

The Analysis on the Level of High School Teacher's Critical Thinking Dispositions

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Abstract: This study aimed to investigate the difference in the level of high school teacher's critical thinking dispositions in term of their teaching experience, a field of science and gender. The subjects of this study were 122 high school teachers from public high school in Mataram, Nusa Tenggara Barat, Indonesia. The modified California Critical Thinking Dispositions Inventory (CCTDI) was used for data collecting instruments. The modified CCTDI equipped with seven indicators: the inquisitiveness, the open-mindedness, the systematicity, the analyticity, the truth-seeking, the critical thinking self-confidence, and the maturity. Rasch model was applied for data analysis. The results showed that there were differences in gender based critical thinking dispositions, specifically in indicators such as analyticity, inquisitiveness, and maturity. There were also found the differences in a field of science, specifically in analyticity and systematicity indicators. In contrast, no significant differences were found in teaching experience. In general, the level of public high school teacher's critical thinking dispositions in Mataram city was categorized as medium level.

1 INTRODUCTION

Teachers are a very strategic element in the education system to achieve educational goals. Teachers should be equipped with skills related to knowledge and skills relevant to the demands of the times, therefore the current teacher needs some special skills (Ansari, 2013). The quality and professionalism of teachers are an important factor towards achieving the target of student achievement. A study found a positive relationship between the professional value of teachers and their critical thinking disposition. Teachers play a big role in developing critical thinking skills and disposition of critical thinking of students. Knowing the teacher's critical thinking skills and disposition and how they are developing these skills is essential to produce effective education.

Some researchers define critical thinking as a way of thinking that classifies, analyzes and evaluates interest (Johnson, 2000), a reasonable and reflective way of thinking, focused on deciding what to believe or do (Ennis, 2011), and looking at critical thinking is an approach to the latest problems, questions, and issues (Facione, 2011). Critical thinking has two key dimensions of cognitive skills

and critical thinking. The tendency to think critically is an attitude toward critical thinking (Norris, 1989) whereas cognitive skills are the intellectual aspects of critical thinking; the two components affect one another (Facione, 2011).

The Disposition of critical thinking is described as a critical spirit or a tendency to think critically with a characteristic of deep curiosity, the sharpness of thought, perseverance of developing reasoning, the need for reliable information (Facione, 2011; Fisher 2009). Facione (1998) classifies 7 indicators of thinking Disposition, namely Truth-seeking Open Mindedness, Analyticity, Systematicity, Self-Confident, Inquisitiveness, and Maturity.

Several studies on critical thinking and critical thinking have been widely applied to prospective teachers. The results show that the critical thinking disposition is still in the medium and low category. Some researchers have found that the critical thinking Disposition of Turkish science teacher was generally still at medium and low levels (Demirhan and Köklükaya, 2014).

Currently, some countries are experiencing shortages of qualified teachers in certain fields of study (Guerriero, 2014) including in Indonesia. The research on teacher quality associated with critical

thinking tendencies from aspects of the field of study, gender and teaching experience has not been widely reported in Indonesia. The purpose of this research is to study the difference of critical thinking level of high school teachers in Mataram city, Nusa Tenggara Barat, Indonesia based on teaching experience, science, and gender.

2 RESEARCH METHOD

This research is a descriptive research. The purpose of the study was to analyze the critical thinking tendency of high school teachers in Mataram City, Indonesia. Samples of 122 teachers were selected at random. Data on critical thinking trends were measured using the modified California Critical Thinking Dispositions Inventory (CCTDI) instrument developed by Facione (1998). The questionnaires use the Likert scale of 1 to 6, ranging from the statement strongly agrees to strongly disagree. A minimum score of 9 and a maximum score of 54 for each indicator, while an overall score of at least 63 and a maximum of 378. High category was applied if total score for all indicators ≥ 308 , a medium category for 245- 308 and low category for score ≤ 245 . Category of each indicator is a high score category ≥ 44 , medium category score between 35-44, and low score category ≤ 35 . Rasch modeling (Sumintono, 2015) was used for data analysis.

3 RESULTS AND DISCUSSION

The critical thinking disposition of the teachers in the state senior high school Mataram city was depicted in Table 1. It shows that the teacher critical thinking disposition was categorized as low to medium category with the average total score was 272.94. Systematicity (47.66) and analyticity (42.25) among the 7 indicators obtain score higher than 40. This result was in line with the previous report published by Besoluk and Onder (2010).

A critical thinking disposition of high school teachers in Mataram city was dominated by systematic indicators. The teachers have strong tendency to systematically examine and plan carefully to solve a problem. Another dominant indicator was analysis which was a tendency to use reasoning and objective evidence to solve a most difficult problem. Based on 7 indicators observed, the self-confident indicator was the lowest indicator score. This means that the tendency to trust the use

of reason and reflective thinking in solving a problem was still low. Similarly, for cognitive maturity indicators related to the tendency to see complex problems, make timely assessments, and not delay was also low.

Critical thinking disposition in high school teachers in Mataram city was analyzed from three aspects: the field of study (Science and non-Science group), gender and teaching experience. There are differences ($t = 0.001$) critical thinking disposition for Science and non-Science group teachers (Table 2), especially on the analyticity indicator ($t = 0.008$) and the systematicity indicator ($t = 0.000$), where the Science teachers score higher than non-Science teachers.

By gender, male and female teachers have significantly different critical thinking dispositions. The average score of female teachers was slightly higher than that of male teachers especially on indicators such as analysis, inquisitiveness and maturity (Table 3). This result was in line with the results of previous studies from Facione (1998:2001). In contrast, different results were reported by Demirhan and Koklukaya (2014) that the male teachers' critical thinking dispositions in Turkey is slightly higher than that of female teachers especially in indicators of inquisitiveness and maturity (Table 3). This difference occurs due to other factors such as social and cultural factors of the local community. The study also found that teaching experience for teachers did not affect the critical thinking dispositions ($t = 0.274$).

Teacher's Critical Thinking Dispositions Based on Teaching Experience was depicted in Table 4. The scores on truth seeking and maturity indicators were higher in teachers who had working experience between 11-20 years. The analyticity indicator was dominated by teachers who have a teaching experience of 1-10 years. This illustrates that the teaching experience increase the spirit to seek the truth. Moreover, motivation to gain the best understanding of a particular situation, along with related reasons and evidence, other than that cognitive maturity also develops through teaching experience.

Table 1: Teacher's Critical Thinking Dispositions.

| Indicator | Mean | SD |
|-----------------|-------|------|
| Truth-seeking | 38.13 | 3.62 |
| Open mindedness | 36.44 | 3.53 |
| Analyticity | 42.25 | 4.43 |
| Sistematicity | 47.66 | 4.47 |
| Self-Confident | 34.09 | 3.79 |
| Inquisitiveness | 38.91 | 4.31 |

| | | |
|----------|--------|-------|
| Maturity | 35.43 | 3.63 |
| Total | 272.94 | 17.46 |

Table 2: Teacher's Critical Thinking Dispositions Based on Study Subject.

| Indicator | Mean \pm SD | | p |
|-----------------|-----------------|-----------------|-------|
| | Science | Non Science | |
| Truth-seeking | 0.71 \pm 0.33 | 0.59 \pm 0.42 | 0.116 |
| Open mindedness | 0.76 \pm 0.49 | 0.76 \pm 0.57 | 0.963 |
| Analyticity | 0.75 \pm 0.42 | 0.53 \pm 0.46 | 0.008 |
| Sistematicity | 1.17 \pm 0.44 | 0.69 \pm 0.41 | 0.000 |
| Self-Confident | 0.64 \pm 0.50 | 0.62 \pm 0.56 | 0.904 |
| Inquisitiveness | 1.52 \pm 0.83 | 1.45 \pm 0.99 | 0.650 |
| Maturity | 0.77 \pm 0.46 | 0.72 \pm 0.47 | 0.605 |
| Total | 0.79 \pm 0.27 | 0.63 \pm 0.26 | 0.001 |

Table 3: Teacher's Critical Thinking Dispositions Based on Gender.

| Indicator | Mean \pm SD | | p |
|-----------------|-----------------|-----------------|-------|
| | Male | Female | |
| Truth-seeking | 0.66 \pm 0.41 | 0.60 \pm 0.39 | 0.425 |
| Open mindedness | 0.72 \pm 0.53 | 0.82 \pm 0.55 | 0.309 |
| Analyticity | 0.49 \pm 0.46 | 0.69 \pm 0.44 | 0.017 |
| Sistematicity | 0.81 \pm 0.37 | 0.86 \pm 0.46 | 0.576 |
| Self-Confident | 0.74 \pm 0.54 | 0.55 \pm 0.53 | 0.058 |
| Inquisitiveness | 1.05 \pm 0.73 | 2.13 \pm 1.08 | 0.000 |
| Maturity | 0.60 \pm 0.39 | 0.89 \pm 0.52 | 0.001 |
| Total | 0.64 \pm 0.25 | 0.74 \pm 0.27 | 0.034 |

Table 4: Teacher's Critical Thinking Dispositions Based on Teaching Experience.

| Indicator | Mean \pm SD | | p |
|-----------------|-----------------|-----------------|-------|
| | 1-10 years | 11-20 years | |
| Truth-seeking | 0.51 \pm 0.27 | 0.72 \pm 0.45 | 0.003 |
| Open mindedness | 0.69 \pm 0.46 | 0.84 \pm 0.60 | 0.120 |
| Analyticity | 0.72 \pm 0.53 | 0.52 \pm 0.38 | 0.030 |
| Sistematicity | 0.78 \pm 0.39 | 0.87 \pm 0.44 | 0.210 |
| Self-Confident | 0.64 \pm 0.53 | 0.61 \pm 0.54 | 0.700 |
| Inquisitiveness | 1.51 \pm 1.00 | 1.46 \pm 0.85 | 0.765 |
| Maturity | 0.64 \pm 0.46 | 0.88 \pm 0.48 | 0.007 |
| Total | 0.66 \pm 0.23 | 0.71 \pm 0.28 | 0.274 |

4 CONCLUSIONS

The critical thinking dispositions of public senior high school teachers in Mataram city was categorized in the medium category. There was a difference in critical thinking dispositions based on the field of study and gender, but no different in teaching experience. Preparing students to think critically should be the goal for many professionals in the field of education. Therefore, future research should be conducted to find the best practice to improve the critical thinking of dispositions.

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