

The Motivation and Learning Style of the Students of Civil and Planning Engineering Education Department

Anas Arfandi^a, Akshari Tahir Lopa^a, Surianto B. Mappangara^a, Nurhaedah^a
^{a,b,c} Universitas Negeri Makassar, Jl. A.P. Pettarani, Makassar, Indonesia

Corresponding e-mail: anas.arfandi@unm.ac.id

Abstract: The teacher's plays an important role in teaching and learning process. In the learning process, the teacher's must have the ability in teaching to fit the child's developmental level. The difference in learning style shows the fastest and best way for every individual to be able to absorb an information from outside himself. The purpose of this study are 1) describe the learning type of the students of PTSP FT UNM; 2) elaborate the motivation of the students of PTSP FT UNM; and 3) to explain the effect of the learning type to the motivation of the students of PTSP FT UNM. This research is survey research. The subjects of this study are all students in PTSP FT UNM. Amount 80 samples taken using stratified random sampling. Data were collected by using a structured interview. The data analysed by descriptive and inferential analysis. The result of the research shows that 1) The learning type of student amount 36.25% is in type Kinaesthetic, 33.75% type of Visual learning, and 30.00% who have type of Auditory learning; 2) The learning motivation of the students is Very High at 78.75% but there are 1.25% who have Low Motivation; and 3) The influence of visual learning type is not significant to students' learning motivation, while the type of and Auditory learning type gives a significant influence on students' learning motivation, while the type of and Auditory learning does not significantly affect the motivation to study students majoring in PTSP FT UNM.

Keywords: learning type, learning motivation, civil engineering education

1. INTRODUCTION

Teachers play a very important role in teaching and learning process. A teacher must have the ability to adapt and adapt learning methods to the child's developmental level. Teaching style of a teacher tailored to the characteristics of learners shows teacher persistence in helping learners achieve mastery learning (Allcock & Hulme, 2010). Although the teaching style of a teacher differs from one to another, but at the learning process all teachers have the same goal, namely transforming science, forming students' attitudes, and making students skilled in the work. Mappalotteng, Hasanah, & Kanan (2015) suggests that teachers who often provide exercises in the context of material understanding will produce better students when compared to teachers who simply explain and do not follow up continuously. This is because teaching and learning activities not only lie with the teacher but the students also interfere in the teaching and learning process (Hawk & Shah, 2007).

Application of the curriculum accompanied by a fun teacher teaching style, this indirectly can foster the spirit and motivation of students to learn a subject. The learning motivation that arises in the student is caused by the aspiration or the drive to get the expected result. Students who are highly motivated in learning have a great opportunity in obtaining high learning achievement. The higher the motivation, the intensity of effort and effort to achieve the desired learning achievement will also be higher (Duncan & McKeachie, 2005).

Learners often take different ways to understand the same information or lessons. In a school setting, some students prefer their teachers to teach by writing everything down on the board so that students can read and try to understand its meaning. Some other students prefer their teachers to teach by speaking it verbally and they listen to be able to understand it (Grainger & Barnes, 2006). Another way that is also often preferred by many students is the learning model that puts the teacher as a speaker. Teachers are expected to tell at length

about various theories with a myriad of illustrations, while students listen while describing the contents of the lecture in a form that they only understand themselves (Busato, Prins, Elshout, & Hamaker, 2000).

Be aware that not everyone has the same learning style. A person's ability to understand and absorb the lessons is definitely different. The difference in learning styles shows the fastest and best way for individuals to absorb an outside information (Li, Medwell, Wray, Wang, & Xiaojing, 2016). Therefore, as a teacher can understand how learning styles differ in their students, and try to alert their students to the differences, it may be easier for teachers to convey information more effectively and efficiently (DePorter, Reardon, & Singer-Nourie, 1999).

Based on the above background, several issues will be examined, namely: 1) How to describe the different types of student learning in the department of PTSP FT UNM? 2) How is the description of student's motivation to study the department of PTSP FT UNM? 3) How big is the influence of learning type on student's motivation to study department of PTSP FT UNM?

2. RESEARCH METHOD

This research is a survey research, which will analyse student learning type as free variables and learning motivation as dependent variable. The population of this study is all student active in the Department of Civil Engineering Education and Planning academic year 2016/2017. The sampling technique using random sampling by determining the number of samples using proportionated sampling. The number of samples obtained are as many as 69 respondents consisting of 32 men and 37 women.

The research instrument uses a questionnaire adopted from the study type instrument (DePorter et al., 1999) with 59 questions divided into 20 questions to measure the type of Visual learning, 19 questions for Auditory learning type, and 20 questions for kinaesthetic learning type. As for the motivational instrument adopted from (Pintrich, 1999) which consists of 44 items of questions. Data analysis techniques are descriptive and inferential. Descriptive analysis is performed to illustrate the mean, maximum, and minimum scores. Inferential analysis is conducted to

measure the influence between variables, after meeting the requirements analysis test.

3. RESULT AND DISCUSSION

3.1 Learning Type of the Student

The results of the research on 69 respondents of students majoring in PTSP FT UNM showed data as set forth in Table 1.

Table 1. Description of distribution of student learning type

Learning Type	Frequency	Percentage
Visual	36	26.09
Auditory	38	27.54
Kinaesthetic	64	46.38
Total	138	100.00

From Table 1 it can be seen that the students of the department of PTSP FT UNM have quite varied learning types, however, kinestetik is the type of learning that more owned by students. Furthermore the type of student learning is described by sex as shown in Table 2.

Table 2. Description of distribution of student learning type by gender

Learning Type	Male	Female
Visual	42.11	57.89
Auditory	65.63	34.38
Kinaesthetic	16.67	83.33

From Table 2 it is reflected that male and female students have similar learning types for Visual and Auditory learning types, whereas for female learning type Kinaesthetic is more dominant.

In line with the research Ames (2003) which states that there is a difference between students with dominant learning styles and their association with their gender on the attitude of operating the computer. As good as any instructor in motivating students, if it is not in accordance with the style and desire of students, then the possibility of learning will not be effective. In addition, Knight, Elfenbein, & Martin (1997) explains that women are more different in terms of concrete experience. In general, female students are psychologically

better prepared when compared to the readiness of male learners.

Both men (56.1%) and females (56.7%) of students chose some mode of information presentation, and the number and type of combinations of modalities did not differ significantly between the sexes. Although not significantly different, the female student population tended to be more diverse than the male population, which included a combination of broader sensory moduli in their preference profiles. Instructors need to be aware of these differences and extend the range of their presentation style accordingly (Slater, Lujan, & DiCarlo, 2007).

The results of the study (Orhun, 2007) show that there is a difference between the preferred mode of learning by female and male students, mathematical achievement, and their attitudes toward mathematics. Mathematical achievements and attitudes toward mathematics do not depend on gender. It is also noticed that while female students most like Convergent learning styles, boys most like the Assimilator learning style. However, none of the students chose the Accommodator learning style in both groups.

3.2 Student motivation

The variable of learning motivation based on MSLR instrument as disclosed in Table 3.

Table 3. Description of distribution of students' learning motivation

Category	Frequency	Percentage
Very Good	61	88.41
Good	3	4.35
Enough	4	5.80
Less	1	1.45
Total	69	100.00

From Table 3 it can be explained that the motivation to study students majoring in PTSP FT UNM has been very good. Nevertheless, there are 5.80% of respondent's motivation meet the category Enough, even there is 1.25% which still Less. If it is related to student learning type, then the distribution of the category is described in Table 4.

Table 4. Description of distribution of learning type and motivation of student learning.

Learning Type	Student's motivation			
	Very Good	Good	Enough	Less
Visual	89.47	0.00	5.26	5.26

Auditory	86.21	6.90	6.90	0.00
Kinaesthetic	84.21	10.53	5.26	0.00

From Table 4 it can be seen that the students' learning motivation which has type of visual learning in the category of Very Good reaches 89.47% and the learning motivation is Enough and Less by 5.26%. Students who have type of learning Auditory in the category of Very Good reached 86.21%, and Good and Enough category of 6.90%. While in type learning Kinaesthetic, Excellent category reached 84.21%, followed by Good category 5.56%, and category Enough of 5.26%.

The three types of learning indicate that student learning motivation is excellent, but research Busato et al. (2000) suggests that some studies have not been able to prove that type of learning positively affects individual academic success. Nevertheless, Boekaerts (1999) explains that the type of learning a person has will help him / herself in self-regulated learning to accomplish something so that he can understand easily.

Vansteenkiste, Simons, Lens, Sheldon, & Deci (2004) stated that optimizing the use of students' intrinsic motivation in framing learning activities and learning climate will have a significant impact on students to be more dedicated and actively involved in learning activities. This will have important implications in designing optimal learning environments.

3.3 The influence of learning type on student learning motivation

3.3.1 Test Requirement Analysis

Research data to be analysed by regression equation, must first meet the requirements of normality, linearity, and homogeneity test. Normality test was performed by using kolmogorv-smirnov (KS). Test results can be seen in Table 5.

Table 5. Test requirements analysis type learning

Variable	Probability (ρ)		
	Normality	Linearity	Homogeneity
Visual	.075	.775	.279
Auditory	.021	.821	.599
Kinaesthetic	.028	.820	.208

Based on the above table it can be seen that the probability value (ρ) of the Visual learning type is greater than the significance value α (0.05), while the probability (ρ) type of learning of Auditory and Kinaesthetic is smaller than the significance value α (0.05). Thus, it can be concluded that the data for Visual learning type variables are normally distributed, whereas the variables of learning type of Auditory and Kinaesthetic are not normally distributed.

In linearity test, it can be seen that the variable data of Visual, Auditory, and Kinaesthetic learning type are all linear to student learning motivation. It can be seen from the probability value (ρ) is greater than the significance value α (0.05). While homogeneity testing shows that the probability value (ρ) is greater than the significance value α (0.05). So, it is concluded that the variables of learning type Visual, Auditory, and Kinaesthetic are homogenous.

3.3.1 Hypothesis Test

Hypothesis testing is done by using inferential analysis using simple regression. A simple linear regression analysis was conducted to determine the effect of one independent variable on the dependent variable. The criterion used is based on probability value (ρ). In addition, the decision making can also be done by comparing the t_{count} value with the t_{table} . The result of simple linear regression analysis of independent variable to dependent variable is presented in Table 6.

Table 6. Summary of Simple Regression Analysis Results

No.	Variable	r-value	r^2	t_{count}	ρ	T_{table}
1	X_1 to Y	0,097	8,30	2,679	0,009	1,996
2	X_2 to Y	0,056	4,20	1,998	0,050	1,996
3	X_3 to Y	0,085	7,10	2,497	0,015	1,996

Based on the above table it can be concluded that the correlation coefficient of variable visual learning type (X_1) is 0,097 marked positive, probability value (ρ) 0,009 $< 0,05$, while $t_{\text{count}} 2,679 > t_{\text{table}} 1,996$ so it can be concluded that variable type learn visual give positive influence to variable Student learning motivation. The coefficient of determination or effective contribution of visual learning type variables to learning motivation is 8.30% which means that 91.70% (100% - 8.30%) student learning

motivation is determined by other factors outside the type of visual learning factor.

The correlation coefficient of variables of Auditory learning type (X_2) is 0,056 marked positive, probability value (ρ) 0,050 $< 0,05$, while $t_{\text{counts}} 1,998 > t_{\text{table}} 1,996$ so it can be concluded that variable of type learns Auditory give positive influence to student motivation variable. The coefficient of determination or effective contribution of variables of the type of learning to the learning motivation is 4.20%, which means that 95.80% (100% - 4.20%) of student learning motivation is determined by other factors outside the type of learning.

The correlation coefficient of kinesthetic learning variable type (X_1) is 0,085 with positive sign, probability value (ρ) 0,015 $< 0,05$, while $t_{\text{count}} 2,497 > t_{\text{table}} 1,996$ so it can be concluded that kinesthetic learning type variable give positive effect to students' motivation variable. The coefficient of determination or effective contribution of kinesthetic learning type variable to learning motivation is 7,10% which means that 92,90% (100% - 7,10%) student learning motivation is determined by other factors outside of kinesthetic learning type factor.

Graf & Lin (2008) suggest that learners with high working memory capacity tend to prefer reflective, intuitive, and sequential learning styles whereas learners with low working memory capacity tend to prefer an active, sensing, visual, and global learning style. Honigsfeld & Dunn (2003) suggest that gender gap patterns in learning styles can be observed, and they encourage educators to consider all learners' learning strengths to maximize instructional outcomes.

Dunn, Beaudry, & Klavas (2002) suggest that no learning style is better or worse than others because each style has a similar range of intelligences. A student cannot be stigmatized by having any type of style. Most children can master the same competencies, but how they are mastered is determined by their respective styles.

Cassidy & Eachus (2000) conclude that academic achievement is positively correlated with the strategy approach, and does not correlate to apathetic approaches, and does not relate to in-depth learning approaches. Type of learning correlates significantly with academic performance associated with academic success and academic locus control.

4 CONCLUSIONS

Based on the results and previous discussion, then some things that can be concluded from this research are:

- Students in the majors of PTSP FT UNM have dominant kinaesthetic learning types.

The type of visual learning is dominated by female students, while the type of auditory learning is predominantly male students, and the type of kinaesthetic learning is dominated by female students.

- b) The motivation to study students majoring in PTSP FT UNM meets the criteria Very Good although there are students whose motivation is Less.
- c) Visual learning type has a positive effect on student learning motivation but only contributes 8.3%, while Auditory learning type gives an effect of 4.2%, while the learning type of Kinaesthetic gives contribution of 7.1%.

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6 REFERENCES

- Allcock, S. J., & Hulme, J. A. (2010). Learning Styles in the Classroom: Educational Benefit or Planning Exercise?. *Psychology Teaching Review*, 16(2), 67–79.
- Ames, P. C. (2003). Gender and learning style interactions in students' computer attitudes. *Journal of Educational Computing Research*, 28(3), 231–244.
- Boekaerts, M. (1999). Self-regulated learning: Where we are today. *International Journal of Educational Research*, 31(6), 445–457.
- Busato, V. V., Prins, F. J., Elshout, J. J., & Hamaker, C. (2000). Intellectual ability, learning style, personality, achievement motivation and academic success of psychology students in higher education. *Personality and Individual Differences*, 29(6), 1057–1068.
- Cassidy, S., & Eachus, P. (2000). Learning style, academic belief systems, self-report student proficiency and academic achievement in higher education. *Educational Psychology*, 20(3), 307–322.
- DePorter, B., Reardon, M., & Singer-Nourie, S. (1999). *Quantum teaching: Orchestrating student success*. Allyn & Bacon.
- Duncan, T. G., & McKeachie, W. J. (2005). The making of the motivated strategies for learning questionnaire. *Educational Psychologist*, 40(2), 117–128.
- Dunn, R., Beaudry, J. S., & Klavas, A. (2002). Survey of research on learning styles. *California Journal of Science Education*, 2(2), 75–98.
- Graf, S., & Lin, T. (2008). The relationship between learning styles and cognitive traits—Getting additional information for improving student modelling. *Computers in Human Behavior*, 24(2), 122–137.
- Grainger, T., & Barnes, J. (2006). Creativity in the primary curriculum.
- Hawk, T. F., & Shah, A. J. (2007). Using learning style instruments to enhance student learning. *Decision Sciences Journal of Innovative Education*, 5(1), 1–19.
- Honigfeld, A., & Dunn, R. (2003). High school male and female learning-style similarities and differences in diverse nations. *The Journal of Educational Research*, 96(4), 195–206.
- Knight, K. H., Elfenbein, M. H., & Martin, M. B. (1997). Relationship of connected and separate knowing to the learning styles of Kolb, formal reasoning, and intelligence. *Sex Roles*, 37(5), 401–414.
- Li, Y., Medwell, J., Wray, D., Wang, L., & Xiaojing, L. (2016). Learning Styles: A Review of Validity and Usefulness. *Journal of Education and Training Studies*, 4(10), 90–94.
- Mappalotteng, M., Hasanah, H., & Kanan, F. (2015). The Development of Programmable logic controller tutorial in the form of industrial-based learning material in vocational high schools. *International Journal Of Engineering And Science*, 5(5), 49–58.
- Orhun, N. (2007). An investigation into the mathematics achievement and attitude towards mathematics with respect to learning style according to gender. *International Journal of Mathematical Education in Science and Technology*, 38(3), 321–333.
- Pintrich, P. R. (1999). The role of motivation in promoting and sustaining self-regulated learning. *International Journal of Educational Research*, 31(6), 459–470.
- Slater, J. A., Lujan, H. L., & DiCarlo, S. E. (2007). Does gender influence learning style preferences of first-year medical students? *Advances in Physiology Education*, 31(4), 336–342.
- Vansteenkiste, M., Simons, J., Lens, W., Sheldon, K. M., & Deci, E. L. (2004). Motivating learning, performance, and persistence: the synergistic effects of

intrinsic goal contents and autonomy-supportive contexts. *Journal of Personality and Social Psychology*, 87(2), 246.