makes them more successful and satisfied in their academic life. The Neuroticism Personality Type is characterised by anxiety, fear, moodiness, worry, envy, frustration, jealousy, and loneliness, and the high Neuroticism Personality Type may be linked with high stress.

According to the findings, this paper recommends that the following be undertaken by the university:-

- i) Assist the Social Science Cluster students to groom their personality type to become competitive in the job market.
- ii) Help the Applied and Pure Science Cluster students to become confident, able to manage stress and anxiety, and to properly socialise in the community
- iii) Assist students in managing stress, handling conflict, and be good decision makers
- iv) Create awareness among both lecturers and students concerning the problematic personality type that may affect the academic performance of students.
- v) All programmes should enhance positive personality among students and must be gender sensitive for positive impact.

Similar studies should be duplicated in various settings in order to trace the various relationships between the personality type and the sex of the student. This would mean that research-based programme interventions, as well as policies, can be properly developed to assist university students to become competitive in the job market.

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