

Chapter 10

Gender, Personality and Learning Styles of Selected Primary School Students in Puchong

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ABSTRACT

Every student has a different learning style whether he or she prefers visual, audio or kinaesthetic learning style. It is common to have mix learning styles in class. However, there is only one most dominant learning style that they are comfortable with. Recognising student's learning approach is important because it is a key factor in the formation of an individual. Uninteresting learning process will easily get students bored in class and face difficulties to focus. They tend not to being engaged and are not enthusiastic in class. As a result, it will definitely decrease their academic achievement. Thus, this paper is interested in examining the relationship among gender, personality and learning styles in two schools at Puchong, Selangor using Multivariate Analysis of Variance (MANOVA). The return and valid questionnaires are 183. The results in general show a significant relationship of gender and personality with the learning styles except for visual learning style. Female is more dominance in practising the auditory learning style as compared with male. However, male more dominance in kinaesthetic learning style. Graph for personality shows that the introverts preferred visual learning style than extrovert. Kinaesthetic learning style is most preferred by extrovert than introvert. However auditory is not significant with student's personality.

Key Words: Maximum 5 Key words.

1. INTRODUCTION

Learning style is a person's learning preferences in apprehending, organizing, and processing information and learning experiences (Smith, 2010; Buali et al., 2013). The recognition of learning styles will help both student and teacher to use suitable methods of learning and teaching so that it will match to achieve an understanding in the learning process. Moreover, knowing and understanding the use of specific learning styles such as visual, auditory, and kinesthetic modes of learning can help teachers to give the best to their students. In fact, learning styles are factors that directly affect students' learning processes

where students may use different styles based on their personal differences (Vizeshfar & Torabizadeh, 2018).

There are many approaches to learning style definition in the literature, following the idea that students learn in diverse ways and prefer different teaching approaches. For example, a study done by Vasileva-Stojanovska, Malinovski, Vasileva, Jovevski and Trajkovik (2015) has reported enhancement in learning and performance when students are offered learning approaches that adjusted as to make them comfortable and capable of learning. However, through a previous study, the majority of the styles discussed are in the visual, auditory, and kinesthetic modes of learning which is also in line with this study.

In this practices, learners normally use different learning styles due to their personal differences as well as gender. Therefore it is crucial to both students and teachers to firstly recognize their learning style based on student's personality and gender so that it gives an excitement as well as satisfaction within the learning process in class. Knowing the importance of comprehending learning styles can not only help the student but help the teachers be more effective in their learning environment. In view of the important role of learning styles in learning and academic achievement, the present study aims to examine the relationship of personality and gender towards learning styles that are most preferred by this construct. Therefore in this paper, it will focuses on the factors of personality and gender which has been claimed to be difference attribute toward learning style preferences. This paper has been organized as follows: First section on the introduction of study. Second section the overview on the literature in learning styles that related to the study. Third section on the methodology applied in the research process and design before come out with a findings of the analysis in the next (section 4). Finally the paper ends with a conclusion that summarizes the findings and provide a recommendation for a future study.

2. LITERATURE REVIEW

Students have unique learning style and personality. It is common to have students that have different learning styles and personalities in a class. Personality of individuals developed based on learning styles and its development depends on the environment, social and emotional influence and their feelings (Rahman & Ahmar, 2017). Considering students' learning style and personality in designing learning activities is essential since learning style and personality determine how students learn (Balakrishnan & Gan, 2016). With regard to learning styles, understanding students' learning styles is vital in order to enhance their learning outcomes (Ibrahim & Hussein, 2015). Other than that, gender also impact the way of learning (Corbin, 2017) Therefore, understanding students' learning styles and personalities and considering gender are significant in facilitating the instructor to choose the appropriate teaching approach and provide meaningful learning instruction.

Learning Styles

Learning style has many definitions and models (Khenissi et al., 2016). For the purpose of the study, learning style is defined as the most preferred and comfortable way of students to learn. Learning styles can be classified by several ways such as cognitive style, personality style and sensory style (Wong & Nunan, 2011). As for this research, we choose to classify learning styles according to sensory style by using The VAK Learning Style Model which explains that students prefer to learn by three ways: (1) visual, (2) auditory or (3) kinaesthetic (MindTool, 2019). The VAK Learning Style Model was introduced in the 1920s by a group of psychologists (MindTool, 2019). The model was refined later by Fleming (1995) who adds another style which is "reading", and he names the model as the VARK Learning Style Model. VARK is the acronym for visual, auditory, reading and kinaesthetic.

Fleming and Mills (1992) explain how visual, auditory and kinaesthetic students learn. Visual students prefer to learn by using graphics and symbols, thus information should be presented in diagrams such as graphs, charts, flow charts and models. Auditory students prefer to learn by listening to information, thus information should be presented in lectures, tutorials and discussions. Kinaesthetic students prefer to learn by having connection to the reality, thus learning should occur by experience, example, practice or simulation. Several previous studies indicated learning styles are related to gender.

Ibrahim and Hussein (2015) conducted a study on 210 students consisted of 60 males and 150 females from two nursing colleges that was sampled through a stratified random sampling. The results demonstrated 40% of the students had the visual learning style, 30.5% of the students had the kinaesthetic learning style and 29.5% students had the auditory learning style. Pertaining to gender, the auditory learning style was preferred by females (30.3%) compared to males (27.3%). Whereas, the kinaesthetic learning style was preferred by male (32.3%) compared to females (29.8%). The study also proved that there was no relationship between learning styles and learning achievement.

Pruet, Ang and Farzin (2016) conducted a study on the use of tablets in learning at urban and rural schools in Thailand. The sample comprised 213 students at Grade Two aged from 7 to 16 years old. The results indicated that the most dominant learning style among male and female students was visual (female: $M=4.23$, male: $M=3.96$), followed by auditory (female: $M=3.97$, male: $M=3.73$) and kinaesthetic (male: $M=2.81$, female: $M=2.65$). It was statistically proven that females ($M=4.23$, had significantly ($p<.01$) higher visual learning style compared to male ($M=3.96$). From the mean, it was noted that the kinaesthetic learning style was least preferred by both gender. Thus, they propose that the design of learning instruction on tablets should consider learning styles in order to cater with their learning needs.

Rahman and Ahmar (2017) studied whether learning styles affect learning achievement in Mathematics according to genders. They randomly sampled on 34 students in Indonesian school. The overall results indicated that 50.00% students had the auditory learning style, 29.41% had the visual learning style and 20.59% had the kinaesthetic learning style. According to gender, males dominated the auditory learning styles. (male=29.41%, female=20.59%) and the visual learning style (male=20.59%, female=8.82%). The most preferred learning style was the auditory learning style. While the least preferred was the kinaesthetic learning style. In addition, the study revealed that there was no correlation between learning styles and Mathematics learning achievement.

Ora, Sahatcija and Ferhataj (2018) carried out a study on 82 university students (38% males, 62% females) in Albania aged between 18 to more than 32 years old. They investigated on the effect on learning styles on hybrid learning perceptions. Overall, the most preferred learning style was the visual learning style (41.5%), followed by the auditory learning style (32.9%) and the kinaesthetic learning style (25.6%). Females (25.1%) dominated the visual (female=25.1%, male=15.9%) and auditory (female=20.7%, 12.2%). While the kinaesthetic learning styles was dominated by males (15.9%) compared to females (9.8%). The most preferred learning style is the visual learning style. While the least preferred was the kinaesthetic learning style. As for perceptions on hybrid learning, there was no relationship between learning styles and perceptions on hybrid learning.

Empirical evidence on validating the importance of learning styles in learning is still inadequate (Li, Medwell, Wray, Wang, & Xiaojing, 2016). Thus, more systematic studies are required to prove that learning styles are worth to be taken into consideration when providing learning instruction to students.

Personality

Another aspect that differentiates students is personality. There are many ways of classifying personality. However, this study focuses on the classification of personality that divides individuals into two types of personality known as extrovert and introvert. Jensen (2015) describes introverts as “reserved, seeking solitude (a loner), physically passive, quiet, sober and unfeeling” while extroverts are “talkative, a joiner, physically active, affectionate, passionate and fun-loving”. Thus, in the classroom, introverts are shy and more interested in themselves while extroverts are noisy and dominant (Ngugi & Thinguri, 2017).

According to Cook (2016), extroverts associate with objects outside themselves whereas introverts make connections with the contents of their own minds. Cook (2016) states that introverts may choose academic teaching that focusses on individual learning and the knowledge of language while extroverts may choose communicative teaching that involves group work and social know-how. Theoretically, extroverts prefer active learning and prefer kinaesthetic learning style while introverts prefer reflective learning and prefer visual and auditory learning styles (Lawrence, 2015).

Rekabdar, Behrouzi and Hakhverdian (2015) examined the impact of personality of introvert and extrovert on metacognitive strategies on 60 participants who took Intermediate English. They were randomly selected. The results demonstrated that the application of metacognitive strategies had different impacts on introverts and extroverts. Metacognitive strategies significantly enhanced reading performance of extroverts, but did not have any significant effect on introverts.

Alhathli, Masthoff and Siddharthan (2016) studies on the effect of extroversion on the selection of learning materials for language learning. The results showed that the correlation between extroverts and active and social learning materials was positive but weak. Thus, they conclude that the learning material had impacted extroverts in terms of promoting enjoyment, enhanced their confidence and improved their skills.

Murphy, Eduljee, Croteau and Parkman (2017) evaluated the impact of personality type of introversion and extroversion on preferences for certain teaching and classroom methods. The participants of the study were 73 undergraduate college students. The sample comprised 39 males and 34 females. The results revealed that personality type of introversion and extroversion did not significantly ($p > 0.05$) impact preferences for certain teaching and classroom methods. Both groups preferred “lecture (professor talks) with student interaction”, demonstrations and practice, and guest speaker related to course topics”. Both groups also strongly disagree with the use of “unscheduled quizzes”, “lecture (professor talks) with no visuals”, and “library research using experiential activities.”

There is exceptionally limited research on the relationship between gender, personality (specially for introverts and extrovert), learning styles and learning. Research has focused more on the relationship between personality and another aspect such as teaching method preference (Murphy et al., 2017), metacognitive strategies (Rekabdar et al., 2015) and selection of learning materials (Alhathli et al., 2016). There are limited studies that relate gender, personality, learning styles and learning. Thus, this study attempts to fill the gap.

3. METHODOLOGY

The questionnaires are distributed to two secondary public schools in Selangor. The respondents are aged 17 year old who will be seated for Sijil Pelajaran Malaysia, SPM (Malaysian Certificate of Education). In total the return questionnaires are 195. However, the valid questionnaires are 183 only. The questionnaires consists of three parts; demographic, learning style and personality. The learning style questionnaire is adapted from VAK Learning Style. The original VAK concepts were first developed by psychologists and child teaching specialists such as Fernald, Keller, Orton, Gillingham, Stillman and Montessori,

starting in the 1920's. VAK theory is now a favorite of the accelerated learning community because its principles and benefits extend to all types of learning and development, far beyond its early applications. The VisualAuditory-Kinesthetic learning style model does not overlay Gardner's multiple intelligences, or Kolb's theory; rather the VAK model provides a different perspective for understanding and explaining a person's preferred or dominant thinking and learning style, and strengths. Gardner's theory is one way of looking at learning styles; Kolb and VAK are still other ways. The VAK learning style uses the three main sensory receivers: Visual, Auditory, and Kinesthetic to determine dominant learning style.

The Myers–Briggs Type Indicator (MBTI) is an introspective self-report questionnaire with the purpose of indicating differing psychological preferences in how people perceive the world around them and make decisions.

The analysis is conducted by using Manova (Multivariate Analysis of Variance Test) since it deals with more than two categories of dependent variables. The dependent variable is a learning style. There are three categories in learning styles: visual, auditory and kinaesthetic. The dependent variables are gender (1: male, 2: female) and personality type (1: Introvert, 2: extrovert).

4. RESULTS

The descriptive statistics in Table 1 shows the value of the mean, standard deviation and sub-sample size for the three leaning styles across the gender and personality.

Table 1 Descriptive Statistics

	GEN	PER	Mean	Std. Deviation	N
VIS	Male	Introvert	11.68	2.780	25
		Extrovert	9.87	2.867	39
		Total	10.58	2.948	64
	Female	Introvert	10.89	1.932	44
		Extrovert	10.39	2.530	75
		Total	10.57	2.331	119
	Total	Introvert	11.17	2.288	69
		Extrovert	10.21	2.649	114
		Total	10.57	2.556	183
AUD	Male	Introvert	8.40	1.732	25
		Extrovert	9.79	1.361	39
		Total	9.25	1.652	64
	Female	Introvert	10.25	1.869	44
		Extrovert	9.41	1.960	75
		Total	9.72	1.961	119
	Total	Introvert	9.58	2.018	69
		Extrovert	9.54	1.781	114
		Total	9.56	1.868	183
KIN	Male	Introvert	9.92	1.778	25
		Extrovert	10.28	2.800	39
		Total	10.14	2.442	64
	Female	Introvert	8.75	1.587	44
		Extrovert	10.05	2.476	75
		Total	9.57	2.272	119
	Total	Introvert	9.17	1.740	69
		Extrovert	10.13	2.581	114
		Total	9.77	2.342	183

Pillai's Trace results in multivariate test shows in general, there are significant relationship of gender [F(3,177)=2.95, p<.05] and personality [F(3,177)=2.82, p<.05] with the learning style. The interaction effect GEN*PER is also significant [F(3,177)=5.19, p<.05]. However the tests do not provide the specific relationship of those significant variables in learning styles categories (visual, auditory or kinaesthetic).

Table 2 Multivariate Tests(b) based on Pillai's Trace

Effect	Value	F	Sig.
Intercept	.998	34737.744	.000
GEN	.048	2.951	.034
PER	.046	2.815	.041
GEN * PER	.081	5.186	.002

Table 3 Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	VIS	56.737(a)	3	18.912	2.990	.032
	AUD	58.352(b)	3	19.451	6.036	.001
	KIN	62.587(c)	3	20.862	3.991	.009
Intercept	VIS	18032.805	1	18032.805	2851.433	.000
	AUD	14092.632	1	14092.632	4373.440	.000
	KIN	14959.642	1	14959.642	2861.562	.000
GEN	VIS	.764	1	.764	.121	.729
	AUD	21.203	1	21.203	6.580	.011
	KIN	19.237	1	19.237	3.680	.057
PER	VIS	52.373	1	52.373	8.281	.004
	AUD	3.064	1	3.064	.951	.331
	KIN	27.271	1	27.271	5.217	.024
GEN * PER	VIS	16.835	1	16.835	2.662	.105
	AUD	48.964	1	48.964	15.195	.000
	KIN	8.712	1	8.712	1.666	.198
Error	VIS	1132.017	179	6.324		
	AUD	576.796	179	3.222		
	KIN	935.774	179	5.228		
Total	VIS	21649.000	183			
	AUD	17351.000	183			
	KIN	18468.000	183			
Corrected Total	VIS	1188.754	182			
	AUD	635.148	182			
	KIN	998.361	182			

a R Squared = .048 (Adjusted R Squared = .032)

b R Squared = .092 (Adjusted R Squared = .077)

c R Squared = .063 (Adjusted R Squared = .047)

Thus, the study is proceeded with tests of between-subjects effects as shown in Table 3 to examine the specific effect of the significant relationship in the learning styles. As the previous results, there is a significant effect of gender to the learning style. However the significant learning style is only the auditory at 5 percent level [F(1,179)=6.58, p<.05]. Kinaesthetic is significant with a higher significant level [F(1,179)=3.68, p<.10]. For personality effect, there are only two dependent variables; visual [F(1,179)=8.28, p<.05] and kinaesthetic [F(1,179)=5.22, p<.05] are significant. Meanwhile the interaction effect between gender and personality are significant for auditory [F(1,179)=15.20, p<.05] dependent variable. The R² values indicate that the gender and personality contribute to 48 percent change in visual, 92 percent auditory and 63 percent kinaesthetic as the dependent variables respectively.

The pairwise comparisons in Table 4 for the gender and personality confirm the results show in Table 3. The gender is significant with mean difference of female is higher than male (.734, p<.05), after Type 1 error is controlled using Bonferroni method. On the other hand, the score for introvert personality is higher than extrovert for visual learning style with the difference mean of 1.154. The results are contradict with kinaesthetic learning style where extrovert is more dominance than introvert with score of .833.

Table 4 Pairwise Comparisons

Dependent Variable	(I)	(J)	Mean Difference	Std. Error	Sig.(a)	95% Confidence Interval for Difference(a)		
			(I-J)			Lower Bound	Upper Bound	Lower Bound
VIS	Male	Female	.139	.401	.729	-.652	.931	
	Female	Male	-.139	.401	.729	-.931	.652	
AUD	Male	Female	-.734(*)	.286	.011	-1.299	-.169	
	Female	Male	.734(*)	.286	.011	.169	1.299	
KIN	Male	Female	.699	.365	.057	-.020	1.419	
	Female	Male	-.699	.365	.057	-1.419	.020	
VIS	Introvert	Extrovert	1.154(*)	.401	.004	.363	1.945	
	Extrovert	Introvert	-1.154(*)	.401	.004	-1.945	-.363	
AUD	Introvert	Extrovert	-.279	.286	.331	-.844	.286	
	Extrovert	Introvert	.279	.286	.331	-.286	.844	
KIN	Introvert	Extrovert	-.833(*)	.365	.024	-1.552	-.113	
	Extrovert	Introvert	.833(*)	.365	.024	.113	1.552	

Based on estimated marginal means

* The mean difference is significant at the .05 level.

a Adjustment for multiple comparisons: Bonferroni.

The results are represented in Figure 1. For the case of gender, visual learning style is horizontal indicating that no significant relationship in gender. Female is more dominance in practising the auditory learning style as compared with male. However, male more dominance in kinaesthetic learning style. Graph for personality shows that the introverts preferred visual learning style than extrovert. Kinaesthetic learning style is most preferred by extrovert than introvert. Auditory is not significant with personality as indicated earlier.

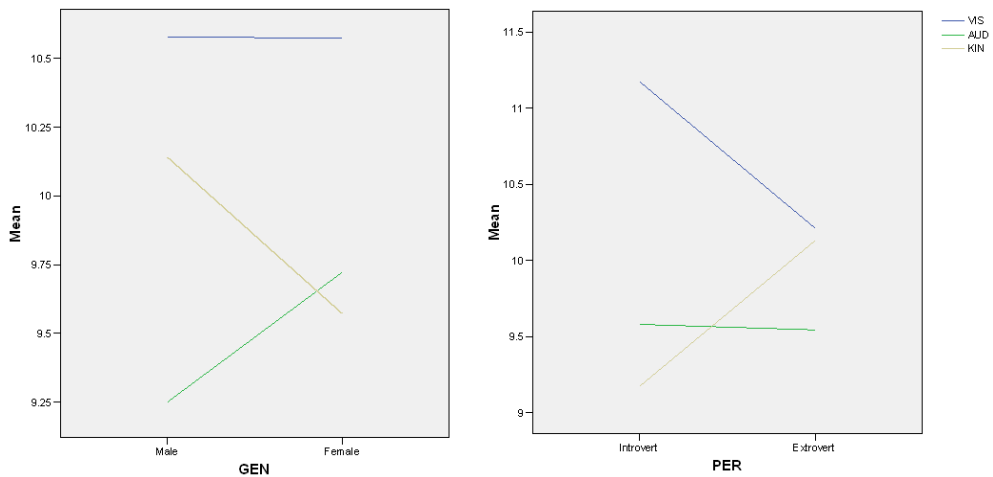


Figure 1: Line Graph of Overall Results

5. CONCLUSION

Recognising student's learning approach is important because it is a key factor in the formation of an individual. Uninteresting learning process will easily get students bored in class and face difficulties to focus. They tend not to be engaged and are not enthusiastic in class. As a result, it will definitely decrease their academic achievement. The results in general show a significant relationship of gender and personality with the learning styles except for visual learning style. Female is more dominant in practising the auditory learning style as compared with male. However, male is more dominant in kinaesthetic learning style. Graph for personality shows that introverts preferred visual learning style than extroverts. Kinaesthetic learning style is most preferred by extroverts than introverts. However, auditory is not significant with student's personality.

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