

# Analyzing The Difference In Teaching Skill Of Geography Teacher Candidates Based On Field Dependent-Independent Cognitive Styles

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**Abstract**— This study aims to determine the differences in teaching skill of geography teacher candidates based on field dependent-independent cognitive styles. The basic teaching skill components measured are as follows: 1) open and close the lesson, 2) explain the principles, concepts and procedures, 3) implement the teaching and learning based on lesson plan, 4) use geography learning set, media, and learning resources, 5) ask questions (communication), 6) use various learning activities, 7) manage classrooms, and 8) evaluate. The subjects in this study were 30 geography students of 2019 who took teaching practicum. The results showed that  $\text{sig } 0.000 < 0.05$ ,  $H_1$  was accepted, meaning that there was a significant difference between basic teaching skill of geography teacher candidates based on field dependent-independent cognitive styles. It shows that score of FI group is 85.00 greater than FD group of 77.78.

**Keywords**—*decision making; gender; principals*

## I. INTRODUCTION

State University of Surabaya as part of the institute of Education and Education Personnel (IEEP) is responsible to produce credible and professional teacher candidates. This institutes aim to prepare prospective educators and teacher training in their positions. In addition, IEEP organizes teacher procurement programs in early childhood education through formal, basic and secondary education, as well as to organize and develop educational and non-educational knowledge. Thus, the role and function of IEEP cannot be ignored.

One important part in preparing teacher candidates at this campus is to strengthen their basic teaching skills through simulation and microteaching. Teaching is a professional occupation that requires complex abilities and special expertise that not everyone is able to do the work because not all people has teaching competency. Teaching is an activity by a teacher, lecturer, or instructor in managing and managing the learning environment to encourage student or student learning activities. Having good basic teaching skills is one of the main assets of teacher success in implementing learning in the field.

The basic teaching skills are teaching abilities or special skills (most specific instructional behavior) that must be possessed by teachers, lecturers, or instructors to carry out teaching assignments effectively, efficiently and professionally [1]. Thus, basic teaching skills are fundamental and inherent

for each teacher, lecturer, or instructor. Whereas [2] explains the basic teaching skills are the absolute skills for teachers. It is expected that teachers can optimize their role and teaching skills as professional abilities. The successful process of education and teaching depends on the teacher factor so that teachers are required to have the basic skills needed to support their professionalization.

According to [2] several types of teaching skills that must be mastered by teachers include: 1). Basic questioning skills, 2). Advanced questioning skills, 3). Strengthening skills, 4). Variation skills, 5). Explaining skills, 6). Skills for opening and closing lessons, 7). Class management skills, 8). Skills to lead small group discussions, and 9). Small group and individual teaching skills.

The preliminary studies conducted by researchers show that preparation of geography teacher candidates on their teaching skills through simulation and microteaching in teaching practicum is never evaluated based on cognitive style. Cognitive style is very important for teacher to be paid more attention besides student characteristics such as motivation, attitudes, talents, interests, thinking abilities and others. According to [3] implementation of cognitive styles in learning determines the success of learning. [4] state that cognitive style is a characteristic reflected by each individual and that can be influenced by two factors, namely: factors related to external and individual personal influences. Thus, the cognitive style referred to in this study is the characteristics of individuals in terms of understanding, remembering, organizing, and processing information in ways of thinking and in solving problems. The cognitive style in question is Field Dependent (FD) and Field Independent (FI).

Based on the above background, the researcher wants to know how the differences in the basic teaching skills of geography teacher candidates based on field independent-dependent cognitive styles.

## II. RESEARCH METHOD

### A. Types and Approach Research

This study is quantitative with a survey approach to research projects in the teaching practices. Survey research according to [5] is a quantitative social research in which one asks many people the same question systematically, records and analyzes their answers. Survey research is generally limited to research where data is collected from samples or populations

to represent the entire population. Thus, survey research is research that takes samples from one population and uses a questionnaire as a primary data collection tool.

**B. Research Subjects**

The subjects of this study were 30 students of 2016 as geography teacher candidates who programmed teaching practicum course. 10 subjects were chosen randomly from class A, B and C.

**C. Data Collection Technique**

According [6] test is a group of useful question as well as a means of measuring certain variables in the form of capabilities, skills, intelligence, attitudes or talents possessed by individuals or groups / groups. While, observation is done intentionally, directed, ordered, and in accordance based on certain objectives. the recording on the observations is called the results of observations. The results of these observations are explained in detail, precisely, accurately, thoroughly, objectively, and useful. The instrument for making these observations is called the observation sheet. Furthermore, the data collection in the study used the GEFT test to measure the cognitive style of FI and FD, and the observation sheet to make observations and assessments of the basic teaching skills of geography teacher candidates during the simulation.

**D. Research Procedure**

The procedure in this study is explained in the following stages:

Determine the research subjects → give the GEFT test → sort the research subjects into FI and FD groups → the observer carries out simulation using an observation sheet → assess the observations → conduct a statistical test with the t-test → carry out data analysis → draw the conclusions.

**E. Data Analyze**

The data were analyzed using parametric inferential statistics with Independent Test of T-Test. the sample of T-test procedures used the following stages.

- H0 = there is no difference in the average basic teaching skill between geography teachers candidates who were grouped in field dependent-independent cognitive style
- H1 = there is a difference in the average basic teaching skill between geography teachers candidates who were grouped in field dependent-independent cognitive style
- Testing equipment: Independent Test of T-Test
- Significance level was 5%
- Decision Rules:  
If Sig observed > 0.05, meaning that H0 is accepted  
If Sig observed < 0.05, meaning that H1 is accepted

**III. RESULT AND DISCUSSION**

**F. Result**

The results on the differences in basic teaching skill of geography teacher candidates in terms of FI and FD cognitive styles can be explained in detail as follows.

Group Statistics				
Cognitive Style	N	Mean	Std. Deviation	Std. Error Mean
Teaching Skills	FI	85.0000	3.97492	1.19848
	FD	77.7895	4.52866	1.03895

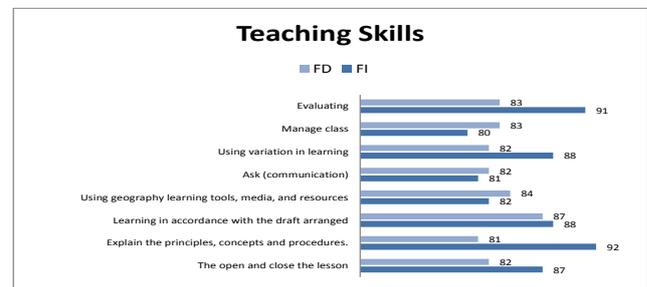
	Independent Samples Test									
	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
Teaching Skills	Equal variances assumed	.003	.762	4.388	28	.000	7.21053	1.64391	3.94312	10.57793
	Equal variances not assumed			4.546	23.351	.000	7.21053	1.58612	3.93212	10.48894

The statistical calculation above shows sig observed 0,000 <0.05 meaning that H0 is rejected and H1 is accepted, thus there is a significant difference in the basic teaching skills of FI group and FD group of geography teacher candidates. The score of the FI group is 85.00 greater than FD group of 77.78, meaning that there is significant difference. Thus, it can be said that geography teacher candidates who have FI cognitive style have better basic teaching skills than FD geography teacher candidates. Viewed from the 8 components that form the basis of measurement of basic teaching skills can be explained in the following table.

**Table 3.1 Teaching Skills**

Number	Skills	FI	FD
1.	The open and close lesson	87	82
2.	Explain the principles, concepts and procedures	92	81
3.	Learning in accordance with the draft arranged	88	87
4.	Using the geography tools, media, and resources	82	84
5.	Ask (communication)	81	82
6.	Using variation in learning	88	82
7.	Manage class	80	83
8.	Evaluating	91	83

Based on the table above, it can be seen that there are some basic components of teaching in which score of FD group is higher than the FI which uses tools, media, and learning resources of geography, managing classes and the ability to ask questions (communication). However, in general, the FI cognitive style group is better than the group of geography teacher candidates with FD cognitive style. The graph can also be seen below.



**G. Discussion**

Learning not only explains the knowledge or subject matter from teacher to student but also gives meaning related to the material or the delivered knowledge. The teacher candidates must be able to have superior basic teaching skills as professional teachers. The institution that prepares the teacher candidates has the obligation to design activities that support the attainment of professional teachers. Basic teaching skills begin with the skills to open and close lessons. The geography teacher candidates who have FI or FD cognitive styles shows that those with FI group is still superior compared to FD group. [7] defines open skills as a tool or process that puts students into a state of attention and learning.

Technically, the activity of opening a learning activity is defined as a teacher's activity to create an atmosphere for mentality and raises the attention of students on what will be learned. Likewise, the activity closes the lesson as a process to strengthen the material that has been learned, carry out assessments, and provide psychological and social encouragement, as well as to provide assignments relevant to learning needs. The principle of opening and closing lessons must be meaningful, sequential and flexible or flexible.

The next component is the ability to explain principles, concepts, and procedures. The results of this study indicate a fairly wide range between the FI and FD groups. The ability to explain must be possessed by teacher candidates who have good knowledge skills. the FI group truly has the ability to explain orderly, clearly and systematically. Therefore, the ability to explain can be interpreted as a skill to provide understanding through the presentation of oral information that is organized systematically to students, so that information or learning messages in the form of facts, concepts, principles, or procedures can be understood by participants students are well educated [7]. Student candidates with FI cognitive style have a good understanding of concepts. According to [1], concept understanding is the ability of students to master subject matter, where students not only know or remember as the number of concepts learned but able to express again in other forms that are easy to understand, provide interpretation of data and apply concepts accordance with the cognitive structure they have. In other words, conceptual understanding is the ability a person has to rediscover the knowledge he has gained both speech and writing so that the other person really understands what is conveyed. This is certainly in accordance with the characteristics of FI's cognitive style, namely systematic and conceptual thinking [4].

The next component is the ability to teach based on the learning design. The FI and FD groups have almost the same score because basically teacher candidates have been given the course on classroom management. Students have been given the ability to design learning activities. Likewise in using media and learning resources. Between the FI and FD groups have almost the same value. This shows that the use of media and learning resources in the industrial era 4.0 has become an obligation. A similar opinion was expressed by [8] that technology capability is a prerequisite for professional teachers because the mastery of technology to support learning activities is an important element using multimedia learning. The next component is the ability to ask and communicate. This research shows the difference in the ability to ask questions and communication between FI and FD group students are not much different. This means that both FI and FD both have good communication skills. The basic ability to ask and communicate is one of the requirements of professional teachers. Teaching is not just about conveying one-way messages, but there must be reciprocity in the form of questions from students or from teachers, so that the learning process will be more lively, dynamic and more meaningful. The professional competence of a teacher like questioning skills dialogue or communication between the teacher and students is needed. Whereas in the communication process, it is necessary to have students' intellectual involvement which is developed with various questions raised by the teacher [9].

The next component is the ability to use various learning. The FI group is much better than the FD group. Innovation in learning has a strong correlation with the ability to understand the material. The FI group has the ability to understand the material quite well, so that the implementation of learning is even more various and most of them lead to activities that are constructivistic. The difference of the FD group shows that there is not innovation and variation in learning but more monotonous and boring. The variations in learning are the changes in the learning activities to increase students' learning motivation as well as reducing boredom and boredom [10]. Furthermore, related to the classroom management component. Class management skills between geography teacher candidates with FI and FD cognitive styles are different but not significant. There is always a difference. So it can be said that both groups have good abilities in classroom management. The ability to manage classrooms is the teacher's skill to create a conducive learning situation [10]. basically, classroom management can be done by teachers who have good pedagogical competence supported by the ability to master the material. Many opinions say that with good mastery of the material then mastery of the class will be easy to do. By mastering the material to be taught, the teacher's level of confidence will also increase.

The final component in the basic teaching skills of geography teacher candidates is the ability to evaluate. The geography teacher candidates with FI cognitive style is higher than they who have the FD cognitive style. [11] [11] define evaluation as "a process for describing an evaluation and judging its merit and worth". While [12] argues that "evaluation is a process through judgment decided from a variety of observations and background and training of the evaluator". The teacher candidates with FI cognitive is far better in terms of evaluating because they are accustomed to carrying out procedural and systematic activities.

Generally, the study shows that the FI group of teacher candidates has better basic teaching skills than FD group of teacher candidates. The FI group tends to be independent, less interaction but think systematically. This is reinforced by the statement from [13] which mentions a learning model that makes FI students learn independently and gives them opportunities to succeed better. furthermore, they can not only work independently but also to learn and respond with intrinsic motivation.

#### IV. CONCLUSION

There is a significant difference related to the basic teaching skills between FD group and FI group of teacher candidates. This study finds out that FI group is characterized by the character of students who tend to think procedural, systematic, and scientific.

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**REFERENCES**

- [1] W. Sanjaya, *Standardized Process Education Learning Process*. Jakarta: Prenada, 2009.
- [2] Djamarah, *Teaching and Learning Strategies*. Jakarta: Rineka Cipta, 2010.
- [3] A. Woolfolk, *Educational Psychology Active Learning Edition*. Boston: Allyn and Bacon, 2009.
- [4] D. R. Witkin, H. A., & Goodenough, "Field dependence and interpersonal behavior," *Psychol. Bull.*, vol. 84, no. 4, pp. 661–689, 1977.
- [5] W. L. Neuman, *Social research methods qualitative and quantitative approaches. 4th Edition*. Needham Heights: Allyn and Bacon, 2000.
- [6] S. Arikunto, *Research Procedure: A Practical Approach. Revision Ed. VII*. Jakarta: Rineka Cipta.
- [7] J. and P. D. Brown, "Organizational Learning and Communities of Practice: Toward a unified view of working, learning, and innovation," *Organizational Science*, 1991.
- [8] Suparno, *Teacher Professional Development*. Malang: The Teacher Certification Committee of the 15th Rayon State University of Malang, 2010.
- [9] Rahmawati, "The Effect of Organizational Culture, Leadership Style, and Work Motivation on Lecturer Performance at Sultan Ageng Tirtayasa University," 2011.
- [10] Mulyasa, *Development and implementation of 2013 curriculum thinking*. Bandung: Remaja Rosdakarya, 2013.
- [11] Guba and Lincoln, *Naturalistic Inquiry*. Newbury Park, California: Sage Publication, Inc, 1985.
- [12] G. Sax, *Principles of Educational and Psychological Measurement and Evaluation (2nd edition)*. California: Wadsworth Publishing Company, 1980.
- [13] H. P. Mroska, "Field-Dependent and Field-Independent Learning-Teaching Style," *J. Contrib. Pap. Improv. Univ. Teaching, Fourteenth International Conf. Umea*, 1988.