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THE EFFECTS OF STUDENT'S LEARNING STYLES TO THE EXAM RESULT AMONG GIFTED AND TALENTED STUDENTS

Azrina Md Azhari[1], Mohd Rafie Lim Bin Mohd Ros Lim[2], Nur Sakinah Mat Hazir[1], Afifah Mohamad Radzi[1], Yee Siew Kuan[3], Nurul Suzaina Joli[1]
[1]Pusat GENIUS@pintar Negara,
[2] Universiti Kebangsaan Malaysia
43600 UKM Bangi.
[3] Program GENIUS STEM *Talent*, Bahagian GENIUS, KPM
azrina.azhari@gmail.com

Abstract

Learning style is the consistent way of students' response towards stimuli and is used in the context of learning. Effective learning styles among students especially gifted and talented students affect their learning objectives and somehow influence their examination results. Thus, this study aims to examine the learning styles of gifted and talented students and to investigate the types of learning styles that influence their examination results. This study involved 65 gifted and talented students from Pusat GENIUS@pintar Negara, UKM (Female=30, Male=25) age ranging from 15 to 17 years old (15 years old=23, 16 years old=23, 17 years old=19). It is found that gifted and talented students are more likely to use visual/non-verbal learning style followed by kinaesthetic learning style. Besides, this study also found that there is no significant relationship between the types of student's learning styles towards their examination results. Gifted and talented students enjoy and are more interested when the teaching and learning environment involves their visual sensory which allows them to see and remember better but there is no specific learning style applied by these gifted students to improve their examination results. Ultimately, the researchers suggest teachers to use visual teaching methods and movement learning environment in many shapes and figures which are well organized in the classroom.

Keywords: Visual/non-verbal learning styles, Kinaesthetic learning styles, Gifted and Talented.

Introduction

There are multiple theories discussing the use of learning styles among students. Various studies have been conducted by researchers to investigate student learning styles so that they can be used by school teachers, parents and students to improve the quality of education. Effective use of learning styles does not only benefit students but also teachers and parents in order to create a more effective learning environment for students and children. In addition, the students' tendency to choose different types of learning styles helps them to select the way they acquire knowledge in a variety of ways easily and effectively. This will indirectly improve students' academic achievement. Gifted and talented students as we know have higher cognitive levels than normal students. In Malaysia, gifted and talented students are gathered in an educational institution built in

early 2009 at Universiti Kebangsaan Malaysia, known as Pusat GENIUS@Pintar Negara, UKM. These students are exposed to a higher teaching and learning syllabus compared to the mainstream syllabus. As early as 12, they are exposed to the Sijil Pelajaran Malaysia syllabus in order for them to obtain the Junior Certificate at the lower secondary school level before entering the Level 1 and Level 2; a higher secondary form. Effective learning styles are also crucial for gifted and talented students to stay afloat in their cognitive and academic achievement throughout their studies at Pusat GENIUS@Pintar Negara, UKM. Therefore, this study aims to find out the types of learning styles practised by gifted and talented students while at the same time examining the relationship between the types of learning styles they practise with their academic achievement. Do these types of learning styles help them maintain their cognitive level and also improve their academic achievement?

Definitions of Learning Styles

Learning styles can be defined in many ways based on the perspective of an individual. The followings are some definitions of learning styles. According to Brown (2000), learning styles are the behaviour of an individual to evaluate and process the information they find in a learning situation that they are experiencing. Brown argues that the choice of learning style is one aspect of learning style. Each student has his or her own choice of learning styles that are appropriate for him or her and the learning situation he or she is experiencing. Meanwhile, Celcia Murcia (2001) argues that learning styles are a common approach used by students such as kinaesthetic, auditory or visual learning styles to learn a subject. This behaviour is based on how students interact and respond to the learning environment. According to MacKeracher (2004), learning styles are sometimes defined as cognitive, affective, social, and physiological behaviours that act as relatively stable indicators of how students perceive, interact with, and respond to the learning environment. There is another view that students who adapt their learning styles to the tasks assigned by teachers are students who can accept different types of learning styles (Fatt, 2000). According to Fatt (2000), an individual does not need to have a specific learning style of his or her own but can also work with other learning styles at different times in different situations. He also mentioned that humans use their five senses to gather information and channel that information into three different channels and this is called a representation system. The system involves visual, auditory and kinaesthetic students. Individuals show preference for one of these systems, and special communication that is common to their learning style can improve communication with others (Fatt, 2000).

Types of Learning Styles

Visual

Students who use visual learning style think in the form of pictures and learn best using visuals. They rely on non-verbal cues of teachers such as body language to help them understand what they are learning. Sometimes visual students are more comfortable sitting in front of a class while listening to teachers and take notes based on the material provided. According to Fatt (2000), students with visual learning see the world by building or memorising mental images. Fatt (2000) also said that visual learners prefer reading and observing with visual aids. Visual learners prefer to learn by watching movies, pictures and graphs which will help them to integrate the lessons learned. In addition, when answering a test, visual learners are more likely to answer the test if it has a visual diagram. Additionally, according to Cegielski et al (2000), students who

demonstrate a visual learning tendency are more likely to excel when given visual task assignments. The teaching and learning strategies used by visual learners include demonstration, diagrams or graphs (Coker, 1996). Coker (1996) added that some of the words which allow visual learners to concentrate on learning are 'see', 'imagine', 'observe', 'find' and 'feel'.

Auditory

Students with auditory learning styles prefer sound mediums which enable them to make better decisions about what they hear or read (Fatt, 2000). According to Fatt (2000), auditory students prefer lectures, talks, discussions and voice recordings. By allowing students to hear recordings, they are more likely to ask what they are learning and what they do not understand (Fatt, 2000). This means that students will be more responsive when their learning style is in line with their style. When answering a test, the auditory learner will do best when the test is given in an oral form. According to Reid (1987), auditory learners benefit from making a tape by teaching other students, and speaking with their teachers. According to Davis and Franklin (2004), students with auditory learning styles excel when they learn something by listening. Some of the keywords that can be associated with auditory learners are 'rhythm', 'hear', 'detect', 'tempo' and 'flow' (Coker, 1996). According to Hardy (2010), using appropriate materials for auditory learners in mathematics will directly increase their understanding of the topics being taught. Hardy (2010) also mentioned that auditory learners are more likely and easily to evaluate answers in specific situations or examples.

Kinaesthetic

ndividuals with a kinaesthetic learning style tendency speak or communicate with the environment through feelings (Fatt, 2000). According to Fatt (2000), students with kinaesthetic learning styles prefer to learn by doing something with their touch senses. These students prefer trial and error learning methods, and are not interested in learning by using descriptions, visual presentations and discussions. Kinaesthetic students prefer learning with experiences that help them do things, develop and create based on what they learn. By testing them with practical task-oriented questions, kinaesthetic students will be able to produce better output. According to Silver et al (1997), individuals with kinaesthetic learning styles have the ability to use their bodies to build relationships, entertain, persuade, and support others. The best jobs for kinaesthetic students are sports coaches, counsellors, professional athletes and even dance choreographers.

Importance of Knowing Learning Styles

Learning styles are very important for an individual to improve the quality of life for the purpose of gaining more useful experiences that they need to learn. For a student, learning style is very important for him or her to improve his or her academics while in school. According to Lohry Posey (2003), learning styles for an individual can show the individual's focus on the different types of information he or she receives. In addition, learning styles also teach individuals how to look at information and understand it. Lohry Posey (2003) further added, understanding students' learning style will enable teachers to develop effective teaching and learning strategies. A common problem in the education system is that students find it difficult to excel in school because they have weaknesses in dealing with various learning situations in school. According to Fatt (2000), students'

failure to cope with various situations in learning is one of the biggest challenges in education. Therefore, using specific learning styles in the classroom will enable teachers to foster teaching and learning that involves problem solving in the classroom. When teachers apply teaching and learning that involve problem solving in the classroom, it will help students prepare for the realities of their daily lives. Fatt (2000) also mentioned that by encouraging students to be aware of their learning styles, teachers can encourage them to also be aware of the benefits of learning styles for different subjects and hope that their learning style can change under different learning situations. When teachers provide a learning environment that is tailored to their students' unique learning styles, students can learn better and more comfortable in their own learning style rather than adapting to the teaching style (Fatt, 2000).

According to Manochehri & Young (2006), learning style is a good predictor of an individual's preferred learning behaviour. When teachers understand a student's learning style or behaviour, the problems that may arise with classroom learning can be minimized. In addition, combining students' learning styles with specific teaching styles can enhance their achievement and satisfaction (Manochehri & Young, 2006). According to Naimie, Siraj, Abuzaid, & Shagoholi (2010), the appropriateness of teaching style and learning style has a positive effect on students' achievement and satisfaction. Naimie et al. (2010) further added, students will learn and enjoy the classroom experience and environment more when they can apply their own learning style. According to Kahtz & Kling (1999), developing teaching methods and providing appropriate teaching and learning materials for a variety of cognitive learning styles should be a priority for all educators. This is because, it is easier for students to respond to instruction that suits their learning style. Kahtz & Kling (1999) also stated that integrating different learning styles in the classroom environment can greatly benefit all students in the classroom. In addition, combining teachers' teaching methods with the students' learning style will enable students to gain a better understanding of a particular subject.

Methodology

This study involved 65 gifted and talented students aged between 15 and 17 years old. There were 23 15 years old students, 23 16 years old students and 19 17 years old students from Kolej PERMATApintar, UKM. This study took place at Pusat GENIUS@Pintar Negara Universiti Kebangsaan Malaysia located in Bandar Baru Bangi. All 65 students were given a set of questionnaires via online form asking questions to determine their learning style. The learning style questionnaire was obtained from the customized "Learning Questionnaire" from the University of Texas Learning Center, 2006 and was completed online by the students. This questionnaire examines the tendencies of visual, auditory and kinaesthetic learning styles. In the online questionnaire, there were also questions that asked students to write their latest examination results in the form of CGPA. CGPA is the cumulative examination results starting from their first examination while they were in Foundation 1 to the latest examination they sat. This aims to analyse the relationship between students' learning styles and their academic achievement.

Results

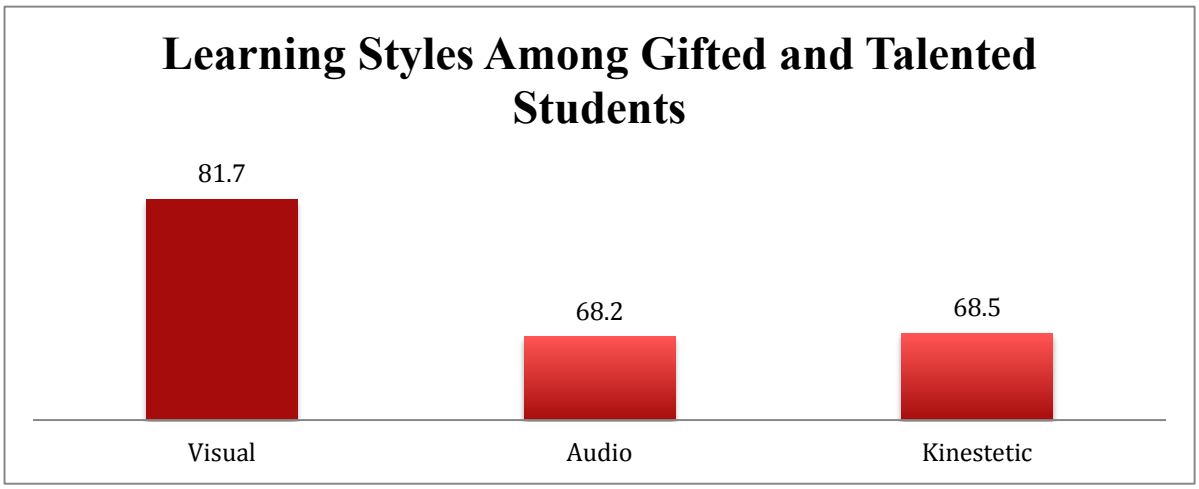

Figure 1: This is a diagram showing the learning styles of gifted and talented students in Pusat GENIUS@Pintar Negara UKM. Diagram shows that, most of the gifted and talented students are visual learners (81.7%) followed by Kinaesthetic Learners (68.5%) dan audio learners (68.2%)

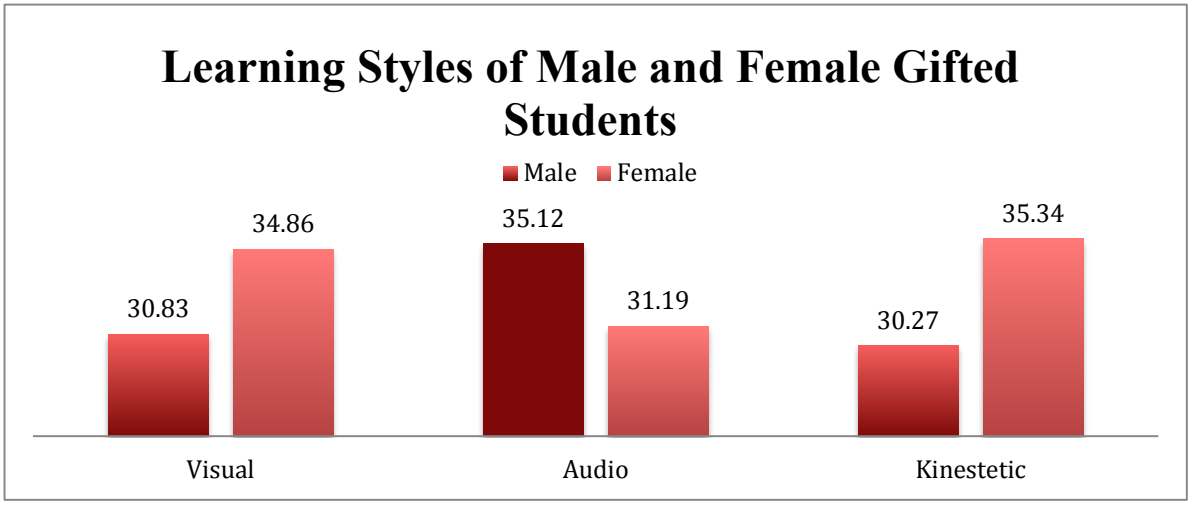

Figure 2: This is a diagram showing the learning styles of male and female gifted and talented students in Pusat GENIUS@Pintar Negara UKM. Diagram shows that, most of the female gifted and talented students are Kinaesthetic learners (35.34%) followed by visual learners (34.86%) and audio learners (31.19%). While male gifted and talented students mostly are audio learners (35.12%) then visual learners (30.83%) and kinestetic learners (30.27%).

Table 1:
Learning styles and gender of gifted and talented students

	Visual	Audio	Kinaesthetic
Mann-Whitney U	460.000	461.500	443.000
Wilcoxon W	925.000	1091.500	908.000
Z	-.865	-.842	-1.085
Asymp. Sig. (2-tailed)	.387	.400	.278

Table 1 shows that there is no significance [value P > 0.05] between learning styles and gender of the gifted and talented students in Pusat GENIUS@Pintar Negara UKM.

Table 2:

Learning styles of gifted and talented students.

		Sum of Squares	df	Mean Square	F	Sig.
Visual	Between Groups	601.549	4	150.387	.758	.557
	Within Groups	11901.913	60	198.365		
	Total	12503.462	64			
Audio	Between Groups	979.454	4	244.863	1.109	.360
	Within Groups	13242.085	60	220.701		
	Total	14221.538	64			
Kinaesthetic	Between Groups	548.861	4	137.215	.627	.645
	Within Groups	13124.793	60	218.747		
	Total	13673.654	64			

Table 2 shows that, there is no significance [value P>0.05] on gifted and talented students in Pusat GENIUS@Pintar Negara UKM.

Table 3:

Learning styles and age of gifted and talented students

	Visual	Audio	Kinaesthetic
Chi-Square	5.635	3.698	8.673
df	2	2	2
Asymp. Sig.	.060	.157	.013

Table 3 shows that there is a significance between learning styles and age 15 years old (n=23), 16 years old (n=23) and 17 years old (n=19). Kruskal-Wallis H test shows that, in overall there is a significance between learning styles and students' age.

Table 4:

Learning styles and examination results of gifted and talented students.

	Visual	Audio	Kinaesthetic
CGPA	.115	.143	-.028
	11.4%	14.3 %	-2.8%

Table 4 shows that, for this research sample n=66, the correlation between learning styles and students' examination results (M=3.61, SD=0.18) is very weak. That means there is no specific learning style applied by gifted and talented students at Pusat GENIUS@Pintar Negara UKM.

Discussion and Conclusion

Having studied learning styles used in an education system, they are highly important not only for all students but also for the academic excellence of gifted and talented students who as we know are exposed to a very high syllabus. Therefore, the discussion and conclusions that can be drawn are the learning styles for gifted and talented students, if they are not properly evaluated; both students and schools will have difficulty providing effective teaching and learning systems. In addition, assessing the types of learning styles of gifted and talented students does not only improve students' learning but also helps teachers create effective teaching strategies for these students. Although the majority of learning styles discussed are visual, auditory, and kinaesthetic, there are many other theories of different learning styles that can be compared to these three learning styles. Based on this study, gifted and talented students are more likely to use visual learning methods. Therefore, teachers of gifted and talented student need to integrate teaching and video modules so that students can better understand and respond in class. Teachers can assign tasks in the classroom by attaching them to relevant diagrams and they may also include more diagrams or graphs in the examination paper. Through such teaching strategy, gifted and talented students can synthesise and integrate teachings given by teachers more effectively, in their classroom as well as during examination. Teachers can also minimise teaching styles in the form of lectures, audio and practical teaching but that does not mean that gifted and talented students do not need to incorporate other learning styles in their education as they also have to adapt to other learning styles in order to cope with various teaching and learning situations. This is because based on the results of the study, there is no specific learning style used by gifted and talented students in improving their examination results. These students are more likely to choose their learning style on the basis of their suitability and comfort, not because their learning style influences their examination results. Once the school and teachers are aware of students' learning style, students will show improved performance both inside and outside the school. Further research needs to be done based on this original research to get to know the suitable and effective learning styles, not only to gifted and talented students, but also for normal and disabled students. This research should also be developed in every primary

school, secondary school, college and even university. This will help schools, colleges, universities including teachers, parents and lecturers in designing effective teaching style strategies to be delivered to students to improve their quality over time.

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