



Faculty of Cognitive Sciences and Human Development

**PERCEPTUAL LEARNING STYLES OF FCSHD STUDENTS IN
RELATION TO GENDER, PROGRAMS, AND ACADEMIC
PERFORMANCE DURING COVID-19 PANDEMIC**

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Final Year Project Report

Masters

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PANDEMIC**

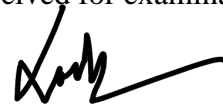
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in partial fulfilment of the requirements for a
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Faculty of Cognitive Sciences and Human Development
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The project entitled ‘Perceptual Learning Styles of FCSHD Students in Relation to Gender, Programs, and Academic Performance During COVID-19 Pandemic’ was prepared by Anathasia Vanessa anak Maja and submitted to the Faculty of Cognitive Sciences and Human Development in partial fulfillment of the requirements for a Bachelor of Science with Honours (Cognitive Science).

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ABSTRACT

The goal of this study is to identify the perceptual learning style preference (PLSP) among Cognitive Science and Counselling program students at undergraduates' level and to examine the relationship between the PLSP and three other variables; academic performance, study programs and gender. The sample consisted of 70 students from the two programs that is recruited using convenience sampling technique and with the help of snowball sampling technique to engage more participations. The instrument used consist of two sections. In the first section, the questions were mostly about the respondent's demographic profile such as gender, programs and CGPA. Meanwhile, at the second sections of the instrument, respondents are required to answer the 20-items of Perceptual Learning-Style Preference Questionnaire (PLSPQ) adopted from Rhouma (2016) study which the original version by Reid (1987). Results showed that Auditory learning style is the most preferred and represented learning style among FCSHD students, with the Kinesthetic, Tactile, and Visual learning styles following closely behind. The result of the Chi-Square test revealed there were no significant relationship between perceptual learning styles preference and academic performance of FCSHD students. With respect to program, there is a significant difference in their Kinesthetic learning style preference based on programs. Most Counselling students preferred this style more than the Cognitive Science students. Results further showed that there were no significant differences in learning styles according to gender. The contribution of this study is to help to provide additional information and awareness for a) students to aware with their strength of learning style and b) for educators to fit their teaching strategies and resources in order to meet the students' learning needs.

Keywords: cognitive science, counselling, perceptual learning style, undergraduates, gender, programs, academic achievement

ABSTRAK

Matlamat kajian ini adalah untuk mengenal pasti keutamaan gaya pembelajaran persepsi (PLSP) dalam kalangan pelajar program Sains Kognitif dan Kaunseling di peringkat prasiswazah dan untuk mengkaji hubungan antara PLSP dengan tiga pembolehubah lain; prestasi akademik, program pengajian dan jantina. Sampel terdiri daripada 70 pelajar daripada dua program yang diambil menggunakan teknik persampelan mudah dan dengan bantuan teknik persampelan bola salji untuk melibatkan lebih ramai penyertaan. Instrumen yang digunakan terdiri daripada dua bahagian. Dalam bahagian pertama, soalan adalah mengenai profil demografi responden seperti jantina, program dan PNGK. Manakala, pada bahagian kedua instrumen, responden dikehendaki menjawab 20-item Soal Selidik Keutamaan Gaya Pembelajaran Persepsi (PLSPQ) yang diadaptasi daripada kajian Rhouma (2016) yang versi asal oleh Reid (1987). Keputusan menunjukkan bahawa gaya pembelajaran Auditori adalah gaya pembelajaran yang paling digemari dan diwakili dalam kalangan pelajar FCSHD, dengan gaya pembelajaran diikuti dengan Kinestetik, Taktil dan Visual. Keputusan ujian Khi Kuasa dua menunjukkan tidak terdapat hubungan yang signifikan antara keutamaan gaya pembelajaran persepsi dengan prestasi akademik pelajar FCSHD. Berkenaan dengan program, terdapat perbezaan dalam keutamaan gaya pembelajaran Kinestetik mereka berdasarkan program. Kebanyakan pelajar Kaunseling lebih menyukai gaya ini berbanding pelajar Sains Kognitif. Keputusan selanjutnya menunjukkan bahawa tidak terdapat perbezaan yang signifikan dalam gaya pembelajaran mengikut jantina. Sumbangan kajian ini adalah untuk membantu memberi maklumat dan kesedaran tambahan untuk a) pelajar sedar dengan kekuatan gaya pembelajaran mereka dan b) untuk pendidik menyesuaikan strategi dan sumber pengajaran mereka bagi memenuhi keperluan pembelajaran pelajar.

Kata kunci: *sains kognitif, kaunseling, gaya pembelajaran persepsi, mahasiswa, jantina, program, pencapaian akademik*

CHAPTER ONE

INTRODUCTION

The coronavirus (COVID-19) pandemic, which began in March 2020, had a major influence on university curriculum systems all around the world, including UNIMAS and Stamm et al., (2021) had stated that this outcome had put a damper over the future of education, both online and in person. As the virus's global numbers began to rise, Malaysia's prime minister declared all high institutions closed and instructed citizens to follow the Standard Operation Procedures (SOP) rules in order to prevent the virus from spreading. As a result of this proclamation, all colleges and universities have been forced to temporarily discontinue in-person instruction in order to avoid viral spread and rising the number of cases. As an alternative, students could continue their education using a method known as electronic learning (e-learning), which uses online platforms to get teaching and learning practice (Casteleijn and Steyn, 2010). A lot of different factors may influence how each student approaches learning new material, and one of these ways is learning style (Dağ and Geçer, 2009).

It is known that every person has different preferences no matter it is in terms of taste, passion, hobbies, learning style, and so on. This distinction occurs can be due to differences in cultural and education background, and geographical location. These factors appear to influence preference, as frequent exposure to a certain notion or concept is linked to a positive preference (Zajonc and Markus, 1982). The style itself will make a person have their own way or ability to learn in order to catch up with learning material or instructions provided by their teachers, lecturers, or other practitioners, no matter it is in the classroom or at their own place like current situations where all students need to continue their education at home. In order to adapt to online

learning, some of them may employ different learning styles, and educators must be conscious of their student style of learning in order to tailor their teaching strategies and at the same time students can respond well to the new instructional practice (Wahyudin and Rido, 2020). Many researches have been done to support this value, and they have proven to be important in the learning activities (Banas, 2018).

Thus, determining each individual's learning preferences is critical. Apart from using correct learning material, the way of learning by using appropriate senses in the learning process is need to be considered in the first place, known as the Perceptual learning style. The term perceptual here means the way a person gets knowledge from their environment using their sense of five (eyesight, hearing, taste, touch, and smell). For the Perceptual learning style in this study context, 3 sensory modalities will be focused more which are visual (sense of eyesight), auditory (sense of hearing), kinesthetic and tactical (sense of touch) will be observed. In particular, whether or not information is presented in the learner's chosen method of learning, it has a significant impact on how much knowledge is received and kept by a person (Zapalska and Dabb, 2002).

Background of Study

Not only paying attention towards the impact of pandemic among students' education in the future, the aspect of their own way the students use their senses to acquire information from their surroundings also needed in the first place. The way of approach that the students used is called a Perceptual Learning Style Preference which categories 4 learners' types; visual, auditory, kinesthetic, and tactile. For the visual learners, the person needs to see something in order to get insight from surroundings such as visual aids in the form of "maps, handouts,

flashcards, pictures, diagrams, and graphs” (Dunn and Missere, 2007), body language and facial expressions of the lecturer (Montemayor et al., 2009). Meanwhile, auditory learners preferred learning by listening to themselves or others (Rhouma, 2016) during lectures and discussions (Scarcella, 1990). According to Fleming and Mills (1992), they grouped kinesthetic and tactile learners in a similar learning style as the learners were said to prefer learning by experiencing themselves or being directly involved in the situation but the only difference is that kinesthetic learners use their whole body (Lauridsen, 2007) while the tactile learner is “learning with hands” (Dunn et al., 2002). Put briefly, all three types of learners use their senses of sight, hearing, and touch to retain information.

Before the pandemic, all of the learning and teaching session were conducted in physical classroom and it shown that the learning styles of students were dominated with visual learners (Sholikhah and Sari, 2021). 39.09% of them were visual learners. Ironically, learning was taking place online during the COVID- 19 pandemic and it depends on the ways the students acquired their knowledge and it showed that auditory learners seems to outperformed other learners in terms of performance during e-learning. This was proven in the study by Albeta et al. (2021) where the auditory learners group has the highest average learning performance ($M = 3.568$) compared to visual ($M = 3.562$) and kinesthetic ($M = 3.531$) learner. These researchers added that the students that favored this learning style find it easier to retain information during e-learning by listening directly. This is because most of the learning resources provided by the lecturer are in terms of pre-recorded lecture video and YouTube videos. Hence, it can be said the difference choice of learning style preference did occur before and during pandemic.

Therefore, Zhenhui (2001) stated that to effectively match teaching and learning styles, teachers must be aware of their students' needs, skills, potentials, and, in particular, learning style

preferences. Hence, it is critical to determine the students' preferred perceptual learning style and ensure that their educational requirements are addressed and making progress during their learning process which later contributes to their academic performance. In addition, Dunn and Dunn (1979) claimed that if students are instructed in a style that they can relate to, they would be able to discover their preferred learning styles, as well as perform better on tests. Hence, not only the teacher responsible for this context, but the students must also acknowledge their style of learning, as this may influence their performance. Study by Rhouma (2016) and Banas (2018) did revealed that students' perceptual learning styles do affect their academic performance. This proves that if the student uses the right techniques or approaches in the learning process which in return can lead to their academic success. It is crucial for the present study to see if the choice of preferred learning style do have an impact on one's academic success among undergraduates' students especially during this pandemic.

In addition, there are many interacting factors or variables that are proven by previous researchers to be related to the contribution of the difference in Perceptual Learning Style preferences (Nge and Eamoraphan, 2020). The interacting factors are learning material, environment, motivation, cognitive performance such as memory, cultural difference (Krätzig and Arbuthnott, 2006; Nge and Eamoraphan, 2020), gender, age, language background, education level and programs or educational major (Reid, 1987; Nge and Eamoraphan, 2020; Absin et al., 2021). Hence, the focus for this study will explore how the gender difference and study programs contributes with the difference preference of perceptual learning style.

Problem Statement

Due to COVID-19 pandemic, Information Technology (IT) is necessary in all institutions in Malaysia, as well as universities around the world, to be used as an online learning medium. This leads to instant transition from traditional learning to online learning. As a result, visual, kinesthetic and tactile learner who struggle to learn by listening to an instructor frequently having trouble to maintain their performance to get the knowledge from the digital resources that are mostly in audio and video format. It has been proven that the issue can affect their academic performance or even drop out could happen (Absin et al., 2021). Their inability to keep up with the materials has impacted their academic performance but study by Albeta et al. (2021) revealed that despite the fact that students' learning styles differ, there is no difference in their learning performance. This pointed out that the students were able to cope and adapt to this e-learning environment.

In addition, mostly previous findings were before pandemic context (Wehrwein et al., 2007; Rhouma, 2016) and fewer studies had looked into the link between learning styles and academic performance among undergraduate students in Malaysia and importantly during pandemic. Despite the fact that there have been several researches on learning styles, (Alumran, 2008; Gholami and Bagheri, 2013; Ling et al., 2017; Usman and Tasya, 2020; Ashadi et al., 2020), study on examining the perceptual learning styles preference differences and academic performance among students of other major such as Cognitive Science and Counselling, gender and academic performance at undergraduates' level are limited. Accessing the association between preference of perceptual learning style preference and academic grades is critical for the evaluation of impact of learning style of FCSHD students towards their performance and to see if the result for this study is similar with previous studies. This should be further investigated.

Hence, this sparks the interest of the author to identify the perceptual learning style of FCSHD students during the pandemic and its impact on their academic performance and to see if the result for this study is similar with previous studies.

A lot of study on Perceptual Learning Style in relation to some study major such as Nursing (Absin et al., 2021), Engineering (Khatib and Ghosheh, 2013; Kho, 2018), Language (Renou, 2009; Obralic and Akbarov, 2012; Rhouma, 2016; Nge and Eamoraphan, 2020), Psychology (Krätzig and Arbuthnott, 2006), Business and IT (Khatib and Ghosheh, 2013; Ling et al., 2017; Alkooheji and Al-Hattami, 2018; Chen and Cheng, 2021) but unfortunately not many studies conducted at undergraduates' level for other major such as Cognitive Science and Counselling. Lastly, most studies revealed the insignificant between gender difference and PLSP in the context of before pandemics (Obralic and Akbarov, 2012; Gholami and Bagheri, 2013; Rhouma, 2016; Absin et al., 2021). In order to add knowledge about it, the author decided to compare with the findings of before pandemic context and to investigate if gender difference contribute to the difference of learning style of the students during e-learning.

Hence, the goal of this research is to determine perceptual learning style of students in various majors and gender and investigate the influence of using appropriate Perceptual Learning Style Preference (PLSP) of student from different programs to their academic success based on Reid's Perceptual Learning Style Preferences Model. Furthermore, this research can help to provide additional information and awareness for students to aware with their strength of learning style and for teachers, lecturers, and other practitioners in education to match their teaching practises while also meeting the learning needs and styles of their students. Educators as well as the students should aware with the way of learning that might ease them to cope with this

new norm of learning as Cabual (2021) stated that acknowledging the learner's style and preferred learning modes is key to effective teaching and student learning in the new normal.

Objectives

The purpose of this research is to investigate the preference of perceptual learning style of students in different programs and its impact on their academic performance within undergraduates in Faculty of Cognitive Sciences and Human Development (FCSHD).

Particularly this study has the following sub- objectives:

- i. To identify the Perceptual Learning Styles preference of FCSHD students from Cognitive Science and Counselling program.
- ii. To determine if there is a significant association in Perceptual Learning Styles preference when analysed as to academic performance of FCSHD students.
- iii. To determine if there is a difference in Perceptual Learning Style preference between students from Cognitive Science and Counselling programs in FCSHD.
- iv. To determine if there is a difference in Perceptual Learning Style preference between male and female students in FCSHD.

Research Questions

The research questions addressed in this study are as follows:

- i. What is the Perceptual Learning Styles preference of the FCSHD students from different programs?

- ii. Is there any relationship between perceptual learning style preference and academic performance of FCSHD students?
- iii. Is there any difference in perceptual learning style preference among FCSHD students in different programs?
- iv. Is there any difference in perceptual learning style preference among FCSHD students based on gender?

Hypothesis

This study will test the following hypothesis:

- H₀1: There is no significant relationship between perceptual learning styles preference and academic performance of FCSHD students.
- H₀2: There is no significant difference in their perceptual learning style preference based on programs.
- H₀3: There is no significant difference in their perceptual learning style preference based on gender.

Conceptual Framework

The goal of this study was to see if there is (1) an impact of students' CGPA according to their PLSP and (2) difference in students PLSP from different majors and gender. There are two variables in this study; independent variables such as PLSP and a dependent variable such as the students' academic achievement. The third variable is the factor that contribute to the difference of the PLSP.

The following is the conceptual framework for this investigation, as shown in Figure 1:

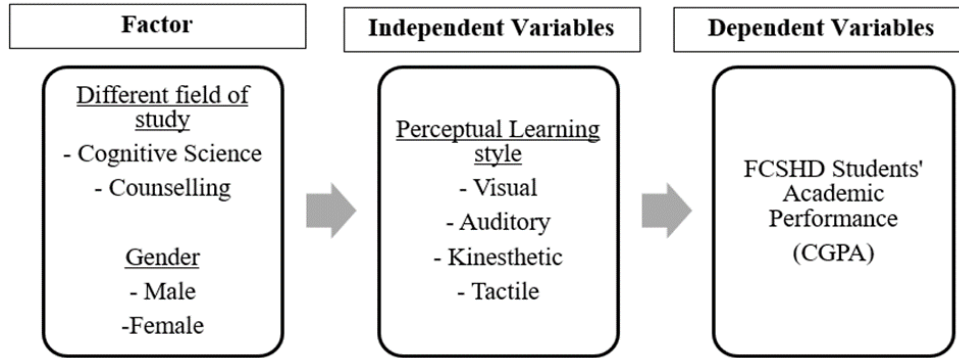


Figure 1. Conceptual Framework for the present study

Significance of Study

This investigation will provide insight on the learning styles preferred by the students that have the potential to affect one's academic performance and the aspect of an interacting factor of the programs and gender on the difference of PLSP. This study is also beneficial to society; future researchers, teachers/lecturers, and students to satisfy each other's teaching and learning requirements.

a) Future researcher

The results of this investigation will provide them with further ideas that will aid them in their future studies especially in the adding knowledge based on this study scope.

b) Teachers

They will be able to determine their students' PLSP, which will aid them in developing techniques to improve classroom instruction and able to adapt their teaching methods to meet the demands of their students.

c) Students

The study's findings will aid them in effectively acquiring information and knowledge by allowing them to use their preferred learning strategies.

Scope of Study

In this investigation, this research being carried out online the Faculty of Cognitive Science and Human Development students were the main respondents of the study. The study was restricted to students from two fields of study or programs; Cognitive Science and Counselling students. It also aims to determine the students' PLSP and its roles on their academic performance. Other factor (different major background or programs and gender) is stated in this section and other factors are not included in this study as it is beyond the study scope.

Definition of Terms

Conceptual definition

Perceptual Learning Style is about the way students acquire knowledge from their surroundings using their senses (Davis, 2007), mainly sense of sight, hearing, and touch. Perceptual learning styles are divided into four categories for this study; visual, auditory, tactile, and kinesthetic. Learning is more enjoyable for visual learners who prefer to see others. Auditory learners learn better if they listen to others talking in the classroom or themselves. Tactile and Kinesthetic learners learn by manipulating things in the physical environment (Rhouma, 2016).

Operational definition

Score on Perceptual Learning-Style Preference Questionnaire (PLSPQ 1987) will determine the student's preferred perceptual learning style that helps them in their studies.

CHAPTER TWO

LITERATURE REVIEW

Teaching and learning style during pandemic

Higher education had transformed its curriculum in response to the COVID-19 pandemic in 2020 (Absin et al., 2021), switching in-person formal learning to online learning. Such transformation had changed a lot of instructional practice by lecturers including the way of delivering class lectures either live or pre-recorded to the students through the various platforms online and the way the students learn all the materials provided by their lecturers. While ongoing changes in response to the pandemic may provide an opportunity to implement changes (Rhouma, 2016) in alignment with the new norm, implementing such a teaching strategy will necessitate extensive planning or even a survey to determine current students' readiness for online learning. This is to prevent students from becoming overwhelmed or having difficulty learning from lectures or even self-study, both of which contribute to their failure to adapt to new changes in their learning environment which later affects their academic performance (Absin et al., 2021). Perhaps students have learned to cope with this sudden transformation by adopting new ways of learning to get a better outcome in their test, but no further research has backed up that notion. Among all the models of learning style studied, the author has opted to base this study on Reid's Perceptual Learning Style Preferences model.

Previous research in this area of the study suggested that in some disciplines of study, there is a mismatch in learning-teaching strategies (Alumran, 2008) for online lecture-based. For example, a study by Singh-Pillay and Naidoo (2020) revealed there were two STEM discipline lecturers admit that while doing remote online teaching and learning, their teaching style and their students' learning styles are incompatible. One of the reasons was "I find that my online

teaching is teacher-centered and does not allow for much student participation”. Teacher-centered can be defined as the teacher practicing “more autonomy” in their way of teaching and the students taking notes as they listen to the lecture (Hui, 2021). Hence, the auditory learners benefit first and visual learners benefit second in the teacher-centered approach (Chiya, 2003). Rhouma (2016) added that students who favored these learning styles are more comfortable with traditional learning methods. As a result, visual learners have a better chance of succeeding in classrooms compared to other learners and getting better results where learning is enjoyable. According to Dunn et al. (1995), a group of learners who received lesson using a method that suited their learning styles perform better than those whose learning styles are incompatible to the teaching methods.

In fact, an important component that impacts academic performance is matching learning and teaching styles (Renou, 2009). Approaches, strategies, and tactics are being used ineffectively which further causes the occurrence of teaching-learning mismatch (Cabual, 2021). Perhaps the educators still did not be able to adapt with new norm in terms of usage of technology (Singh-Pillay and Naidoo, 2020) and students less communicate with them (Blizak et al., 2020). To address this mismatch of teaching-learning strategies between students and teachers, the results of identifying learning styles can be used to enhance academic achievement whereas educators produce instructional materials that are tailored to the students' styles and needs. Learning styles and academic achievement are intertwined in such a way that they naturally influence one another (Absin et al., 2021). Thus, there is an urgent need for research to be conducted to investigate the generalisability of the findings to investigate if students from FCSHD adopted a preferred learning style that helps them to succeed in the academic during this pandemic.