The profile of student’s anxiety in solving the critical thinking problem on geometry according to Van Hiele theory

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Abstract. This research aimed at describing the students’ anxiety profile in solving the critical thinking problem on geometry according to Van Hiele theory. This research used descriptive type of research with qualitative approach. The methods used were test, observation and interview methods. The subjects were selected by using Van Hiele test. Van Hiele test was given to 100 students. Therefore, it obtained three levels that were the students of visualization level as much as 47%, the students of analysis level as much as 23% and the students of informal deduction level as much as 20%. The results of the critical thinking test on geometry revealed that the students of visualization level fulfilled the focus and inference indicators only while the anxiety on geometry found in the indicators of tensed-face, confusion, forgetful, poor concentration, anxiety and worry. The students of analysis level fulfilled the indicators of focus, reason, inference, situation and overview only while the anxiety on geometry found in the indicators of tensed-face, forgetful, anxiety and worry. Whereas, the students of informal deduction level reached all of the criteria of critical thinking while the anxiety on geometry found in the indicators of confusion, anxiety, impatient and easily disturbed.

1. INTRODUCTION
Mathematics learning is a part of national education that has an important role in the development of science and technology because mathematics is the science underlying other sciences. Mathematics is one of the most important subjects that is so instrumental in advancing the civilization of a nation, mathematics can be interpreted as a study of patterns and relations, a path or thinking pattern, an art, a language, and a tool, therefore mathematics is not a solitary knowledge, but its existence to assist human beings in understanding and mastering various other problems by Jihad[1]. Mathematics is the subject taught at each level of education in Indonesia ranging from elementary school to senior high school. Therefore, mathematics has a very essential role to train the students’ reasoning so that the students are able to think logically, critically, systematically and creatively. According to Mulana [2] critical thinking skills can be developed through the mathematics learning at schools or universities as well the closely relation between one element and the other element. Critical thinking is a way of approaching and solving problems based on arguments persuasive, logical and rational, which involves verifying, evaluating and choosing the right answer to a given task and reasoned rejection of other alternatives.
In this research, the criteria of critical thinking used were six criteria by Ennis [4] included focus, reason, situation, clarity and overview. The indicators used were developed but still referred to the existing indicators, it can be seen from Table 1.

| No | Criteria   | Indicators of Critical Thinking                                                                 |
|----|------------|---------------------------------------------------------------------------------------------|
| 1  | Focus      | The students understand the problem given in the question that is to mention what is known and asked in the question. |
| 2  | Reason     | The students give reasons based on the relevant fact in each step of making decisions or conclusions. |
| 3  | Inference  | a. The students draw the appropriate conclusion.                                                |
|    |            | b. The students choose suitable reasons to support the conclusion that has been made.            |
|    |            | c. The students are sure of the reasons given to support the conclusion of problem solving.      |
| 4  | Situation  | The students understand the important situation of the problem to give arguments.              |
| 5  | Clarity    | a. If there is any terms in the question or answer done by the students, the students should explain that. |
|    |            | b. The students give the example of similar cases to the problem.                               |
| 6  | Overview   | The students re-examine the results of work or answer obtained thoroughly from the beginning up to the end. |

In this case, in mathematics learning, not many students do the questions given by the teacher using the critical thinking so that some students experience anxiety when doing this. According to Syamsu Yusuf [5] anxiety is neurotic helplessness, insecurity, immaturity and inability in facing the reality challenges (environment), difficulties and pressure of everyday life. Anxiety is the condition of effective feeling that is unpleasant accompanied by the physical sensation which warns someone of what will come [6]. Anxiety is also meant as a response without a specific object which is subjectively experienced and communicated clearly. In this topic, according to [7] mathematical anxiety is a situation occurs on some people when they face the mathematical problem. Stuart (2006) says that anxiety can be shown by the indicators found in the physiological symptoms and someone’s behavioral symptoms. There are twelve indicators of anxiety used that are developed but still refer to the existing indicators, it can be seen in Table 2.

| No | Aspects   | Indicators of Anxiety                                                                 |
|----|-----------|-------------------------------------------------------------------------------------|
| 1  | Physiological | Back and Forth                                                                     |
|    |           | Sweating (palms)                                                                    |
|    |           | Tense face                                                                          |
|    |           | Blushing face                                                                        |
| 2  | Cognitive | Confusion                                                                           |
|    |           | Forgetful                                                                           |
|    |           | Poor concentration                                                                   |
| 3  | Affective | Impatience                                                                          |
|    |           | Restless                                                                            |
|    |           | Easily disturbed                                                                     |
|    |           | Worry                                                                               |

Geometry is the branch of mathematics that studies visual patterns, connecting mathematics with the real world, occupying a special position in the mathematical curriculum due to many concepts found in it. According to [8] basically, geometry has a greater opportunity to understand compared to other
mathematical branches. This is because the geometry ideas have been known by the students since before they entered schools, for instance, lines, fields and spaces. Related to this, there is a theory concerning on geometrical thinking that is Van Hiele theory. In geometry, the thinking model of students is the best level and is best based on the Van Hiele model [9]. Based on Guvon [10] Van Hiele theory, the students will get through five level of thinking in learning and understanding geometry, covering level 0 (visualization): the students at this level only deal with the image of form given, level 1 (analysis): the students at this level distinguish the properties of form but these properties are felt independently, level 2 (informal deduction): at this level, the students try to connect the properties one to another, level 3 (deduction): the students at this level can order the relationship, besides they can use theorem, axiom and definition in making evidence of geometry and level 4 (rigor): the students at this level are able to interpret and implement the axiom, theorem and definition of Euclidean geometry in Euclidean non-geometry.

Although, there have been many research related to Van Hiele’s geometrical thinking skills and the students’ anxiety, but only a few which are specifically discussed about visualization level, analysis and informal deduction with the students’ anxiety. Fewer people who examined the students’ anxiety in solving the critical thinking problems under the theory of Van Hiele. Though, theoretically, at each level of Van Hiele thinking based on its characteristics has been able to show the process of thinking and anxiety. Including the process of thinking anxiety in solving the problems.

Based on the matter above, the researcher’s question was formulated as how the VIII grade the profile of students’ anxiety in solving the critical thinking problem of geometry on the thinking stage of visualization, analysis, and informal deduction is. The aim of this research was to describe the profile of students’ anxiety in solving critical thinking problem of geometry on the level of visualization, analysis, and informal deduction.

2. RESEARCH METHOD

This research aimed at revealing the essence of symptom emerged from the subject of the research. The essence was used to find the profile of students’ anxiety in solving the critical thinking problem of geometry viewed from Van Hiele theory. The essence was investigated through a task-based interview. Therefore, the type of this research was qualitative in which the primary data were in the form of written and spoken.

This research was conducted to the VIII grade students of Junior high school in Jember consisted of 100 students. Therefore, three levels were obtained in which the students were 47% visualization level, 23% analysis level and 20% informal deduction level. The subjects were chosen based on the result of Van Hiele test. From the result of the test there were 2 students with visualization level, 2 students with analysis level, and 2 students with informal deduction level chosen as the subject.

The methods used in this research were observation, test, and interview. The observation toward the students’ activity on the test of critical thinking was each observed by an observer and the observation toward the students’ condition while doing the test of critical thinking to know their anxiety was observed by one observer. In this research, the students who belonged to the level of Van Hiele namely visual, analysis, and informal deduction. After knowing the level which the students belonged to, the students were given a test of critical thinking to know how far students thought critically and in which level the students felt anxious.

There were two questions given to the students, the first being wa Van Hiele problem with the 25 questions that were adapt by Yudianto[11]. The Van Hiele test to know in which level the students belonged to. After knowing the level on Van Hiele, the students were given the second question that was critical thinking question. It aimed at knowing the anxiety symptom and the criteria of critical thinking felt and owned by the students while doing the second question. The question was as follow:
Table 3. Question

| The example of Van Hiele | Critical Thinking |
|--------------------------|-------------------|
| ![Example of Van Hiele](image) | ![Critical Thinking Test](image) |

3. RESULT AND DISCUSSION

3.1 Anxiety according to Van Hiele Level

The analysis result of observation, test, and interview toward the students’ anxiety obtained that the first subject of visualization level experienced anxiety in solving critical thinking problem of two-dimensional figure on the aspects of physiology, cognitive, and affective. In the aspect of physiology, the first subject showed tensed face when the researcher distributed question sheet and looked at question no 1 about rectangle. The cognitive aspect of the first subject showed confusion when started reading question number 1 and 2, forgetful and bad concentration while doing the test. Whereas, the aspect of affective showed anxiety while doing question number 2 about square, the number of tiles needed and the anxiety were found when the researcher announced that the time was running out.

The second subject experienced anxiety in solving critical thinking problem of two-dimensional figure on the aspects of physiology, cognitive, and affective. In the aspect of physiology, the second subject showed tensed face when the researcher distributed the question sheet and looked at question number 1 about rectangle. The cognitive aspect of the first subject showed forgetfulness while

While the results of the analysis of observations, test, and interview of the students’ anxiety obtained by the first subject of analysis level experienced anxiety in solving critical thinking problem of two-dimensional figure in the aspects of physiology, cognitive, and affective. In the aspect of physiology, the first subject showed tensed-face when the researcher distributed the question sheet and looked at question number 1 about rectangle. The cognitive aspect of the first subject showed forgetfulness while
doing question number 1 to calculate the rectangular stadium. In addition, the aspect of affective showed insecurity when the researcher announced that the time was running out.

The second subject experienced anxiety in solving critical thinking problem of two-dimensional figure in the aspects of physiology and affective. In the aspect of physiology, the second subject showed tensed-face when the researcher distributed the question sheet and looked at question number 1 about rectangle. Whereas, the affective aspect showed insecurity when doing question number 1 and 2 about rectangle and square, showed anxiety when doing question number 2 about square and the researcher told him that the time was running out. The results of the analysis above showed that both subjects of analysis level had similar students’ anxiety level in solving critical thinking problem.

On the other hand the results of the analysis of observations, test, and interview toward the students’ anxiety obtained by the first subject of informal deduction experienced anxiety on critical thinking problem of two-dimensional figure in the aspects of physiology and affective. In the aspect of physiology the first subject showed tensed-face when the researcher distributed the question sheet and looked at question number 1 about rectangle. Whereas, the affective aspect showed insecurity and easily distracted when doing question number 1 about finding out the possibility of length and width of rectangular stadium.

The second subject experienced anxiety on critical thinking problem of two-dimensional figure in the aspects of physiology and affective. In the aspect of physiology, the second subject showed tensed face when the researcher distributed the question sheet and looked at question number 1 about rectangle. Whereas, the affective aspect showed impatient when doing question number 2 about the number of tiles needed to a square room and anxiety when the researcher announced that the time was running out. The result of the analysis above showed that both subjects of informal deduction level had similar anxiety level in solving critical thinking problem.

From the result of the anxiety above, it can be seen that some various symptoms of anxiety happened to the subject were in line with Van Hiele level, at first the subject doing the test until the end of the time in solving critical thinking problem. The various symptoms showed by the students were actually psychological and behavior phenomena. This is in line with [13] who reveals that anxiety is a feeling or emotional condition which is inconvenient and happens naturally along with some psychological and behavior phenomena and it is experienced in formal testing or other evacuative situations. In relation to this, the existence of some indicators of anxiety experienced by the students when doing the test was because of the unreadiness of the students while given problem solving test in which it caused the emergence of anxiety.

3.2 Critical Thinking according to Van Hiele Level
The results of the test and interview analysis of the first subject of critical thinking level visualization that met the focus criteria with indicators understanding the problems in the tests given, namely mentioning what is known and what is asked on the test and inference criteria with the indicators making conclusions correctly. The results of the answers of the subject quotes below are as follows:

![Figure 1](image1.png)  
**Figure 1.** The answers from first subject

![Figure 2](image2.png)  
**Figure 2.** The answers from first subject
is a visualization on the first question

The second subject of the visualization level of critical thinking only fulfilled the focus criteria with the indicator understanding the problems in the given test, namely mentioning what is known and what is asked on the test and the inference criteria on the indicator making conclusions correctly and choosing the right reasons to support the conclusions made. The results of the answers of the subject quotes below are as follows:

**Figure 3.** The answers from second subject is a visualization on the first question

**Figure 4.** The answers from second subject is a visualization on the second question

This was also supported by the results of interviews with students of Visualization Subject 1 (SV1) and Visualization Subject 2 (SV2). The two subjects at the time of the interview possessed good communication. The following is an excerpt from an interview with SV1 student on question number 1. The visualization subject works on the problem by writing it is known that a stadium is rectangular with
a circumference of 350 meters. The stadium has provisions for the maximum size of a football field of 120 meters and a minimum of 90 meters and the width of a soccer field with a maximum of 90 meters and a minimum of 45 meters. After that, it was asked to determine two alternative sizes of the field and the extent of the possible stadium. During working on the questions given the subject did not feel any doubt and was sure of the answer.

Based on the results of the explanation above, it could be said that the analysis results of the two visualization subjects with the critical thinking indicators that were visible were focus and inference.

While the results of the analysis of the first subject’s test and interview level analysis of critical thinking fulfilled the focus criteria with indicators understanding the problems in the tests given, namely mentioning what is known and what is asked on the test. Reason criteria with indicators providing reasons based on relevant facts at each step in making decisions and conclusions. The inference criteria with indicators drawing conclusions correctly and choose the right reasons to support the conclusions made. Situation criteria with indicators understanding the important situations in the problem to give arguments. The results of the answers to the subject quotes below are as follows:

**Figure 5.** The answers from first subject is a analysis on the first question

```
1. Know:
   A rectangular Undoan with a circumference of 350 m
   Length max = 120 m, min = 90 m
   Width max = 90 m, min = 45 m

   Ask:
   Determine two alternative sizes of possible fields and
   the width of the rectangular field!

   Answer:
   Parameter: \( x = (\text{length} + \text{width}) \)
   350 = \( x \) (\text{length} + \text{width})
   175 = \text{length} + \text{width}

   a) by random:
   length = 100 m, width = 75 m
   area = length \times width
   \( \geq 7500 \text{ m}^2 \) --> which may

   alternative 2:
   length = 90 m, width = 85 m
   area = length \times width
   \( \geq 7650 \text{ m}^2 \) --> which may

   **Figure 5.** The answers from first subject is a analysis on the first question
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2. Know:
   A room is 9 m x 3 m in size.
   Each square meter needs 8 ceramic tiles.

   Ask:
   Determine the number of ceramic tiles needed by Mr. Awan.

   Answer:
   \( 9 \times 3 = 27 \)
   wood \( \times 5g \)
   Ceramic tiles: \( 27 - 5g \)
   \( \geq 22 \)
   \( 22 \times 8 = 176 \text{ ceramic tiles.} \)

**Figure 6.** The answers from first subject is a analysis on the second question
The second subject of the analysis level of critical thinking only fulfilled the focus criteria with the indicator understanding the problems in the test given, namely mentioning what is known and what is asked on the test. Reason criteria with indicators providing reasons based on relevant facts at each step in making decisions and conclusions. Inference criteria with indicators making conclusions appropriately, choosing the right reasons to support conclusions made and confident with the reasons given to support the conclusion of problem solving. Situation criteria with indicators understanding important situations in the problem to give arguments. Overview criteria with indicators re-examining the working results or answers obtained thoroughly starting from the beginning to the end. The results of the answers to the subject quotes below are as follows:

![Figure 7](image1.png)  
**Figure 7.** The answers from second subject is an analysis on the first question

![Figure 8](image2.png)  
**Figure 8.** The answers from second subject is an analysis on the second question

This was also supported by the results of interviews with students of Analysis Subject1 (SA1) and Analysis Subject2 (SA2). The two subjects at the time of the interview indicated good communication. The following is an excerpt from the interview with SA1 student for question number 1.

**P:** In your opinion, what do you know from that question?
**SA1:** A rectangle stadium with a circumference of 350 m. Length maximum: 120 m, Length minimum: 90 m. Width maximum: 60 m, Width minimum: 45 m.

**P:** In question number 1, what is it about?
**SA1:** Measure 2 alternatives stadium measurement and the probability of the stadium’s area.

**P:** Please pay attention first to the question number 1 that you have done.
**SA1:** (SLDI1 read again his/her result)

**P:** From your result, what was your first step to answer the question number 1?
**SA1:** Yes, firstly, I searched the length and the width.

**P:** Why do you search the length and the width first?
**SA1:** Yes ma’am, because firstly we only know the stadium circular, so from that circular I found the length and the width of the stadium

**P:** Next, after you knew the stadium length and width, what step did you do after?
**SA1:** I searched two alternatives stadium measurement then I found the probability of the stadium area.

Based on the explanation above, it can be said that the result of the analysis from those two subjects in critical thinking indicators are focus, reason, inference, situation dan overview. SA1 could
comprehend the question by saying things that was known, inquired, and explaining the step to finish question number 1.

On the other hand the results of the analysis of the first subject’s test and interview of informal deduction level of critical thinking only fulfilled the focus criteria with the indicator of students understanding the problems in the given test, namely mentioning what is known and what is asked on the test. Reason criteria with indicators of students giving reasons based on relevant facts at each step in making decisions and conclusions. Inference criteria with indicators students making conclusions appropriately, choosing the right reasons to support conclusions made and believing in the reasons given to support the conclusion of problem solving. Situation criteria with indicators students understanding the important situation in the problem to give an argument.

Clarity criteria with the indicator were able to explain the method used systematically in completing the test. Overview criteria with the indicator of re-examining work’s results or answers were obtained thoroughly starting from the beginning to the end. The results of the answers to the subject’s quotation are as follows:

![Figure 9](image1.png)

**Figure 9.** The answers from first subject is a informal deduction on the first question

![Figure 10](image2.png)

**Figure 10.** The answers from first subject is a informal deduction on the second question
The critical thinking’s second subject on informal deduction level only achieved the focus criteria with the indicator of understanding the problems in the test given, namely mentioning what was known and what was asked on the test. Reason criteria with the indicator of giving the reasons based on relevant facts on each step in making decision and drawing conclusion. Inference criteria with the indicator of drawing conclusion appropriately, choosing the right reason to support conclusion made and confident of the reason given to support the conclusion of problem solving. Situation criteria with the indicator of understanding important situations in the problem of arguing. The clarity criteria with the indicators were capable to explain the method used systematically in completing the test and being able to provide examples of cases similar to the test. Overview criteria with the indicator of re-examining work’s results or answers obtained thoroughly starting from the beginning to the end. The results of the answers to the subject quotes below are as follows:

**Figure 11.** The answers from second subject is a informal deduksi on the first question

**Figure 12.** The answers from second subject is a informal deduksi on the second question

It was also supported by the interview’s result conducted with the students of Informal Deduction 1 (SDI1) and Informal Deduction 2 (SDI2). During the interview, the two subjects had good communication. The excerpt of the interview with SDI1 students for question number 2 is presented as follows:

**P:** Can you explain how do you determine the ceramics that Mr. Nuril needed?

**SDI1:** Firstly, I found Mr. nuril’s room area that was square with 9m x9m side and the result was 81m²

**P:** After finding the area, what was the next step?

**SDI1:** After I found the room’s area that was 81 m² area, then i searched the area that was installed with wood accent = (3 x 3) + (1 x 3) + (6 x 3) + (1 x 3) + (6 x 1) = 39 m²

**P:** Why do you search the area that was installed with wood accent = (3 x 3) + (1 x 3) + (6 x 3) + (1 x 3) + (6 x 1) = 39 m²?

**SDI1:** Yes ma’am, because from the question, we knew the wood accent area, so I had to search the wood accent area for knowing the area that should be installed by ceramics.

**P:** Okay, then what was the next step?

**SDI1:** After finding the room area and the wood accent area, then I substracted the room area with the wood accent area for knowing the ceramics area that was installed. Then I multiplied the wood accent area with every meters were needed 8 ceramics to know how many ceramics that Mr. Nuril need.

**P:** Okay, from the question that you have done, have it answer the question number 2?
SD1: Already ma’am
P: So, what is the conclusion?
SD1: The conclusion is the ceramics that were needed are 336 pcs.

Based on the explanation above, it can be said that all of the subjects informal deduction are qualify the criteria and the critical thinking indicators as follows: focus, reason, inference, situation, clarity dan overview.

From the results of critical thinking above, there were various critical thinking criteria occurred on the subject that were in accordance with Van Hiele’s level. This is according to what Wijaya expressed [14] that a critical thinker would be able to find relevant sources of information for the problems he faced and know how he must process this important information to solve the problem. Van Hiele’s level was characterized by the ability to do logical reasoning process in solving problems. In accordance with research[12] which stated that the level of visualization, analysis, and informal deduction of students who had the skills and reasoning that differed according to the level of the level.

4 Conclusion
Based on the result of the analysis and discussion, it can be concluded that the students with the level of visualization only fulfilled the indicator of focus and inference while the anxiety on geometry was in the indicator of tensed-face, confusion, forgetful, poor concentration, anxious, and worry. The students with the level of visualization were only able to focus themselves on the known and asked things. Moreover, the students only could mention the previous material which related to problem solving without doing it clearly and completely. The students of the level of analysis could only fulfill the indicator of focus, reason, inference, situation, and overview while the anxiety on geometry was in the indicator of tensed-face, forgetful, anxious, and worry. The students of the analysis level could only mention the steps in solving the problem without capable to explain it clearly. Whereas, the students of the level of informal deduction could reach all the criteria of critical thinking while the anxiety on geometry was on the indicator of tensed-face, anxious, impatient, and easily distracted. The students with the level of informal deduction could decide the first step in problem solving and also explain stage by stage along with a clear reason.

Based on the obtained result of the research, the teachers should often give the question to the students in the form of mathematical solution so that the students could practice their critical thinking and relieve their anxiety on mathematics.

REFERENCES
[1] Hobri H, Suharto S and Rifqi Naja A 2018 Analysis of students’ creative thinking level in problem solving based on national council of teachers of mathematics J. Phys. Conf. Ser. 1008
[2] Karim A 2011 Penerapan Metode Penemuan Terbimbing dalam Pembelajaran Matematika untuk Meningkatkan Pemahaman Konsep dan Kemampuan Berpikir Kritis Siswa Sekolah Dasar Henti Widiastuti 21–32
[3] Florea N M and Hurjui E 2015 Critical Thinking in Elementary School Children Procedia - Soc. Behav. Sci. 180 565–72
[4] Shofia I, Ulfa K, Trapsilasiwi D and Yudianto E 2015 Profil Berpikir Kritis Siswa dalam Menyelesaikan Soal Fungsi Komposisi melalui Model Pembelajaran Kolaboratif 4185 40–53
[5] Annisa D F 2016 Konsep Kecemasan (Anxiety ) pada Lanjut Usia (Lansia) Kenselor 5
[6] Whyte J and Anthony G 2012 Maths anxiety : The fear factor in the mathematics classroom New Zeal. J. Teach. Work 9 6–15
[7] Wahid S N S, Yusof Y and Razak M R 2014 Math Anxiety among Students in Higher Education Level Procedia - Soc. Behav. Sci. 123 232–7
[8] Husnul Khotimah 2013 Meningkatkan hasil belajar geometri dengan teori van hiele Penguatan Peran Mat. dan Pendidik. Mat. yang Lebih Baik 978–9
[9] Abdullah A H and Zakaria E 2013 The Effects of Van Hiele’s Phases of Learning Geometry on Students’ Degree of Acquisition of Van Hiele Levels Procedia - Soc. Behav. Sci. 102 251–66
[10] Yildiz C, Aydin M and Köğce D 2009 Comparing the old and new 6th- 8th grade mathematics curricula in terms of Van Hiele understanding levels for geometry *Procedia - Soc. Behav. Sci.* **1** 731–6

[11] E Yudianto,* Sunardi1, T Sugiarti1, Susanto1 S and D T 2018 The identification of van Hiele level students on the topic of space analytic geometry The identification of van Hiele level students on the topic of space analytic geometry *J. Phys. Conf. Ser.* **983**

[12] Sujadi I 2014 Analisis Keterampilan Geometri Siswa Dalam Memecahkan Masalah Geometri Berdasarkan Tingkatan Berpikir VAN HIELE *J. Elektron. Pembelajaran Mat.* **2** 54–66

[13] Dusek, J. B. 1980. The Development of Test Anxiety in Children. Dalam I. G. Sarason (Ed.). *Test Anxiety: Theory, Research, and Application*. NJ: Erlbaum.

[14] Amir M F 2013 Profil Berpikir Kritis Mahasiswa Calon Guru dalam Memecahkan Masalah Pembuktian Geometri Ditinjau dari Perbedaan Gaya Kognitif.