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The Correlation Pattern of Learning Style and Teaching Method of Senior High School Students in Jakarta

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Abstract: As a source of the learning process, a teacher is expected to understand and be aware of the learning style of their students. Every student has a unique learning style. Some students prefer to auditory style, other students prefer to visual style, and another student may prefer the kinesthetic style. These are a few teaching styles, sensing–feeling (people-oriented), sensing–thinking (outcome-oriented), intuitive–feeling (intellectually oriented), and intuitive–thinking (innovation-oriented). This study aims to evaluate the correlation pattern between students' learning styles and several teaching styles. The sample of this study is 133 senior high school students in Jakarta. The method used in this study is correspondence analysis. The result of this study shows that students with auditory type suit to the intuitive–thinking method and students with visual type suit to sense–the feeling method. Meanwhile, students with kinesthetic type have not suitable for any teaching method if the analysis is conducted by using correspondence analysis. Nevertheless, observation of the mean of the teaching method score has shown that it suits to the intuitive–feeling method.

Key words: Education, learning style, teaching method

Abstrak: Sebagai pusat pembelajaran, seorang guru diharapkan untuk memahami dan mengetahui gaya belajar murid-

muridnya. Setiap murid memiliki gaya belajarnya masing-masing. Beberapa ada yang menyukai gaya auditori, ada yang menyukai gaya visual dan yang lainnya menyukai gaya kinestetik. Berikut ini adalah beberapa gaya mengajar, penginderaan perasaan (berorientasi pada orang-orang), penginderaan berpikir (berorientasi pada hasil), penginderaan intuisi (berorientasi pada intuisi atau kecerdasan), dan pemikiran intuitif (berorientasi pada inovasi). Penelitian ini bertujuan untuk menilai hubungan pola-pola antara gaya belajar siswa dan beberapa gaya mengajar. Sample dalam penelitian ini adalah 133 murid sekolah menengah atas yang ada di Jakarta. Metode yang digunakan dalam penelitian ini adalah analisis koresponden. Hasil dari penelitian ini menunjukkan bahwa murid dengan gaya belajar auditory cocok dengan gaya mengajar pemikiran intuitif dan murid dengan gaya belajar visual cocok dengan gaya mengajar penginderaan perasaan. Sedangkan untuk murid dengan gaya belajar kinestetik tidak memiliki kecocokan terhadap gaya mengajar apapun jika dianalisa menggunakan metode Analisa koresponden. Namun demikian, pengamatan terhadap rata-rata skor metode pengajaran telah menunjukkan bahwa itu sesuai dengan gaya penginderaan intuisi.

Kata kunci: Pendidikan, metode pembelajaran, metode pengajaran

INTRODUCTION

Everyone has a unique learning style, where this uniqueness contributes significantly to the absorption of the various information they receive. Every single person has different ways in absorbing an information, this is caused by different learning styles they receive. Each learning style has its own advantages and disadvantages, all of them depend on the learners. Learning style of every person is related to comfortable feeling in following the learning process. When a person feels comfortable with a learning style, the learning style suits to them.

There are three types of learning method, they are auditory (by listening), visual (by vision) and kinesthetic (by movement). Every person, at least has one of those learning styles, each style provides its own benefit to students. In fact, there is no a single style which is superior than other styles because they have their own characteristics and every style adjusts to

the comfort and students' habit. If students feel comfort and enjoy the learning process, they will end up with an optimal result, hence the results will be aligning with the environment of learning situation. If the environment is conducive, an optimal performance will be achieved. Otherwise, when students endure some pressures or certain obligations, the results will be far from the expectation. Based on this fact, we need to create a supportive environment to support every learning style that could develop conform to all students, either to the auditory, visual, or kinesthetic.

The results of a students' learning process depend on what style the students use. Students with an auditory learning style will get maximum learning quality when the learning process is carried out by listening. On the other hand, students with a visual learning style will get the maximum quality of learning when the learning process is carried out by seeing or reading. Likewise, students with a kinesthetic learning style will get the maximum quality of learning when the learning process is carried out by practicing or moving. One other factor that has a significant impact on the learning process is the learning environment. The learning environment has a fundamental role to make the learning process run well. A bad learning environment will affect a person's learning style, so that the results and quality of the learning process are not optimal. Otherwise, a positive learning environment will provide support for learning styles, so that the results of the learning process will be maximized. The learning environment in question is the readiness of the students themselves and the support of learning facilities. Some of the learning facilities needed include textbooks, both printed and digital versions, computers, and internet networks. All of these learning environments will have a significant positive impact on one's learning style in order to get the maximum quality of learning. Thus, the three learning styles are auditory, visual, and kinesthetic require the support of a conducive learning environment for the creation of maximum learning outcomes or quality. With the uniqueness of a student with the auditory method provides an important instruction to teacher as an educator. The roles and responsibilities of the teacher are very important to produce a maximum learning process. Every educator should know in detail each learning styles their students have. By knowing the completeness of each student's learning style, educators can use appropriate learning methods so that learning outcomes and quality are achieved.

The first is auditory or learning through listening which focuses on the listening ability. Usually, students with this ability are good listener, they are capable to receive learning through something producing sounds such as

music and speech. This style will not be distracted by the visual appearance of learning material or even the teachers as far as the material presented with good and clear voices, the learning process will go well.

An auditory type has some characteristics, one of them is listen carefully so learning process will be easy to understand through what is heard not what is seen (Kayalar & Kayalar, 2017). Auditory-type students are those who are easily distracted by other sounds when they try to focus on a particular sound, any other sounds will distract their concentration (Gilakjani, 2011). By knowing some characteristics of auditory learning styles, educators can compile and create learning method which can be adapted to the learning styles of their students. Teachers can deliver teaching materials using the oral method, either through direct lectures or carried out with the help of other learning tools. The learning tool in question is one that can produce a clear sound. Every student with an auditory learning style will greatly get benefit, they will feel comfortable and not feel overwhelmed when the learning process suits to their learning characteristics, so they will produce a maximum learning quality. Therefore, teachers' responsibility in improving the quality of learning process is quite necessary.

The second method is visual learning, the process of learning focusing on vision. Visual-type students feel comfortable and more focus when learning process presented through images and visualizations (Syofyan & Siwi, 2018). Videos containing an image would trigger them to develop a frame of mind. Images or visual properties will be a long narration in their brain, they will tell what they see systematically and concrete. Therefore, colors and graphics materials will attract their interest in learning (Raiyn, 2016). Students with visual learning type usually prefer to give information based on what they see, if something odd or unusual appears, they will be distracted easily. They would rather read, find out, and see by themselves rather than hear the information from someone else. In learning process, this type will easily remember what they see, they will not be distracted by any noise.

The third learning style is kinesthetic which focuses on movement. Students with kinesthetic learning style will feel comfortable to adopt learning materials through practice. They are not attracted by images and sounds; however, it is different when those images and sounds are being applied in practices, then they will finally discover the process of learning they prefer. They will understand and easily remember materials had been

thought through practical activities rather than visual and auditory learning. Therefore, practical activities will be their preferred way of learning materials (Ay, et. al., 2018; Syofyan & Siwi, 2018).

The kinesthetic type has some characteristics, one of them is they practice what they see and what they listen by doing a certain movement. They will not enjoy a routine, monotonous and rigid learning style. When teachers fail to understand this style, this kind of students will be considered as disturbances for the learning process (Alhamdani, 2015; Tyas & Safitri, 2017).

In line with students' specific learning style preference, to achieve an optimal learning process, an appropriate method of teaching is needed. If the teaching methods are not match with students' preferences, then it will be a burden for students. This will become a tedious routine and will not achieve the desired goals. Therefore, the knowledge of teaching methods is required by teachers to meet the needs of their students according to the learning styles preferences of each student. Teacher is the most responsible person to create and produce the maximum learning process for each of their students. Teachers have an important role so that every student can follow the learning process according to their learning style. One other thing that can be considered as a challenge to the learning process faced by teachers is that all students do not have the same learning style. Thus, teachers must have a solution to deal with all students' learning styles.

Learning is a process involving personalities of each student and this cannot be changed by other parties including teacher. Teachers only have space and opportunity to provide stimulation so the learning process can take simultaneously. Teacher must be careful in deciding whether a particular teaching method is suitable for students and whether through specific teaching method students are able to understand material well (Wuisang, Korompis & Lempas, 2019). Personal approach is required to understand every student's learning style. This is both a challenge and opportunity for every teacher to be creative in a such a way as to achieve maximum learning results and quality. Therefore, every educator is expected to have various skills or teaching methods. Having a wide variety of teaching methods will provide assistance to students who have a various learning style. A personal approach to students conducted through auditory, visual, and kinesthetic will provide a sense of comfort and will have an impact on learning outcomes and quality. Thus, it becomes an important note, that teachers are expected to be able to use appropriate teaching methods for each student' learning style possessed. Moreover, if it is

associated with technological developments that have an impact on the creation of various learning innovations, teachers must continue to improve themselves in order to have novelty in the teaching methods. For example, the learning process in generation Z cannot be approached by conventional and traditional learning. They need novelty in teaching methods that are adapted to the development of generations, for example the use of technology such as internet and learning process by using LCD and android. Technological advances may have some adverse effect on students' characteristics, but if it is used wisely, it will be useful in improving the quality of learning and teaching process. This study reviewed several teachings methods and the explanation below:

In their research, Hanson, Silver & Strong (1991), James & Maher (2004), and Partani & Sonawat (2006), explained that teaching method divided into four categories, the first is sensing, one of teaching method conducted through sight sense. By these sense abilities, everything must be verified by facts, observations and finally formulating the summary. This approach requires a valid scientific approval. The second method is intuitive, teaching method conducted through perception. Perception points to composing activities, identifying and interpreting sensory information to give a certain understanding and depicts them about their surroundings. This approach put intuition before verification. The third method is thinking, a method conducted through deep thinking process. The process started with an observation, logical truth, and real verified information. This approach optimizes thinking ability to judge something by cause and effect. The last method is feeling, a method that put feeling before logic. This method of learning is full of subjectivity and personal affair. The approach is based on likes or dislikes preferences.

Teaching approaches above can be seen in every student in every level of the study. Most of students prefer one or two methods or even combination. There are four combination method of teaching, first is people oriented, is a combination of sensing and feeling approach. This method accommodates a sensitive attitude and emotion to personal and others feeling, prefer practice to theory, prefer to personal or emotional involvement, prioritizing the impulse of feeling and attention. By using people-oriented method, teachers are expected to have personal-oriented skills of students, so that the learning process can be maximally achieved. The second is outcome oriented, is a combination of sensing and thinking. This method accommodates efficient attitude, oriented result, practical, organized, systematic, focused, neat and structured. However, the process for

achieving the result needs to be considered. Learning outcomes are the ultimate goal of the teaching and learning process carried out by students and teachers. However, this does not ignore the attention of ongoing learning process. Every teacher must have an insight that the learning process must be followed systematically, holistically, and directed so that it will give students an insight that to get a maximum result requires a good and maximum process.

The third method is intellectually oriented, is a combination of intuitive approach and feeling. This method accommodates 'dare to be different' attitude, commitment, open, new self-expression, passionate, ideally, solutional, imaginary and flexible. Increasing students' intellectuality is an essential goal in the learning process. Every student who is involved in the learning process is required to develop systematically in terms of their intellectuality. Teachers are expected to have the right teaching method so that the intellectuality improvement of each student can develop significantly. The last method is innovation oriented, is a combination of intuitive approach and thinking. This method accommodates intellectual attitude or intelligence, prefer to new ideas, logical, systematic, structured, independent, keen and prefer to be a perfectionist. The innovative approach in teaching methods can be said to be the highest method in the stages of teaching techniques. The productivity of the learning process must produce innovations that support the improvement of the knowledge and skills of students. The innovation approach is the right approach for the generation of learners in the millennial era, where learning technology interventions are common. In fact, the learning innovation approach is a contemporary learning culture. However, on the other hand, there are many teaching staff who are still in conventional areas and have traditional tendencies in terms of teaching methods. This condition can negatively affect the process of developing the knowledge and skills of the millennial generation (Bulle, 2013; Hanson, et. al, 1991; Mavrina et al, 2016; Murugesan, 2019; Nakkeeran, et. al, 2018; Rampelt & Suter, 2017; Raufelder et. al, 2013).

Thus, students are expected to find their teaching method which suit to their preferences by using teaching methods mentioned above, so that result of their learning process is optimally gained. Likewise, with teachers, they are expected to be able to find suitable teaching methods in accordance with the learning styles that are specifically owned by these students. Teachers must find the right combination of teaching methods for each of these personal learning styles.

In fact, there are students facing difficulties to adopt teaching materials given by teachers. As a result, poor result depicted in certain subjects. These difficulties are caused by many factors, one of them is unsuitable teaching method. Unsuitable teaching method does not suit the need by students learning methods. Hence, if the learning method is well-suited to students' preferences, the results will be optimal, and also along with students' high achievement, the learning process conducted in a fun and conducive manner. Thus, the purpose of this research is to find an appropriate pattern of relationships between the students' learning styles and the teaching methods practiced by the teachers. By knowing the pattern of the relationship, the results and the quality of the learning process will be maximally achieved. This is the essential goal of the ideal learning process, where students and educators like to enjoy the learning process without any burden.

LITERATURE REVIEW

A. Variables Definition

The following section discuss about conceptual definitions of variables used in this study as follow:

Learning style, is styles used by students to absorb knowledge from teachers. The learning style is divided into three types:

1. Auditory style which focuses on sounds and voices. This variable is measured by the following indicators:
 - I prefer to listening
 - I cannot imagine something without being described at first
 - I like to imagine somethings visually as my teacher told
 - I can understand what people told me without seeing it my self
2. Visual style which focuses on vision on image or shape. This variable is measured by the following indicators:
 - I prefer my teacher to describe lessons verbally
 - I prefer my teacher to give lessons through videos
 - I like laboratory activity

- I remember lessons while I take notes of it
 - If it is possible, I wish my learning session is recorded so that I can play it back at home
3. Kinesthetic style which focuses on movement. This variable is measured by the following indicators:
- Learning something which is reachable is more fun than think about math
 - I like crafting subject
 - I prefer being asked to walk around the room to take notes
 - I like sport

Teaching method is the method used by teachers to give lessons to students. Teaching method is grouped into some criteria:

1. Sensing feeling and people-oriented teaching method are conducted through some activities involving an interaction with other people such as storytelling and creating interactive class environment. This variable is measured by the following indicators:
- I like teachers who give opportunities to students to share their learning experiences.
 - I like teachers who make a lot of discussion with students
 - I like teachers who make an interaction with students in class
 - I like teachers who tell a story in class
2. Sensing thinking and outcome-oriented teaching method conducted by giving assignments, discipline, exercises, and theory. This variable is measured by the following indicators:
- I like hard-working teachers
 - I like teachers who gives a lot of assignments
 - I like teachers who teach discipline
 - I like teachers who give more theories
 - I like teachers who give homework

3. Intuitive feeling and intellectually oriented teaching method are conducted through creating a flexible class condition. Teachers help students to deal with their difficulties. This variable is measured by the following indicators:
 - I like creative teacher
 - I like teachers who give more practices
 - I like teachers who make a flexible class
 - I like teachers who like arts
 - I like teachers who understand the difficulties experienced by students and help students to deal with it

4. Intuitive Thinking and innovation-oriented teaching method conducted by providing questions to students that make them analyze and discover new things. This variable is measured by the following indicators:
 - I like logical teacher
 - I like teachers who push student to discover new things
 - I like teachers who give more questions to students in class
 - I like teachers who rarely take attendance
 - I like teachers who give assignments which make students in depth-thinking

METHOD

The sample of this study is 133 senior high school students in Jakarta which were taken by using purposive sampling (Etikan, Musa & Alkassim, 2016; Teddlie & Yu, 2007). Data analyzed used correspondence analysis. This analysis method used to find the relationship pattern of teaching method suits to students learning style.

RESULTS AND DISCUSSIONS

This section describes learning style gathered. Data from correspondence analysis table of students as follow:

Table 1:
Learning style correspondence analysis

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Audio	37	27.8	27.8	27.8
Creativity	35	26.3	26.3	54.1
Video	61	45.9	45.9	100.0
Total	133	100.0	100.0	

The Table 1 above has shown that as many as 45,9% students preferred visual learning style, 27,8% students preferred auditory style and 27,3% preferred kinesthetic style. Data of teaching method preferred by students presented in Figure below:

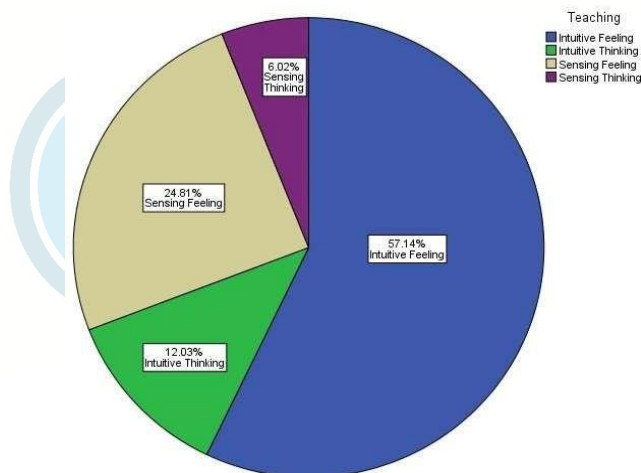


Figure 1:
Teaching method

The figure 1 has shown that as much as 57,14% students suit to intuitive–feeling method, 24.81% students suit to sensing–feeling method, 12.03% students suit to intuitive–feeling method, and 6.02% students suit to sensing–feeling method.

The next step is to see the pattern of relationship between learning style and teaching method preferred by students. The pattern depicted in the following graph:

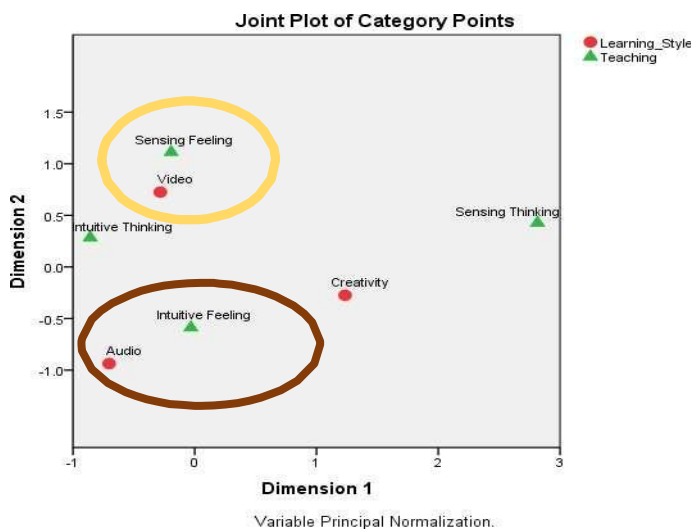


Figure 2:
The pattern of relationship between learning style and teaching method

Table 2:
The teaching method correspondence analysis:
Descriptive Statistics

	N	Mean
IF	35	21.8571
IT	35	18.0286
SF	35	20.3143
ST	35	13.8000
Valid N (Listwise)	35	

1 Students with auditory learning style are well suited to intuitive–thinking teaching method and innovation oriented.

2 Students with visual learning style are well suited to sensing-feeling teaching method and people oriented.

3 Students with kinesthetic learning style cannot be detected of their suited teaching method by using correspondence analysis. Therefore, by looking at the mean value of teaching method scores, it is notable clear that they are

well suited to intuitive–feeling teaching method and intellectual oriented.

DISCUSSION

Every student has at least one of the learning styles they like, which makes them easy to understand the subjects. The learning styles known are auditory style, learning by listening, visual style is learning by using an image or visualization and kinesthetic style is learning by using movements. Every style has their own preferences of teaching method, intuitive, feeling, thinking, and sensing. Those four types of teaching methods merge into some combination, intuitive–feeling, intuitive–thinking, sensing– feeling, and sensing–thinking (Smith, 2016; Waks, 2006).

The results of the study show that students with auditory learning style are well suited to intuitive–thinking teaching method. Students who have an auditory learning style have a tendency to learn accuracy with teaching methods by using an intuitive-thinking approach and innovation-oriented. Students who have innovation skills tend to have an open minded, they are ready to get all input, information and data by listening. Furthermore, they will process them in their minds to find various novelty aspects they have learned. Teachers must provide an accuracy in teaching methods by using an intuitive-thinking approach to stimulate the growth of innovation from their students who have an auditory learning style.

Students with visual learning style are well suited to sensing–feeling teaching method. Students who have a visual learning style have a tendency to learn accuracy with teaching methods by using the sensing-feeling approach and people-oriented. They usually have a strong relationship with the environment. These kinds of students are inclusive of the learning environment around them. They are people who easily understands other people from different perspective. Teachers must provide an accuracy in teaching methods by using the sensing- feeling approach to stimulate people-oriented growth from students who have a visual learning style.

Students with kinesthetic learning style cannot be detected of their suited teaching method by using correspondence analysis. Therefore, by looking at the mean value of teaching method scores, it is notable clear that they are well suited to intuitive–feeling teaching method and intellectual oriented. Students who have a kinesthetic learning style have a tendency to learn accuracy with teaching methods that use the intuitive-feeling approach or those oriented towards the growth of a significant level of intellectuality. Students who have skills are oriented toward improvement

in terms of intellectuality must get the right teaching method from their educators. These kinds of students will use an up-to-date data and information to convey their views and arguments. They are systematic learner in the process, logical in thinking, and open-minded to any developments or changes. Dynamics or movement is a good and natural world of learning for students who are oriented towards increasing intellect. This goal can be achieved when these students are educated by teachers who have teaching method skills who and an orientation towards improvement in terms of intellectuality. If both are applied, the learning objectives to get maximum results and quality can be achieved. Thus, teachers must provide an accuracy in teaching methods that use an intuitive-feeling approach to stimulate intellectual oriented growth of their students who have a kinesthetic learning style.

By knowing the pattern, it is expected that this finding leads senior high school teachers to prepare the right strategy to deliver their lessons to match with their students unique learning style preferences. By doing so, knowledge will be derived through some of proper teaching and learning process that in the end resulting optimal learning results.

CONCLUSION

The auditory learning style is well suited to intuitive-thinking teaching method which is innovation oriented. Students with this type have an interest in creating new ideas, independent, systematic-thinking, and perfectionist. Thus, it is hoped that teachers can provide space and an appropriate learning method so fresh innovations can be produced.

The visual learning style are well suited to sensing-feeling teaching method which is people oriented. People-oriented learning process built upon students who have a sensitive feeling, prefer to practice and personal involvement. Thus, it is hoped that teachers can provide space and appropriate learning methods for the growth of their students in creating intrapersonal skills and relationships with other people. People oriented method is an ultimate goal of students who have a visual learning style.

The suitable teaching method for kinesthetic learning style cannot be analyzed by using correspondence analysis, However, if it is looked from the mean score of teaching method, kinesthetic learning style suits to intuitive – feeling teaching method. The method which accommodates to open-

minded attitude, commitment, self-expression, passionate, imaginary, and flexible. Thus, it is hoped that educators can provide space and appropriate learning methods for the growth of their students in creating various novelties in creation, action, and achievement. This goal requires adequate knowledge and intellectual capacity of the learners. Therefore, such students must have broad and complete access to develop skills in terms of their intellectuality. Increasing knowledge or intellectuality is an essential goal of students who have a kinesthetic learning style. From the result of the study, it can be concluded that there is relationship between learning style and teaching method. The success in creating a maximum learning atmosphere is influenced by how teachers adapt an appropriate teaching method and learning style of each student.

SUGGESTION

Based on this study it is suggested that teachers should pay an attention and attempt to observe their student preferred learning style, it will be useful to deliver knowledge and lessons by using the right method matching to each student's learning style. Every teacher must equip themselves with the comprehension of various teaching methods whether oriented to innovation, people, and intellectual in order to accommodate various learning styles of students. With technological development in education, teachers can easily improve their teaching abilities according to the needs of students' learning styles. Learning technology can be very useful to foster an innovation, human resources and intellectuality of students who have auditory, visual, and kinesthetic learning style. By mastering various skills of learning methods, it is hoped that the learning process can take place well without any significant obstacle. Thus, the purpose of learning in order to create good quality of students can be achieved.

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