

Original Article

# Analysis of Learning Style and Visual Literation Toward Microeconomic Learning Outcomes

Imam Baidlowi<sup>1</sup>, Waspodo Tjipto Subroto<sup>2</sup>

<sup>1</sup>Lecturer in Universitas Islam Mojopahit Mojokerto

<sup>2</sup>Senior Lecturer in Universitas Negeri Surabaya

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**Abstract** - The learning process of students in microeconomics courses is mostly done through acquisitions. The acquisition of economic theories and concepts is closely related to representation. Representation in microeconomic learning, in addition to using text narratives, also very often uses representations in the form of graphs and curves. The purpose of this study is to describe the correlational role of learning styles and visual literacy on student achievement. The population of this study was all active students of the Faculty of Economics, State University of Surabaya. By using the strata random sampling technique, 182 students were determined as respondents. Data analysis uses multiple linear regression analysis techniques with dummy variables. The results of the analysis found that learning styles and visual literacy do not support student learning outcomes. Most of the learning styles of students are auditory, followed by kinesthetic, reading, and at least visual. These findings suggest that lecturer performance in learning requires careful preparation both in academic competence and pedagogical competence because lecturer figures are still a dominant factor in student learning achievement.

**Keywords** - Learning style, Visual literacy, Learning outcomes, Microeconomics.

## I. INTRODUCTION

Micro Economics Course is one of the main courses in the Economic Education Study Program. This course has quite a lot of proportions in the Unesa Economic Education S1 curriculum. This course is accommodated in three courses that must be taken by every student, namely Introduction to Microeconomic Theory, Microeconomic Theory I, and Microeconomic Theory II. The learning process of students in microeconomics courses is mostly done through acquisitions. Learning through acquisition is the most common learning done by every student. They can acquire theories, concepts, and economic laws through instructional media and through lecturer explanations. Acquisitions made available through learning media related to economic theories and concepts are closely related to representation. Representation in economic learning, in addition to using text narratives, also very

often uses graphical representations. This graph is used to convey information, concepts, and ideas that are difficult to convey using only narrative words.

There is no learning method that is suitable for all individuals. But the effort to maximize the understanding of all students is very important. To achieve a higher level of student understanding, learning methods and media must be in accordance with student learning styles. Even though the adjustment of media and learning methods is difficult for all students to accept, maximizing efforts remains the responsibility of educators and educational institutions. Using verbal representation alone is not enough; visual representation plays an important role in economic learning. In addition to explaining concepts and theories that are very complex visual representation can also be useful to reduce disparities in student learning styles.

There are two important things to consider when trying to maximize student learning outcomes related to learning Microeconomics, where visual representation is an important component. These two things are the learning style and students' visual literacy. Knowing student learning styles can determine the form, media, and methods of delivering representation. The level of visual literacy also determines how representations are conveyed effectively. The use of visual representation can improve student learning performance (Shabiralyani, 2015). Using learning media that is suitable for students' learning styles can encourage effective learning (Khamparia & Pandey, 2018). Because of the reduced cognitive workload in processing information through appropriate learning media.

Learning styles are also strongly related to students' thinking abilities, where certain learning styles are closely related to students' high-level thinking skills (Yee, Yunos, Othman, Hassan, & Tee, 2015). Students who have better visual understanding are able to use visual representations better and more effectively, which will ultimately increase learning (Tillmann, 2012). Identifying student learning styles is an important factor for planning effective learning. In addition, visual representation also proves to be a supporter of effective learning if it is connected with



learning styles. Visualization becomes an important element in learning outcomes.

Learning of Microeconomics courses is closely related to visual representation. So it becomes important to analyze how the contribution of learning styles and visual literacy of students to the achievement of Micro Economics courses in the Economic Education Study Program, State University of Surabaya. In this study, the problem was formulated as follows: (1.) Does the learning style determine the learning outcomes of microeconomics courses at Unesa Economic Education students? (2.) Does student visual literacy affect the learning outcomes of microeconomics students at Unesa? (3.) Do the learning style and visual literacy of students simultaneously determine the learning outcomes of microeconomics courses at Unesa Economic Education students?

## II. LITERATURE REVIEW

### A. Student Learning Style Theories

Learning style refers to various approaches or ways students learn. This is related to how the method of educating students (individuals) where they can learn well (best). The idea of a learning style is very interesting because most people prefer identifiable methods for interacting, retrieving, and processing stimuli or information. For teachers who believe in their views or thoughts about learning styles, these teachers must be able to assess their students' learning styles and then adjust their learning methods to suit each student's learning style.

#### *Model David Kolb*

The first learning style model is the David Kolb model, which is based on Experiential Learning Theory, as explained in his book entitled *Experiential Learning: Experience as the Source of Learning and Development*. Kolb proposes learning styles related to understanding experience, namely: *Konkret Experiences* and *Abstract Conceptualization*, as well as learning styles related to transformational experiences, namely: *Reflective Observation* and *Active Experimentation*. According to Kolb, the ideal learning process involves these four modes in response to situational demands. For learning to be effective, all four approaches must be considered. An individual will try to use all approaches. However, they tend to develop an experience-understanding approach and an experience-transformation approach. The resulting learning style is a combination of approaches that individuals like. Learning Style *Convergers*, characterized by abstract conceptualization and active experimentation. They are good at making practical application ideas and using deductive reasoning to solve problems. Learning Style *Divergers* tends towards concrete experiences and reflective observation. They are imaginative and are good at generating ideas and seeing things from a different perspective. Learning Style *Assimilators*, characterized by abstract conceptualization and reflective observation. They are able to create theoretical models by inductive reasoning. Learning Styles *Accommodators*, using concrete experiences and active experiments. They are

good at actively engaging with the world and actually doing things rather than just reading and learning. So, an individual can show preference to one of four styles (*Converger*, *Diverger*, *Assimilator*, or *Accommodator*) depending on the approach used to learn through experiential learning models.

#### *Honey & Mumford model*

The Honey & Mumford model was conceived by Peter Honey and Alan Mumford in the mid-1970s, who adapted the David Kolb model for use in a population of middle and senior managers. They propose this version of their learning model in *The Manual of Learning Styles* (1982) and *Using Your Learning Styles* (1983). Honey and Mumford made two adaptations to Kolb's experience model. The first adaptation is that the stages in the cycle are renamed to match the managerial experience in decision-making or problem-solving.

The stages of Honey & Mumford are as follows:

- Experience
- Reviewing experience
- Closes the experience
- Plan the next step

The second adaptation is that the styles are immediately aligned with the stages in the cycle and are called *Activist*, *Reflector*, *Theoretical*, and *Pragmatic*. This is assumed to be a preference that can be adapted, either when it will or through changing circumstances, rather than being a permanent personality characteristic. In 1999, the results of a survey conducted by MORI supported by The Campaign for Learning found that the Honey & Mumford learning style became the system most widely used to assess learning styles preferred in the local government sector in the UK.

#### *Model Anthony Gregorc*

Anthony Gregorc's model is based on the existence of an individual's perception - evaluation of the world through approaches that make sense to him. This perception, in turn, is the foundation of a person's special learning power or learning style. The model is divided into two perceptual qualities, namely, (1) concrete and (2) abstract, and two sorting abilities, namely, (1) random and (2) sequential. With regard to two perceptual qualities, concrete perception involves the registration of information through the five senses, while abstract perception involves understanding ideas, qualities, and concepts that cannot be seen. Whereas related to the two sorting capabilities, sequential involves organizing information in a linear, logical random way involving organizing information in chunks and in no particular order.

Both perceptual quality and sorting ability are in each individual. However, each individual has different perceptual qualities and sorting abilities, where often one is more dominant than another in certain individuals. Thus,

four combinations of perceptual quality and sorting ability based on domination then emerge:

- Concrete Sequential
- Abstract Random (Random Abstract)
- Abstract Sequential
- Concrete Random (Random Kongkret)

Individuals with different combinations learn differently. They have different strengths, something can make sense for someone, but it can be difficult for others to understand. They also often ask different questions in a learning process.

### ***The Sudbury democratic education model***

The Sudbury model sees that there are many ways to learn, where learning is a process we do, not a process that is done for us. Something that is true for everyone is the foundation. The experience of Sudbury models of democratic schools shows that there are many ways to learn without teaching intervention or without the necessity of a teacher's intervention. For example, in the case of reading, some children learn from memorizing stories and eventually read them, others learn from cereal boxes, others from game instructions. Some people teach themselves the sounds of letters, other syllables, other complete words. In the Sudbury model of democratic school, no child has ever been forced, encouraged, urged, persuaded, or bribed to learn how to read or write. None of their graduates are real or functionally illiterate, and no one can ever guess at what age they first learn to read or write. In a similar form, students learn all subjects, techniques, and skills in this school.

### ***VAK / VARK Fleming model***

The VAK / VARK Fleming model proposes four different learning styles, as shown below:

- visual learners
- auditory learners
- reading / writing-preference learners
- kinesthetic learners or tactile learners

Fleming believes that visual learners have a preference for viewing (thinking in pictures; visual aids such as presentation slides, diagrams, leaflets, etc.). Auditory learners learn best through listening (lectures, discussions, tapes, etc.). Tactile/kinesthetic students prefer learning through an experience such as moving, touching, and doing (active exploration of the world; science projects; experiments, etc.). The use of the VAK / VARK Fleming model allows teachers to prepare classes that address each of these areas. Students can also use models to identify the learning styles they like and maximize their educational experiences by focusing on what benefits them most.

### ***B. Visual Literacy Theory***

Visual Literacy was introduced by John Debes (1969), which was defined as the competence to understand the meaning of an image. According to Debes, Visual Literacy refers to a group of vision competencies that can be

developed by humans by seeing and at the same time having and integrating other sensory experiences. This competency development is the basis for normal human learning. When developed, it allows humans who are visually literate to distinguish and interpret visible objects and symbolic actions, whether natural or man-made, that they encounter in their environment. Through the creative use of these competencies, he can communicate with others. Through the appreciative use of these competencies, he is able to understand and enjoy visual communication. A more modern definition is given by Branch (2000). Visual literacy is the understanding of messages that are communicated through space frames that utilize objects, images, and time and their alignment. The principles, rules, and forms that characterize visual grammar are based on perception communication and the ecology of the symbol system.

There are six visual literacy goals for students in learning, namely: they are expected to be more creative and critical by identifying, analyzing, interpreting, and evaluating what they see. For visual producers and individuals in general with visual literacy, they are expected to recognize and appreciate the aesthetics of visual images by understanding, accepting, and appreciating the personal, cultural, and historical differences in image creation. The concept of visual literacy rests on information literacy, or the ability to find, evaluate, and use effectively the information needed accurately, efficiently, competently, and creatively. The Association of Colleges and Research Libraries (2000), in the Information Literacy Competency Standards for Higher Education, identified five performance indicator standards used to assess information literacy programs, namely:

- Standard One: Students who are literate in information determine the nature and level of information needed.
- Standard Two: Students who are literate in information access needed information effectively and efficiently.
- Standard Three: Students who are literate in information evaluate their information and sources critically and enter selected information into their knowledge base and value system.
- Standard Four: Students who are information literate, individually or as a group member, use information effectively to achieve certain goals.
- Standard Five: Students who are literate in information understand many of the economic, legal, and social issues surrounding the use of information and access and use information ethically and legally.

Visual literacy is also closely related to knowledge about multimedia or electronic media literacy, text, audio, graphics, video, animation, and forms of interactivity from communication. Basic cognitive skills are needed to manage multimedia. When a multimedia message consists of words and graphics, students need skills in five basic cognitive processes: choosing relevant words, choosing relevant images, organizing words into coherent representations, organizing images into coherent

representations, and integrating verbal and visual-based representations with prior knowledge. There are six main areas of competence in digital visual literacy, namely:

- Content and Resources
- Capture, Creation, Editing, Deployment, and Storage Technology
- Making Meanings
- Related Laws and Ethics
- Human and Visual Perception
- Role in Learning Media and E-Learning

Visual literacy is basically a greater awareness of the visual environment and digital information in which we live, work, exchange ideas and share senses about the world. It is closely related to the use of sophisticated knowledge and skills to evaluate information in a complex and competitive global world.

### C. Learning outcomes

Learning outcomes are skills and abilities that students can master after learning. This learning outcome is a reflection of the level of student achievement of the learning objectives of a learning process. Learning cannot be said to be successful just by seeing the increase in student knowledge after the learning process. Learning is said to be successful if the standard of learning objectives has been met. Learning outcomes are statements that describe the achievements of students and can be trusted as an evaluation or assessment in a particular course of learning. In other words, learning outcomes identify what students will know and can do at the end of the learning program.

Learning outcomes can be said to be complete if it meets the minimum completeness criteria set in each course. Learning outcomes are often used in a very broad sense that is for various rules there are what have been achieved by students, for example, daily tests, homework assignments, oral tests conducted during lessons, semester-ending tests, and so on.

Learning outcomes are important because they can be used to develop learning strategies and achieve learning goals. Note that learning outcomes differ from learning objectives. Learning outcomes reflect the goals of the learning designer also related to the design of their implementation. At the same time, the objectives determine what will be achieved by students after completing lectures.

According to Howard L. Kingsley, there are three types of teaching and learning outcomes: (1). Skills and habits, (2). Knowledge and direction, (3). Attitudes and ideals (Sudjana, 2004). Kriger, Ford, & Salas (1993) classify learning outcomes into one type, namely: cognitive, skill-based, and effective.

Learning outcomes can be seen through three different perspectives. First, perspective training objectives, for example, whether for development or to correct student

performance deficiencies. Second, instructional strategy perspective, for example, training, exploration, or concept learning. Third, the performance domain, for example: looking at job descriptions, observing experts, or interviewing subject matter experts. Learning outcomes are written statements about what is expected to be done by students/students at the end of learning. This written statement must be precise and truly in accordance with the knowledge and/or skills to be achieved after the learning process. Learning outcomes have more to do with student achievement or achievement than the teacher's desires that are usually expressed in learning objectives.

The use of visuals in learning makes learning levels better. The basic premise of this research body is the concept of visual literacy, which is defined as the ability to interpret images as well as to produce images to communicate ideas and concepts (Stokes, 2002). Prediction and improvement of academic success is a problem that is always up to date in the field of learning. Finding factors that influence the success of learning has strong implications on learning and education policy. There are significant differences in terms of learning styles and learning behavior, according to age, experience, and type of academic performance (Magdalena, 2015).

### D. Hypothesis

Hypothesis work from this research is:

1. Presumably, the learning style determines the learning outcomes of microeconomics students at Unesa Economic Education.
2. Allegedly, the visual literacy of students affects the learning outcomes of microeconomics courses at Unesa Economic Education students.
3. Presumably, the learning style and visual literacy of students determine the learning outcomes of microeconomics courses at Unesa Economic Education students.

## III. RESEARCH METHOD

The approach in research uses quantitative methods to determine the correlational characteristics of the subjects being studied as well as to determine the relationship between research variables (Kumar, 2011). Correlational research that analyzes the interdependence between two or more problems in this study uses a structured approach with quantitative methods. The population of this study was all active students of the Faculty of Economics, Unesa. At the same time, the study sample was active students of the Faculty of Economics, Unesa, totaling around 2,687 students. By using the Strata random sampling technique, 182 students were determined as respondents (Sevilla, 2007). The data analysis technique used to answer the research problem is multiple linear regression analysis techniques with dummy variables. This technique aims to determine the linear relationship between independent variables with the dependent variable. The quantitative model of this research is,  $Y = a + b1D + b2X + e$ .

**IV. RESULTS AND DISCUSSION**

**A. Results**

After collecting data and then processing it with several stages, namely starting with data input, data cleaning (data screening), coding, and ending with data analysis with a dummy variable regression model, the results are described as follows:

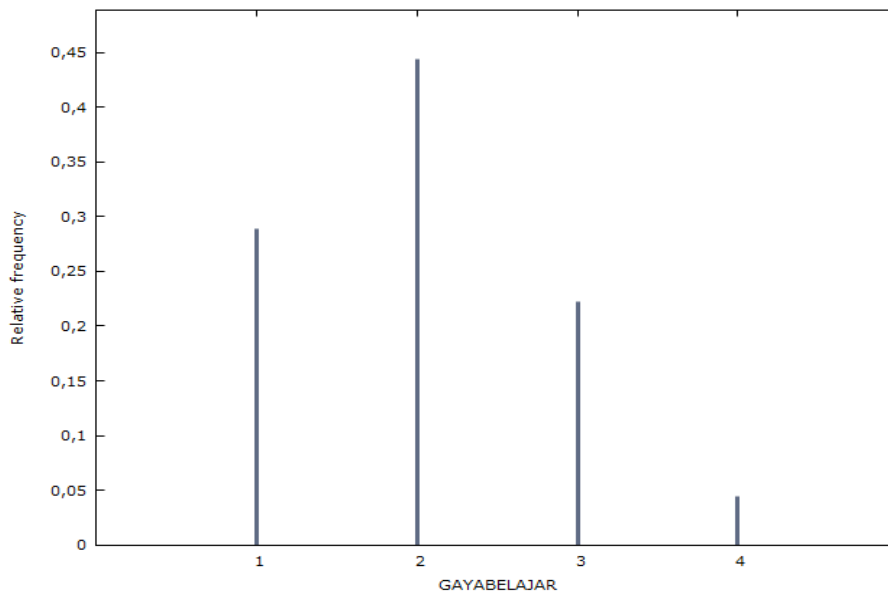
**a. Student Learning Style**

Based on the data processing, the majority of results obtained for student learning styles are in the form of auditory of 44.44%. Then, for the kinesthetic learning style by 28.89% and for the reading learning style by 22.22%. For visual learning style occupies the lowest position at 4.44%.

Frequency distribution for Learning Style, obs 1-90

Frequency rail. cum.

Kinestet	26	28.89%	28.89%	*****
Auditory	40	44.44%	73.33%	*****
Reading	20	22.22%	95.56%	*****
Visual	4	4.44%	100.00%	*



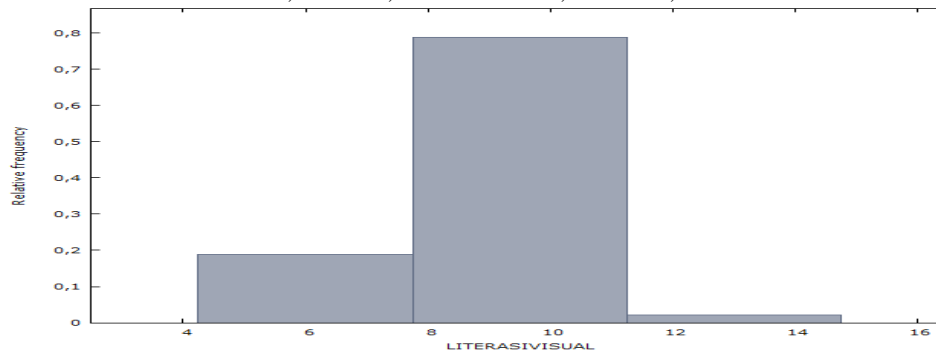
**b. Student Visual Literacy**

Based on the data processing, the average results of visual literacy of students to interpret images is good at 78.89%, less good at 18.89%, and very good at 2.22%, so that the visual literacy level of students is still at a moderate stage.

Frequency distribution for Literation Visual, obs 1-90 number of bins = 3, mean = 8.7, sd = 1.45687

Intervalmidptfrequency rel.cum.

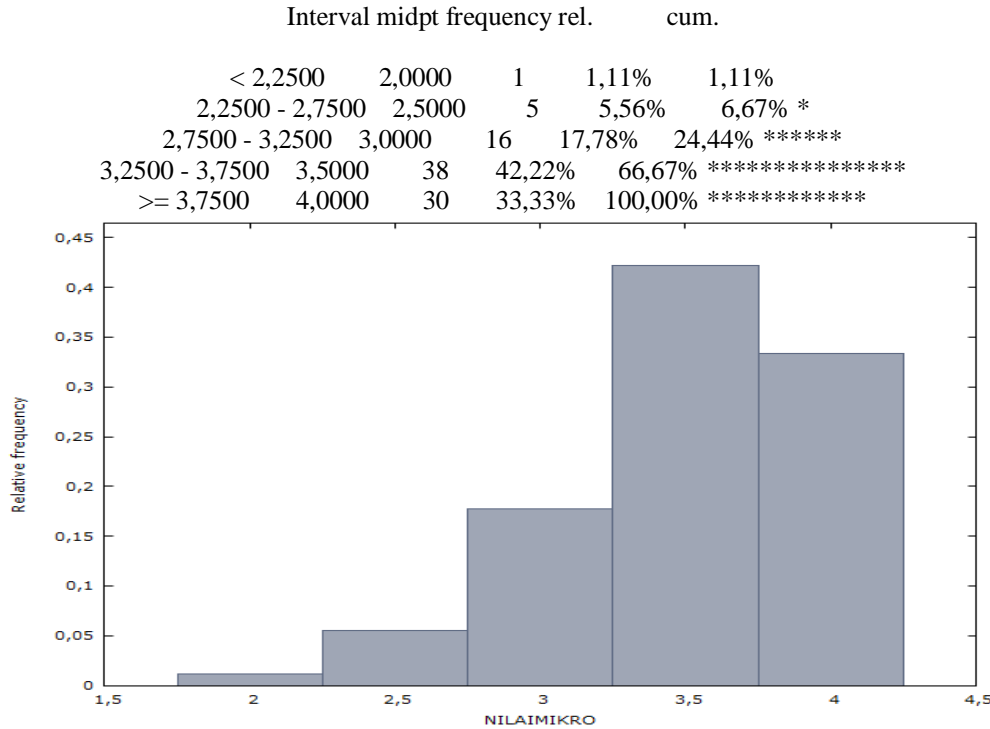
< 7,7500	6,0000	17	18,89%	18,89%	*****
7,7500 - 11,250	9,5000	71	78,89%	97,78%	*****
>= 11,250	13,000	2	2,22%	100,00%	



**c. Micro Economics Learning Outcomes**

Microeconomic learning outcomes are seen from the micro grades obtained by students. Mostly, students get an A- with a percentage of 42.22%. Then, students get an A value of 33.33% and a B + value of 17.78%. Furthermore, students get a B value of 5.56% and a B value of 1.11%. Frequency distribution for the outcome of Microeconomic Course, obs 1-90

number of bins = 5, mean = 3,31389, sd = 0,442733



The results of the regression analysis based on the research model are presented in the OLS Output table. Based on the table, it is known that the coefficient value of Dummy 1 (D1 / Kinesthetic) is 0.1045 with a probability value of 0.6662. The probability value of this variable is

greater than the value of  $\alpha$  (0.05), so that it can be said that there is no difference in the value of Microeconomics of students with Kinesthetic learning styles compared to students with other learning styles.

**OLS Output**

Dependent variable: Learning outcome of Microeconomic Course

	Coefficient	Std. Error	t-ratio	p-value	
Const	3,04941	0,442556	6,890	<0,0001	***
D1 Kinestetik	0,104463	0,241322	0,4329	0,6662	
D2 Auditori	-0,00700871	0,235126	-0,02981	0,9763	
D3 Reading	0,133059	0,245332	0,5424	0,5890	
Literasi Visual	0,0169176	0,0321987	0,5254	0,6007	
Mean dependent var	3,313889		S.D. dependent var	0,442733	
Sum squared resid	17,03290		S.E. of regression	0,447646	
R-squared	0,023630		Adjusted R-squared	-0,022316	
F	0,514300		P-value(F)	0,725381	
Log-likelihood	-52,79464		Akaike criterion	115,5893	
Schwarz criterion	128,0883		Hannan-Quinn	120,6296	

The coefficient value of Dummy 2 (D2 / Auditory) is -0.007 with a probability value of 0.9763. The probability value of this variable is greater than the value of  $\alpha$  (0.05), so it can be concluded that there is no difference in the value of Microeconomics of students with Auditory learning styles compared to students with other learning styles. Likewise, with the Dummy 3 coefficient value (D3 /

Reading) of 0.133059 with a probability value of 0.5890. The probability value of this variable is greater than the value of  $\alpha$  (0.05), so there is no difference in the value of Microeconomics of students with Reading learning styles compared to students with other learning styles. The student visual literacy variable has a coefficient of 0.0169 with a probability value of 0.6007 or greater than  $\alpha$  (0.05),

so it can be concluded that visual literacy does not have a significant influence on the microeconomic value of students.

### B. Discussion

The learning style of the Unesa Faculty of Economics students based on this study was dominated by auditory learning styles. Most students prefer learning resources that contain audio compared to others. In studying microeconomics, students also tend to prefer learning from the explanations of lecturers or their friends who are considered to know better. Although it has entered the R.I era. 4.0, which relies heavily on information and communication technology (ICT) in developing learning, but student learning styles still tend to be conventional, by relying on the role of lecturers in explaining orally the teaching material delivered. According to Miftah (2018), the concept of style in the learning process indicates the fact that students differ as to how they receive new information and how they interact with that information. Therefore, students who have visual preferences tend to obtain more knowledge from the materials that depend on the visual forms of information, whereas the same material will be more useful for the learners with verbal preferences if these materials are represented using text and audio.

Visual representation in learning microeconomics in the faculty of economics must still be accompanied by an explanation by the lecturer verbally. Although the use of visual representation can improve student learning performance (Shabiralyani, 2015), the role of lecturers is still dominant. The visual representation, which is expected to be more interesting and effective in learning microeconomics, apparently must continue to explain conventional learning material and topics, namely lectures and questions and answers. According to Riki (2019), the literary visual varies across schools but must draw from the same selection of titles, generally chosen by educators for literary value and status in the literary visual. Differences in learning styles also do not make any difference in microeconomic learning outcomes. This is due to the role of lecturers who are still dominant as the main figure in learning, and the role of lecturers in the classroom is still dominant in learning or other causes that are not yet known. Student visual literacy is also not a differentiating factor from the learning outcomes of microeconomics because this learning is quite complex, whereas visual representation has not yet had a significant role in learning.

The probability value of this variable is greater than the value of  $\alpha$  (0.05), so that it can be said that there is no difference in the value of Microeconomics of students with Kinesthetic learning styles compared to students with other learning styles. There is because learning style and visual literacy theories do not understand students, and they have not to be applied about learning style and visual literacy theories. The learning style of students is still a traditional style for learning, that is, Kinesthetic style learning.

### C. Contributions for the Research

Learning style is the purpose to increase in learning outcome of microeconomic course. The result of this research refers to learning style to various approaches of students to learn with effective and the foster learning outcome. Students understanding of visual literacy can be able to understand messages that are communicated through space frames that utilize objects, images, and time and their alignment. So, skilled in visual literacy of image, curve, graphic, etc., hope can be increased learning outcome in the microeconomic.

### V. CONCLUSION AND SUGGESTIONS

Conclusion from the results of this study are not proven to have a significant contribution of visual literacy and learning style variables to the learning outcomes of Micro Economics students of the Faculty of Economics, State University of Surabaya. Most students have an auditory learning style, where the role of the lecturer is still dominant in the learning process.

Suggestions that need to be raised from the results of this study: (1) that lecturers need to improve academic competence and pedagogical competence because the role of lecturers is still very dominant in the process of learning Microeconomics, (2) gradually lecturers need to reduce their dominance in the learning process by involving various information and communication technologies (ICT) that support the learning process of Microeconomics, so that learning styles and student literacy can lead to independence by reducing their dependence on the role of lecturers in the learning process.

### REFERENCES

- [1] Aisami, R. S., Learning Styles and Visual Literacy for Learning and Performance. *Procedia - Social and Behavioral Sciences*, 176(2015) 538–545. <http://doi.org/10.1016/J.SBSPRO.2015.01.508>
- [2] Alzain Meftah, Adaptive Education based on Learning Styles: Are Learning Style Instruments Precise Enough?. *International Journal of Education Technology*. 13 (9) (2018) 41-56. <https://doi.org/10.3991/ijet.v13i09.8554>
- [3] Branch, R. M., A taxonomy of visual literacy. In P. B. Mosenthal & A. W. Pailliotet (Eds.), *Reconceptualizing literacy in the media age*. Emerald Group Publishing Limited(2000).
- [4] Khamparia, A., & Pandey, B., Effects of visual map embedded approach on students learning performance using Briggs–Myers learning style in word puzzle gaming course. *Computers & Electrical Engineering*, 66(2018) 531–540. <http://doi.org/10.1016/J.COMPELEM-CENG.2017.12.041>
- [5] Kraiger, K., Ford, J. K., & Salas, E., Application of cognitive, skill-based, and affective theories of learning outcomes to new methods of training evaluation. *Journal of Applied Psychology*, 78(2)(1993) 311–328. <http://doi.org/10.1037/0021-9010.78.2.311>
- [6] Kumar, R., *Research methodology, a step-by-step guide for beginners* (3rd ed.). London: SAGE(2011).
- [7] Magdalena, S. M., The Relationship of Learning Styles, Learning Behaviour and Learning Outcomes at the Romanian Students. *Procedia - Social and Behavioral Sciences*, 180(2015) 1667–1672. <http://doi.org/10.1016/J.SBSPRO.2015.05.062>
- [8] Rezaeinejad, M., Azizifar, A., & Gowhary, H., The Study of Learning Styles and its Relationship with Educational Achievement Among Iranian High School Students. *Procedia - Social and Behavioral Sciences*, 199(2015) 218–224. <http://doi.org/10.1016/J.SBSPRO.2015.07.509>

- [9] Riki Thompson and Matthew McInay., Nobody Wants to Read Anymore! Using a Multimodal Approach to Make Literature Engaging. *CLELE journal*, 7(1) (2019) 61-82
- [10] Schönborn, K. J., & Anderson, T. R., The importance of visual literacy in the education of biochemists. *Biochemistry and Molecular Biology Education*, 34(2)(2006) 94–102. <http://doi.org/10.1002/bmb.2006.49403402094>
- [11] Sevilla, C. G., *Research Methods*. Quezon City: Rex Printing Company(2007).
- [12] Shabiralyani, G., Impact of Visual Aids in Enhancing the Learning Process Case Research: District Dera Ghazi Khan. *Journal of Education and Practice*, 6(19)(2015) 226–233.
- [13] Stokes, S. S., Visual Literacy in Teaching and Learning: A Literature Perspective. *Electronic Journal for the Integration of Technology in Education*, 1(1)(2002).
- [14] Sudjana, N., *Elementary of Teaching and Learning*. Bandung: Sinar Baru Algensindo(2004).
- [15] Tillmann, A., *What We See and Why It Matters: How Competency in Visual Literacy can Enhance Student Learning*. Honors Projects(2012).
- [16] Yee, M. H., Yunos, J. M., Othman, W., Hassan, R., & Tee, T. K., Disparity of Learning Styles and Higher Order Thinking Skills among Technical Students. *Procedia - Social and Behavioral Sciences*, 204(2015) 143–152. <http://doi.org/10.1016/J.SBSPRO.2015.08.127>
- [17] Yeh, H.-T., & Cheng, Y.-C., The influence of the instruction of visual design principles on improving pre-service teachers' visual literacy. *Computers & Education*, 54(1)(2010) 244–252. <http://doi.org/10.1016/J.COMPEDU.2009.08.008>