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Behavioral Sciences on Learning Styles and Teaching Technique Induces the Force of Intelligent of Civil Engineering Programme at Technical Secondary School

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ABSTRACT

Background: Students's learning style and teacher's teaching methods towards the achievements in Civil Engineering subject is the focussed point in three Technical School in Negeri Sembilan. **Objective:** The purpose of this study is to identify the relation between students's learning style and teacher's teaching methods which apply towards the achievements in Civil Engineering subject in three Technical School in Negeri Sembilan. Respondent of the research involving 180 students and a questionnaire was used as research instrument. The overall reliability of the questionnaire was 0.844. Data were analyzed using SPSS version. **Result:** showed that auditory learning style was the most dominant learning style which applied among the students whereas demonstration method was the most dominant teaching method used among the teachers. In this study, it was discovered that no significant relation between visual and kinesthetic learning style with the achievements in Civil Engineering Studies subject whereas there was a significant relation between auditory with the subject achievements. For analysis of relation between learning styles and teaching methods there was a significant relation. **Conclusion:** This research suggest a further research to find the effectiveness of teacher's teaching methods which must be required to attain correct information and used it to solve the student's achievement problems.

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INTRODUCTION

One of the main goals of National Education Policy is to have world class education and hence education process is an important field in our daily life especially at schools which is considered as a center of knowledge development (Kolb & Whishaw, 1985). The recognition given to education field caused an implication and serious impact to teaching profession which is an agent of knowledge (Miller & Homer, 1975). If teachers play their appropriate role then we could meet the end product needed by our national education. The smart learning pattern will bear a smart students. How a student learns in a class and does revision outside the classroom usually begins with the way a certain teacher teaches and gives an effective learning from the interesting teaching method. Ruggiero (1991) stated that man has two parts of brain. They are left hemisphere and right hemisphere. The left hemisphere functions as problems solving in form of analytic which means using a logical method of thinking (Selmes, 1987). It is good at solving mathematical problems. While the right hemisphere functions as to see something unique, imaginative, perception, visual and to control our feeling. It is useful in order to think creatively. According to Mahathir Mohammad (1998), Malaysia has one of the best education system among the third world country. So, in order to succeed it must be related to the sixth element in Vision 2020 that is to have scientific and progressive society, innovative and to think far ahead.

In modern society, teaching and learning process is carried out systematicaly especially in teaching and learning Technique (Clark & Salomon,1986). Without systematic process, effective teaching and learning will not be able to achieve. According to Khalid (1993), effective learning means a regular, systematic,orderly and optimum effort to integrate and make full use of learning components to achieve the maximum success.

Critical and Creative Thinking Skills (CCTS), are the basic foundation knowledge required by the teachers

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to incorporate them to the students. According to George (1970), the definition of thinking skills is to look at it as a process of problem solving and a complex natural behaviour. However, according to Edward de Bona (1997), thinking skills are related to literal thinking which carried the meaning not only problem solving, but to think from various perspectives to solve problems. For the thinking skills to develope and for students to acquire it, ones must think critically and creatively. Poh Swee Hiang (1999) states that critical thinking is vital to create the citizen who knows and afford to utilise their thinking in order to face various challenges, stress and changes while creative thinking will develope the individual to be inovative and more creative, initiative, imaginative , humanistic value and artistic. As both skills acquired by the students through stimulation and training, they will apply them to their daily learning and the optimum learning will occur.

Problem statement:

Various problems will arise, especially for form four students who are facing with the problems of adjusting themselves because of the different environment and situation from a normal school to technical school (Child, 1983). May be this is one of the possible factors that lead to low academic achievement in technical school. The problems will be very obvious when pupils could not study civil engineering subjects effectively. The problems will continue as they could not apply the knowledge learned during engineering courses (Borg & Gall, 1983).

The teaching skills of civil engineering school need a teacher to reinforce the autority in the classroom, using systematic teaching technique and the skills to compose examination questions. To communicate with students, a teacher requires to observe the students' thinking learning and able to analise and understand their thinking styles (Felder, Richard, Silverman & Linda, 1988) . Although teachers know these are an ideal practise, they do worry because civil engineering studies is a hierarchy subjects as the understanding of each topic depends on the level of understanding from the previous skills (Azizi et.al,2012a). If a student performed poorly in the basic level, there is a great possibility for the student to fail.

Various methods were used by the students in studying civil engineering at a higher level. There ara students tend to spend their time by memorizing in order to solve mathematical problems done by others, rather than to solve them by themselves (Eatsman & Barner,1979). These problems happened to most students who learn by memorizing formulae but do not know how to apply those formulae and solving the problems in different situation. Besides students, teachers also geared to apply memorizing method, that is to ask pupils to memorize the routine skills to solve problems, without giving the opportunity for students to think (Azizi et.al,2012b). Usually, small classes are able to help teachers to improve their teaching Technique and ways to interact with students and paying more individual attention (Wagener, 1991).

There are several factors that influence the achievement of the students as described above. Based on these factors, the researchers try to relate the relationship between learning styles and teaching Technique with the achievement of civil engineering studies.

Research objectives:

This research is aim to find out the relationship between learning styles and teaching Technique with the achievement of civil engineering studies. The main focus are :

1) To identify the most dominant learning styles such as visual, auditory and kinesthetic that students usually practise in civil engineering studies.
2) To identify students' achievement level in civil engineering subjects.
3) To identify whether there is a significant relationship between learning styles such as visual, auditory and kinesthetic with the achievement in civil engineering studies.
4) To identify whether there is a significant relationship between teachers' teaching Technique such as lecture method and demostration method with the achievement in civil engineering studies.
5) To identify whether there is a significant relationship between students' learning styles such as visual, auditory and kinesthetic with teachers' teaching Technique.

Research hypothesis:

Research hypothesis are :

H_o1 There is no significant relationship between the visual style of learning with the achievement of civil engineering school subjects.

H_o2 There is no significant relationship between the auditory style of learning with the achievement of civil engineering school subjects.

H_o3 There is no significant relationship between the kinesthetic style of learning with the achievement of civil engineering school subjects.

H_o4 There is no significant relationship between demostrating teaching method with the achievement of Civil Engineering School subjects.

H_o5 There is no significant relationship between demostrating teaching method with the achievement of Civil Engineering School subjects.

H_o6 There is no significant relationship between the visual style with the teachers' teaching Technique.
H_o7 There is no significant relationship between auditory learning style with the teachers' teaching Technique.
H_o8 There is no significant relationship between kinesthetic learning style with teachers' teaching Technique.

Method:

The design of the research is in form of descriptive. Sample of the survey used is Simple Random Method. This type of sample is suitable for Form four students in Technical Schools who are taking Civil Engineering School subjects. Research instrument is a set of questionaire using five points scale and consists of part A and part B. The initial research carried out is used to analyse the validity of the survey is 0.844.

Participant:

The study population consisted of 340 Form Four students of Civil Engineering of three technical schools in Negeri Sembilan. Researchers chose this area because it fits with his background to lead this kind of research. According to Webster (1985), the sample is the set of respondents selected from a larger population for the study. While according to Portney and Walkin (1993), the sample is a subset of the population selected for the study. The sample consisted of form four students in three technical schools in Negeri Sembilan. The use of the sample size according to Majid (1998) should be encouraged more than 30 units due to the assumption that the normal distribution when the sample size is usually filled more than 30 units. With an increase in sample size would be more representative of the population and reduce sampling error

The sample selected is based on simple random sampling and by charts Krejcie and Morgan (1970) is a total 180 respondents from four students who take technical school subjects of Civil Engineering (Azizi, et.al, 2007). Students involved in this study is made up of boys and girls of all races. Sampling selection of four students is that these students are considered mature enough to choose and understand themselves and be able to make an assessment of their teachers.

Instruments:

This section contains information that is correlated with the relationship between learning styles and teaching methods for the achievement of Civil Engineering Studies. This questionnaire is to indentify the most dominant learning styles such as visual styles, kinesthetic and auditory as well as the most dominant teaching methods such as lecture and demonstration

Result:

The analysis of research findings about learning styles and teaching Technique with the achievement of Civil Engineering School subjects was done according to low, moderate and high level with every aspect as discussed. Below are the classification factors based on mean analysis.

Table 1: Level And Mean For Every Item .

Subject	Overall Mean	Level
Visual Learning Style	3.44	Moderate
Auditory Learning Style	3.94	High
Kinesthetic Learnign Style	3.92	High
Lecture Teaching Technique	3.63	Moderate
Demostration Teaching Technique	4.31	High

Table 1 shows the level and mean for all the items which are auditory learning style, kinesthetic learning style and domestration Teaching Technique are in high level. Visual learning style and lecture teaching Technique are in moderate level.

Ho_1 There Is No Significant Relationship Between Visual Learning Style With The Achievement Of Civil Engineering School Subjects.

Table 2: Analysis Of The Relationship Between Visual Learning Style And The Achievement In Civil Engineering School Subjects.

Achievement is Civil Engineering School subjects	Significant	Pearson, r
Visual Learning Style	0.815	0.018

*** Significant level = 0.05 (2-tailed)*

From data analysis, we found out the value of p=0.815 and it is higher than the value of a=0.05, so nil hypothesis and these means there is no significant relationship between visual learning style with the achievement of Civil Engineering School subjects.

Ho_2 There is no significant relationship between auditory learning style with the achievement of Civil Engineering School Subjects.

Table 3: The correlation analysis between auditori learning style with the achievement of Civil Engineering School subjects.

Achievement is Civil Engineering School subjects	Significant	Pearson, r
Auditory learning style	0.002	0.226**

*** Significant level = 0.05 (2-tailed)*

Table 3 shows the correlation relationship between auditory learning styles with the achievement of Civil Engineering School subjects. From the above table, we can conclude that the value p=0.002 which is smaller than the value of a=0.05, so nil hypothesis. This means there is a significant relationship between auditory learning styles with the achievement of Civil Engineering School subjects. The value of Pearson, r correlation had is 0.226** and it means the relationship is weak. The value of correlation, positive r shows relationship between auditory learning styles with the achievement of Civil Engineering School subjects is a direct relationship.

Ho_3 There is no significant relationship between kinesthetic learning styles with the achievement of Civil Engineering School subjects.

Table 4: The Analysis Of Correlation Relationship Between Kinesthetic Learning Styles With The Achievement Of Civil Engineering School Subjects.

Achievement is Civil Engineering School subjects	Significant	Pearson, r
Kinesthetic learning style	0.266	0.083

*** Significant level = 0.05 (2-tailed)*

Based on the analyses data, the value of p=0.226 which is bigger than the value of a = 0.05, so nil hypothesis is accepted and this means there is no significant relationship between kinesthetic learning style with the achievement of Civil Engineering School subjects. The value of Pearson (r) correlation had was 0.083 and it means a weak relationship. The correlation value, positive r shows the relationship between kinesthetic learning styles with the achievement of Civil Engineering School subjects.

Ho_4 There is no significant relationship between lecture methodologies with the achievement of Civil Engineering School subjects.

Table 5: The Analysis Of Correlation Relationship Between Lecture Methodologies With The Achievement Of Civil Engineering School Subjects.

Achievement is Civil Engineering School subjects	Significant	Pearson, r
Lecture Teaching Technique	0.183	0.100

*** Significant level = 0.05 (2-tailed)*

Table 5 shows the correlation relationship between lecture methodologies with the achievement of Civil Engineering School subjects. From the above table, we can see that the value of p = 0.183 which is bigger than the value of a=0.05, so the nil hypothesis accepted. Its means there is no significant relationship between lecture methodologies with the achievement of Civil Engineering School subjects. The value of correlation Pearson (r) had is 0.100 and this means the relationship is very weak. The value of correlation is positive r shows the relationship between lecture methodologies with the achievement of Civil Engineering School subjects.

$Ho_{5:}$ There is no significant relationship between demonstration Technique with the achievement of Civil Engineering School subjects

Table 6: The Analysis Of Correlation Relationship Between Demonstration Teaching Methodologies With The Achievement Of Civil Engineering School Subjects.

Achievement is Civil Engineering School subjects	Significant	Pearson, r
Demostration Teaching Technique	0.886	0.011

*** Significant level = 0.05 (2-tailed)*

Table 6 shows the correlation relationship between demonstration teaching methodologies with the achievement of Civil Engineering School subjects. From the above table, we can see the value of p = 0.886 which is bigger than the value of a = 0.05, so nil hypothesis accepted. It means there is no significant relationship between demonstration teaching methodologies with the achievement of Civil Engineering School subjects. The value of Pearson (r) correlation had 0.011 and this means the relationship is very weak. The value of correlation, positive r shows relationship between demonstrations teaching Technique with the achievement of Civil Engineering School subject directly.

Ho_6 There is no significant relationship between visual learning styles with the teachers teaching Technique

Table 7: The Correlation Relationship Between Visual Learning Style And Teachers Teaching Technique

Teachers' Teaching Technique	Significant	Pearson, r
Visual Learning Style	0.000	0.491**

*** Signifcant level = 0.05 (2-tailed)*

Based on data analysis, the value of p=0.000 which is smaller than the value of a=0.05, so nil hypothesis is rejected and this means there is a significant relationship between visual learning style and teachers teaching Technique. The value of Pearson (r) correlation is 0.491** and this means the relationship is moderate. The value of correlation, positive r shows the relationship between the visual learning style and teachers teaching Technique.

Ho_7 There is no significant relationship between auditory learning style and teachers teaching Technique.

Table 8: The Correlation Relationship Analysis Between Auditory Learning Style And Teachers Teaching Technique.

Teachers' Teaching Technique	Significant	Pearson, r
Auditory Learning Style	0.000	0.283**

** *Significant level = 0.05 (2-tailed)*

Table 8 shows correlation relationship between auditory learning style and teachers teaching Technique. From the above table, the value of p = 0.000 which is smaller than the value of a=0.05, so nil hypothesis is rejected. This means there is a significant relationship between auditory learning style and teachers teaching Technique. The correlation value Pearson (r) is 0.283** and this means the relationship is weak. The value of correlation, positive r shows there is a direct relationship between auditory learning style and teachers teaching Technique.

Ho_8 There is no significant relationship between kinesthetic learning style and teachers teaching Technique.

Table 9: The Correlation Relationship Analysis Between Kinesthetic Learning Style And Teachers Teaching Technique

Teachers' Technique	Significant	Pearson, r
Kinesthetic Learning Style	0.000	0.415**

** *Significant level = 0.05 (2-tailed)*

Table 9 shows correlation relationship between kinesthetic learning style and teachers teaching Technique. From the above table, the value of p = 0.000 which is smaller than the value of a=0.05, so nil hypothesis is rejected. This means there is a significant relationship between kinesthetic learning style and teachers teaching Technique. The correlation value Pearson (r) is 0.415** and this means the relationship is moderate. The value of correlation, positive r shows there is a direct relationship between kinesthetic learning style and teachers teaching Technique.

Discussion:

Research findings shows the highest average mean from the three learning styles is auditory learning style that is 3.94. The result of the research shows a large number of students practise auditory learning style, followed by kinesthetic learning style in a second place . Then it is followed by visual learning style. This information shows that majority of the students from the three technical schools in Negeri Sembilan practise auditory learning style for Civil Engineering School subjects (Yong *et al* 1996).

From the research, it shows the highest average mean between the two teaching Technique is demostration teaching Technique which is 4.31. From the above research , the students from the three technical schools in Negeri Sembilan prefer to study their Civil Engineering subjects through demostration teaching Technique than lecture teaching Technique delivered by their teacher (Abd. Ghafar Md Din,1997).

It is also found that majority students achieve moderate level for Civil Engineering School subjects with 63.3 percent. Meanwhile 47 respondents which represent 26.1 percent are in high level. 19 respondents are in low level with 10.6 percent.

Auditory learning style influences the achievement of Civil Engineering School subjects, while visual learning style and kinestetik is not influenced by the achievement of Civil Engineering School subjects in the learning process (Azizi et.al,2012c).

Based on the findings of the research , the relationship between teachers teaching Technique with the achievement of Civil Engineering School subject shows that the achievement of Civil Engineering School subjects is not influenced by the teachers teaching Technique (O'Connor,1999).

Based on the findings of the research between learning styles and teaching Technique, it shows there is a significant relationship between the three styles of learning which are visual, auditory and kinesthetic with the teachers teaching Technique (Linbeck,1986).

Conclusion:

The result of the research can be used by the teachers as to improve their teachings so they could carry out their learning and teaching more effectively. The research also could make the teachers realized there are different styles of learning within students. Through this knowledge of learning styles, the teacher could plan an effective learning style for their students.

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