

## **An Investigation of Secondary School Students' Critical Visual Reading Skills In Terms of Different Variables**

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### **Abstract**

The aim of this study is to examine the critical visual reading skills of secondary school students (5th, 6th, 7th and 8th grade) in terms of different variables (gender and grade level). Study sample consisted of 400 students of 4 schools located in the city center of Muş. A screening model was used in the research. Data were collected using the 5-point Likert-type Critical Visual Reading Scale 34-item developed by Söylemez (2015). The reliability of the scale was high (Cronbach's alpha = 0.814). Data were analyzed using the Statistical Package for Social Sciences (SPSS) for Windows 22.0 at a significance level of 0.05. Number, percentage, mean and standard deviation were used for descriptive statistics of variables. T-test was used for analysis of quantitative continuous data in two independent groups while one-way analysis of variance (ANOVA) was used for analysis of quantitative continuous data in more than two independent groups. A Scheffe's test was used to to make posthoc comparisons between the groups to determine significant differences. Results show that secondary school students' critical visual reading skills differ significantly by grade level but do not differ by gender. Several suggestions were made based on the findings.

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## **Introduction**

Humans possess many unique characteristics, the most important of which is the ability to think because such functions as thinking, comprehending and evaluating are bestowed only on humans. Cüceloğlu (1999) defines thinking as a mental process that humans rely on to make sense of the situations they are in. In parallel to thinking, critical thinking is another concept involving complex mental processes.

Thinking also means criticizing, which is to judge, analyze or interpret something objectively. The aim of criticism is the same as that of critical thinking: Recognizing weaknesses as well as strengths and flaws as well as merits (Paul, 1995, p. 521-552).

### **Critical Thinking**

Defined by Socrates as “examining both the positive and negative aspects of something,” critical thinking is also recognized as an inquiry method all over the world (Ruppel, 2005). Critical thinking was derived from Ancient Greek “kritikós” (of or for judging, able to discern”) and passed to Latin as “criticus,” and spread out to other languages (Kaya, 1997, p. 8).

Critical thinking is defined, discussed and classified in different ways in the literature. Sternberg (1999) defines critical thinking as a mental process, strategy and presentation of choice to solve problems. Schreglmann (2011, p. 30) defines it as a mental process of collecting all kinds of relevant data, and organizing, interpreting, separating and evaluating it based on a criterion without taking things (knowledge, skills and attitudes) for granted. Both definitions show that critical thinking is a disciplined mental process or activity. Hotaman (2008) emphasizes that critical thinking is a decisive mental activity. He also treats it as a cognitive skill that should be possessed by educated people; a motor activity that drives knowledge production; and an approach to solve a problem by means of reasoning. Ming-Lee Wen (1990) classifies the main functions of critical thinking as inquiry, comprehensive thinking, free thinking and restructuring. Johnson (2000) divides critical thinking into the stages of organization, analysis and evaluation.

Critical thinkers also have sound communication and observation skills. Fisher states that critical thinkers are able to communicate with various sources of information and determine the relevant and reliable ones. They also possess many other skills. Beyer (1991, p. 124) states that critical thinkers should be able to:

- Express a problem or a claim clearly
- Ask others to speak openly and clearly.
- Think before acting

- Check their own progress
- Be industrious in developing an idea
- Find and present the facts and evidence confirming their claims.
- Make a judgment not on the basis of dogmas and nostalgic convictions but on the basis of objectives, results and interpretations
- Use prior knowledge
- Doubt their judgment until sufficient evidence is found

### **Critical Reading**

Critical thinking skills and critical reading skills are interrelated concepts. Critical thinkers are also able to critically evaluate what they read. The concept of reading is, therefore, of great importance. Wallace (2003, p. 4) states that reading skill, which is a personal linguistic proficiency or a cognitive ability consisting of a set of skills, is also a social and critical process which is open to interpretation.

Hoffman (1992) discusses the relationship between critical thinking and critical reading. He highlights that critical reading starts with the reflection of critical thinking skills on the process of understanding and making sense of text.

Bosley (2008) states that critical reading is a purposeful and conscious activity through which the reader communicates with the text on a metacognitive level and proceeds to make sense of it and to reconstruct it in his mind.

Critical reading skills include searching information sources, recognizing the author's purpose, distinguishing between opinions and facts, making inferences and arriving at a judgment (Cervetti, Pardeles & Damico, 2001; Eryaman, 2007).

Wheeler (2007) looks at it from a different perspective. To him, the purpose of critical reading is not to develop opposing views to the author. The critical reader not only strives to understand the author's views, but also seeks evidence for alternative views and ponders upon their coherence and adaptability.

Critical reading is a mental process like critical thinking and consists of several steps. Hardcastle (2002) lists the steps of critical reading as follows:

1. Examining the titles of a text before reading

2. Determining when, for what purpose and by whom the text was written
3. Asking questions about the text
4. Identifying one's own feelings and thoughts about the text
5. Determining the texts that have been read
6. Identifying the ideas conveyed in the text
7. Evaluating the ideas conveyed in the text
8. Comparing the text with other texts

El-Hindi (1997, p. 15) also states that “critical reading is a metacognitive process in which the reader interacts with texts, asks questions, makes predictions, makes connections via prior knowledge and experiences, breaks down prejudices, perceives hidden meanings and builds new knowledge.”

A person who is able to engage in critical reading is referred to as a critical reader. Collins (1993) states that judgments, decisions and attitudes regarding the text affect the reader. He also states that critical readers should make effective evaluations and inquiries during reading and benefit from the fields of activity of critical thinking.

According to Leist, Woolwine and Bays (2012), critical readers follow the ideas of the author, and compare them with their own ideas. Shihab (2011) states that when reading a text, critical readers should be able to make sense of or fill in gaps that are not explicitly stated by the author.

### **Critical Visual Reading**

One common trait of critical thinkers or critical readers is high-level of visual reading skills. In this respect, critical readers are able to critically assess everything around them.

Visual reading is the ability to accurately interpret visual messages and create such messages (Heinich, Molenda, Russell, Smaldino, 1999, p. 64). People with high visual reading skills are also successful in comprehension and visualization. According to Brill, Kim and Branch (2001), critical visual readers are able to:

- 1- Distinguish between objects and make sense of them
- 2- Create effective and meaningful visuals in a given environment.
- 3- Understand and appreciate what others make of visuality.
- 4- Visualize

Söylemez (2015) lists the characteristics of critical visual readers as follows:

1. Critical thinking disposition: Being enthusiastic about reading a visual text using critical thinking processes
2. Recognition: Understanding the importance of the visual text and recognizing hidden messages
3. Competence: Having sufficient knowledge about the subject of the visual text
4. Explanation: Making sure that the space, graphics, tables, concepts, problems or situations specific to the space in the visual text are sufficiently clear
5. Interpretation: Distinguishing between fiction and fact and identifying both overt and covert messages, commercial/propaganda etc. in the visual text
6. Arrangement: Identifying and mentally processing information and visuals in the visual text and choosing the ones to be used, classifying information and visuals in the visual text and ranking them according to level of significance
7. Reasoning: Predicting the reason why the selected visual was chosen
8. Inference: Producing results based on the data in the visual text
9. Creative thinking: Understanding the author's original solutions in the visual text and developing alternative solutions
10. Evaluation: Determining whether each image, information or event in the visual text is clear, consistent, logical and ethical in itself, understanding their purpose and reason, identifying the intention of the author in conveying that particular information/event and in choosing those images
11. Application: Using the information and achievements obtained from the visual text when needed in daily life
12. Communication: Sharing visual text-related ideas in written or oral form
13. Making critical thinking a habit: Using critical thinking when sharing visual text-related views and when preparing to read and reading a visual text

### **Objective of the Research**

The aim of this study is to determine the critical visual reading levels of secondary school students (5th, 6th, 7th and 8th grade) and to examine them from various perspectives. To this end, the study sought answers to the following questions:

1. What are secondary school students' levels of critical visual reading skills?
2. Do secondary school students' levels of critical visual reading skills differ by gender?
3. Do secondary school students' levels of critical visual reading skills differ by grade level?

### **Method**

This section addresses the research model, study group, and data collection and analysis.

#### **Research Design**

A screening model was used in this study to determine participants' critical visual reading levels. Screening models are research models that attempt to describe a past or present phenomenon as it was or is and are used to collect, sort and analyze important data (Çömlekçi, 2001). In screening models, the event, individual or object of interest is analyzed as it is. The relational screening model is a research model that aims to determine the presence and degree of change based on two or more variables (Karasar, 2003).

#### **Study Sample**

The research was conducted in the spring semester of the 2017-2018 academic year with the participation of the researcher. Secondary school students of 4 schools were contacted and 25 students were recruited from each grade (5th, 6th, 7th and 8th grade) of each school. The study sample, therefore, consisted of 400 students.

#### **Data Collection and Reliability**

Data were collected using the Critical Visual Reading Scale 34-item developed by Söylemez (2015). The items are scored on a 5-point Likert scale (Never = 1, Sometimes = 2, Undecided = 3, Often = 4, Always = 5), the lowest score being 34 and the highest score being 170. The higher the score, the higher the critical visual reading skills. The reliability of the scale was found to be 0.841 by Söylemez (2015) while it was 0.814 in this study.

#### **Data Analysis**

Data were analyzed using the Statistical Package for Social Sciences (SPSS) for Windows 22.0 at a significance level of 0.05. Number, percentage, mean and standard deviation were used for descriptive statistics of variables. The t-test was used for analysis of quantitative continuous data in two independent groups while one-way analysis of variance (ANOVA) was used for analysis of quantitative continuous data in more than two independent groups. A Scheffe's Test was used to make posthoc comparisons between the groups to determine significant differences.

## Findings

This section reports the findings including explanations and comments based on them.

**Table 1.** Descriptive Characteristics of Participants

Tables	Groups	Frequency (n)	Percentage (%)
Gender	Girl	210	52.5
	Boy	190	47.5
	Total	400	100.0
Grade	5	100	25.0
	6	100	25.0
	7	100	25.0
	8	100	25.0
	Total	400	100.0

Of 400 participants, 210 (52.5%) were girls and 190 (47.5%) were boys. 100 (25%) were fifth graders, 100 (25%) were sixth graders, 100 (25%) were seventh graders and 100 (25%) were eighth graders.

Table 2 shows participants' critical visual reading levels.

**Table 2.** Participants' Critical Visual Reading Mean Score

	N	Mean	Sd	Min.	Max.
Critical Visual Reading	400	115.620	16.898	44.000	163.000

Participants' critical visual reading mean score was  $115.620 \pm 16.898$  (Min = 44; Max = 163).

Table 3 shows participants' critical visual reading mean scores depending on grade level.

**Table 3.** Participants' Critical Visual Reading Mean Scores by Grade Level

	Group	N	Mean	Sd	F	p	Difference
Critical Visual Reading	5	100	118.370	15.303	6.931	0.000	5>7
	6	100	120.280	18.657			6>7
	7	100	112.140	16.727			5>8
	8	100	111.690	15.210			6>8

A one-way Anova test was used to determine whether participants' critical visual reading mean scores differed significantly by grade level. A Scheffe's test was used to to make posthoc comparisons between the groups to determine significant differences. The Scheffe's test showed that participants' critical visual reading mean scores differed significantly by grade level ( $F=6.931$ ;  $p<0.05$ ).

According to the results, the fifth graders' mean critical visual reading score ( $\bar{x}=118.370$ ) was statistically significantly higher than that of the seventh graders ( $\bar{x}=112.140$ ). The sixth graders' mean critical visual reading score ( $\bar{x}=120.280$ ) was statistically significantly higher than that of the seventh graders ( $\bar{x}=112.140$ ). The fifth graders' mean critical visual reading score ( $\bar{x}=118.370$ ) was statistically significantly higher than that of the eighth graders ( $\bar{x}=111.690$ ). The fifth graders' mean critical visual reading score ( $\bar{x}=118.370$ ) was statistically significantly higher than that of the eighth graders ( $\bar{x}=111.690$ ). The sixth graders' mean critical visual reading score ( $\bar{x}=120.280$ ) was statistically significantly higher than that of the eighth graders ( $\bar{x}=111.690$ ).

Table 4 shows participants' mean critical visual reading scores depending on gender.

**Table 4.** Participants' Mean Critical Visual Reading Scores Depending by Gender

	Group	N	Mean	Sd	t	p
Critical Visual Reading	Girl	210	115.991	16.950	0.461	0.645
	Boy	190	115.211	16.875		

A t-test was used to determine whether participants' mean critical visual reading scores differed significantly by gender. The results showed no statistically significant difference ( $p>0.05$ ). The mean critical visual reading scores of male ( $\bar{x}=115.211$ ) and female participants ( $\bar{x}=115.991$ ) were very close to each other.

### Conclusion, Discussion and Suggestions

This study aimed to examine the critical visual reading skills of secondary school students (5th, 6th, 7th and 8th grade) in terms of different variables (gender and grade level). The results were compared with those of previous studies for further discussion and interpretation. Several suggestions were made concerning further research on and improvement of critical visual reading skills.

There seems to be no research on the critical visual reading skills of primary school students, secondary school students or pre-service teachers. This is, therefore, the first study to address this issue. The results were compared with those of previous studies on critical thinking and critical reading.

Interpretation of visuals requires various skills. Critical interpretation of visuals also requires certain knowledge. Interpretation of visuals is more like reading because it is the ability to read abstract concepts transformed into different images. This ability sometimes allows us to understand a topic that is difficult for others to understand or that would take a long time to express by different narrative techniques. As Paul, Binker, Jensen and Krelau (1990, p. 32) state, "a picture is worth a thousand words."

Participants' critical visual reading mean score was  $115.620 \pm 16.898$  (Min = 44; Max = 163). Considering that the highest score that can be obtained from the scale is 170, participants' critical visual reading level can be regarded as relatively high.

Of 400 participants, 210 (52.5%) were girls and 190 (47.5%) were boys. The results showed no statistically significant difference in critical visual reading mean scores between male and female participants ( $p > 0.05$ ). The mean critical visual reading scores of male ( $\bar{x} = 115.211$ ) and female participants ( $\bar{x} = 115.991$ ) were very close to each other. Emiroğlu (2014) investigated the effect of critical reading education on critical reading skills. He reported that critical reading activities significantly improved ninth graders' critical reading skills regardless of gender. Altunsöz (2016) also reported that there was no statistically significant difference in critical reading skills between male and female fourth graders. This result is also consistent with that of the study conducted by Topçuoğlu Ünal and Sever (2013) on Turkish pre-service teachers' self-efficacy perceptions of critical reading. They also concluded that gender had no effect on critical reading skills. Some studies, however, reported that female students had greater critical reading skills than did male students (Sadioğlu & Bilgin, 2008). Facione, Giancarlo, Facione and Gainen (1995) investigated the effect of gender on critical thinking dispositions and reported that female university students were more likely to be open-minded than male ones.

Another result of the study showed that participants' critical visual reading mean scores differed significantly by grade level ( $F = 6.931$ ;  $p < 0.05$ ). The fifth, sixth, seventh and eighth graders' mean critical visual reading scores were  $\bar{x} = 118.370$ ,  $\bar{x} = 120.280$ ,  $\bar{x} = 112.140$  and  $\bar{x} = 111.690$ , respectively, with sixth graders having the highest score and eighth graders the lowest score. Huitt (1998) states that teachers should be capable of providing their students of all grades with the opportunity to develop critical thinking skills in all areas of life and should evaluate those skills using appropriate instruments and give them feedback regarding their performance and improvement.

- The suggestions based on the results of this study are as follows:
- There is no research on student's critical visual reading skills. Further research is, therefore, warranted in this area.
- Critical visual reading skills should be included in all textbooks.
- Further research should be conducted on the relationship between critical visual reading skills and visual reading or critical thinking skills.
- Critical visual reading skills should be included in Turkish teaching curriculum, and activities should be designed and held accordingly.

- The results of this study were limited to fifth, sixth, seventh and eighth graders. It is, therefore, recommended that future studies investigate this subject matter with students of different grade levels.

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