

## **UNDERSTANDING PRE-UNIVERSITY STUDENTS' LEARNING STYLES AND MOTIVATION DURING ONLINE ENVIRONMENT**

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### **ABSTRACT**

Transition from in-person to online learning had impacted students in the way they learn. The aim of this research is to understand how the online environment had influenced pre-university students' learning styles and motivation. The objectives are to determine the learning styles practiced by the students and their level of motivation during the online environment. Two sets of questionnaires were distributed online to 315 ASASIpintar pre-university students of Universiti Kebangsaan Malaysia. The prolonged Movement Control Order (MCO) imposed by the country had caused ASASIpintar students to be in a long-term online environment, nevertheless the results reveal that the students had a high level of motivation while most of them were visual learners. Moreover, there is a positive very weak correlation between visual learning styles and motivation. Hence, the online environment had influenced students' preferences of learning styles in which learning by reading or seeing pictures seemed to be the most appropriate way to learn in this environment. Visual learning styles had led to an increase in students' motivation for learning.

**Keywords:** college students, learning styles, motivation, online environment, visual learner.

### **INTRODUCTION**

Learning process differs for each individual even if they are learning in the same environment and it occurs at different levels and quality (Saban, 2005). Research has shown that people have different approaches to the learning process and that a single method or technique is insufficient to provide all people with ideal learning conditions (Brown et al, 2009). The diversity of the learning approach is based on different and complex mix of strengths and preferences of individuals. Learning style refers to the preferred way for a person to interpret new knowledge for successful learning (Huston, 1995), while identifying students' preferred learning styles can be beneficial in helping students and teachers understand how to strengthen the process of teaching and learning. In addition, understanding learning styles will make it easier for more successful curriculum and education programs to be produced, updated, and developed. It can also encourage the involvement of students in these programs and encourage them to acquire professional knowledge (Brown, 2009). Significantly, educators will have the ability to incorporate the right methods in their educational practice by identifying and assessing the learning styles of students. Students may also acknowledge their capabilities and weaknesses and have the ability to cope with or adapt to the multiple types of learning. Thus, the interplay between the teaching styles and student actions can improve and develop the learning process of students.

The analysis of student motivation is central in educational settings, because it interacts with educational choices and achievement behaviour in significant ways (Bandura 1997; Deci & Ryan 1985; Hattie 2009; Wigfield & Eccles 2002). Students need to learn the skills and knowledge they need and in order to do so they need the motivation to learn and achieve well in educational assessment environments (Eklöf, 2010). Motivation is not a static trait, but malleable, which varies across various domains, behaviours and contexts between and within individuals (Ryan & Deci 2000). Some students learn to attain extrinsic benefits, while others learn for more intrinsic purposes.

Many studies for example Amrai, Motlagh Zalani, Parhon (2011), O'Brien (1994), Vaishnav & Chirayu (2013), Meece, Anderman, Anderman (2006) have proven positive impacts of learning styles and motivation with academic achievement. For pre-university students, academic achievement is vital to gain acceptance in higher education. Hence, these students must improve their learning process and cope with the current educational program to be able to attain excellence in academics for their future education. In order to improve the learning process, learning styles and motivation are aspects that have to be considered.

Everyone has a learning style of their own. Some learners like to be guided, others may prefer to study in groups, and some may perform better if they are given the opportunity to engage openly in their teaching activities. Many students are actively interested, watching, and listening to music while studying (Baharom and Iliyas 2010). The efficacy of the teaching and learning process relies on the engagement of teachers with students as well as student communication and how these students engage with their learning materials. However, conflicts arise in teaching and learning are related to the difference of learning style among teachers and students. Some educators tend to teach with their learning styles assuming that all of the learners understand with the style used. Therefore, in order to yield a high quality of learning, the teaching style and learning style should also be synchronized (Effendi Zakaria, Norazah Mohd Nordin, Sabri Ahmad, 2007).

A successful adaptation from high school to college influences students' academic achievement growth. Hence, it is important for the students to know and find out their preferences in learning style as it will greatly help them in their study management. ASASIpintar is a pre-university program for candidates who took SPM with at least credits in relevant subjects and are interested in gaining admission to Universiti Kebangsaan Malaysia. Due to the current situation of Covid-19 pandemic and the prolonged enforcement of the Movement Control Order (MCO) in Malaysia, all courses offered by the ASASIpintar program are taught online and therefore students are forced to be less sociable and are exposed to online learning for a long time throughout their study. Hence, this study is to understand how the online environment has influenced the students' way of learning as well as their motivation of learning in the online environment.

### **Research questions:**

1. What are the learning styles preferred by ASASIpintar students?
2. What is the motivation level of ASASIpintar students?
3. What is the relationship between learning styles and motivation?

## **REVIEW OF LITERATURE**

One of the most accepted understandings of learning styles is that student learning styles fall into three categories: Visual Learners, Auditory Learners and Kinaesthetic Learners. These learning styles are found within educational theorist Neil Fleming's VARK model of Student Learning. VARK is an acronym that refers to the four types of learning styles: Visual, Auditory, Reading/Writing and Kinaesthetic. The VARK model is also referred to as the VAK model, eliminating Reading/Writing as a category of preferential learning. The VARK model acknowledges that students have different approaches to how they process information, referred to as "preferred learning modes" (Fleming & Baume, 2006). In this study, the VAK model is used, eliminating Reading/Writing as one of the preferred learning styles.

Visual learner is visually dominant, absorbs and retains information better when it is presented in, for example, pictures, diagrams and charts. While for auditory learners, an auditory-dominant learner prefers listening to what is being presented. He or she responds best to voices, for example, in a lecture or group discussion. Hearing his own voice repeating something back to a tutor or trainer is also helpful. A kinaesthetic-dominant learner prefers a physical experience. She or he likes a "hands-on" approach and responds well to being able to touch or feel an object or learning prop.

An individual's motivation can be enlivened by themselves or even by outside forces. For the most part, students who show self-capability and interest in this subject, and those who cherish this subject a lot will achieve better results and outcomes than those who are not. These students are already motivated by themselves without needing any outside forces to help. However, there are some individuals that do not have this kind of motivation. This is because motivation is not a static characteristic. It may change across domains, activities and context (Ryan & Deci, 2000). A study done by Amrai et al (2011) to 252 Tehran University students showed that there was a positive and significant correlation between academic motivation and academic achievement. Hence, in education, motivation is crucial for students to excel in academics. Since motivation is a dynamic characteristic, therefore all factors contributing to it have to be researched in order to produce students who are intellectually, spiritually and emotionally balanced in line with the National Education Philosophy.

## **RESEARCH METHODOLOGY**

This study used quantitative methods to collect data which is the use of questionnaires. A total of 315 ASASIPintar students were required to answer the questionnaires which were distributed online. Out of 315 students, 119 (37.7%) responses were obtained as some of the questionnaires could not reach the respondent through Gmail platform. Instruments of this study are the Motivated Strategies for Learning Questionnaire—MSLQ by Pintrich & DeGroot (1990) that contains 44 items on students' motivation, students responded on a 7-point Likert scale (1= not all of me to 7= very true of me) in terms of their motivation in learning. To identify learning styles of the students, the modality (learning channel preference) questionnaire reproduced by O'Brien (1985) is used (O'Brien, 1989). This questionnaire consists of 3 Likert-type items (Visual, Auditory, Kinaesthetic), where each section has 10 items to be answered by students. Students responded on

a 3-point Likert scale (1 = never applies to me, 2 = sometimes applies to me, 3 = often applies to me). The maximum score in any section is 30 and the minimum score is 10. If students have marked “often applies to me” in every category, they are considered mix learners.

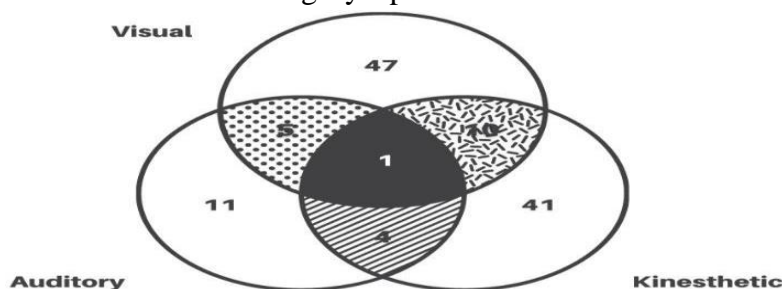
The data obtained from answered questionnaires were transferred into the statistical software, JASP. A Venn diagram was constructed to show the frequency of each learning style. Descriptive statistics such as mean and standard deviation were calculated to determine the motivation level. The dependent variable for this study is motivation while the independent variables are the learning styles: visual, auditory and kinesthetic. Pearson correlation test was performed to determine whether the motivation is associated with the learning styles at significance level 0.05.

## RESEARCH FINDINGS

### Learning styles of ASASIpintar students

Figure 1: Learning style preferences of ASASIpintar students

Figure 1 shows the distribution of learning style preferences to a total of 119 ASASIpintar students.



The highest preferred learning style is the Visual learning style which holds a total of 47 out of 119 students. The second highest is the Kinesthetic learning style followed by the lowest, which is Auditory with a total of only 11 which takes only 13% of the respondents. In addition, there are also students who possess two learning styles at a time. A total of 19 students of ASASIpintar possess two learning styles; 5 students prefer both Visual and Auditory learning styles, while a total of 4 and 10 students prefer Auditory with Kinesthetic, and Visual with Kinesthetic respectively. Lastly, only one student prefers all the three-learning styles.

### Motivation level of ASASIpintar students

Table 1: Descriptive statistics of motivation

Statistics	Motivation
Valid	119
Missing	0
Mean	4.879

Std. Deviation	0.653
Minimum	2.523
Maximum	6.705

Table 2: Score range and level

Mean score range	Level
1.00 – 1.85	Very low
1.86 – 2.71	Moderately low
2.72 – 3.57	Low
3.58 – 4.43	Neither
4.44 – 5.29	High
5.30 – 6.15	Moderately high
6.16 – 7.00	Very high

Table 1 displays the descriptive statistics on motivation level of ASASIpintar students. The motivation level of 119 ASASIpintar students falls under the high mean score range, which is 4.879.

### Relationship between Learning Styles and Motivation Level

Table 3: Pearson correlations

Variable		Visual	Auditory	Kinesthetic
Visual	Pearson's r	—		
	p-value	—		
Auditory	Pearson's r	0.282 ***	—	
	p-value	< .001	—	
Kinesthetic	Pearson's r	0.089	0.406 ***	—
	p-value	0.169	< .001	—
Motivation	Pearson's r	0.173 *	0.089	-0.026
	p-value	0.030	0.167	0.609

Note. All tests one-tailed, for positive correlation

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ , one-tailed

It can be seen from Table 3 that there are insignificant correlations between the learning styles (auditory, kinesthetic) and motivation level among ASASIpintar students. In addition, the visual learning style has a significant positive correlation with motivation level ( $r = 0.173$ ).

## **DISCUSSION**

The results show that the motivation level of ASASiPintar students is high with a mean 4.879. Most students are visual learners, while the least students are auditory learners. There is also a significant positive yet very weak correlation between visual learning style and motivation level of students. Due to online classes, the lecturers used infographic slides to teach, which suits the visual type learners the best in the sense of gaining knowledge, hence explaining why these visual learners have high motivation. Selvi (2010) stated that learning-teaching process, competencies of instructors, participants' attention, online learning environment or technical infrastructure and time management are motivating factors of online learning. Therefore, the motivation level of ASASiPintar students might be influenced by the learning environment and learning-teaching process, apart from the learning styles. In this study, kinesthetic and auditory learning styles both are significantly not related to motivation, indicating that kinesthetic and auditory learners who needed hands-on experience or conducive place for online tutorials for better learning probably were having a hard time adapting to the online learning.

## **CONCLUSION**

Due to the current situation of pandemic Covid-19, students' usual learning atmosphere has changed to virtual. In order to excel, most ASASiPintar pre university students adapt to the online environment by switching their way of learning to visual learning styles. The motivation level of the students, despite of being less sociable is high and it is slightly determined by visual learning styles. Hence, the online environment has impacted students' way of learning while switching to visual learning styles seems to be a practical strategy for the students to cope with this environment. Lecturers should take advantage of the students' learning styles to enhance the way they teach.

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