Examination of the Effect of Revised Direct Reading and Thinking Activity (DR-TA) Strategy on the Development of Evaluation and Interpretation Skills in Reading

[1]Selva Kenanlar, [2]Gulhiz Pilten

[1]Necmettin Erbakan University, A.K. Faculty of Education, 42090 Konya-TURKEY
phone number:+905307602951, email: selvakenanlar@hotmail.com
[2]Necmettin Erbakan University, A.K. Faculty of Education, 42090 Konya-TURKEY
phone number: +905376184233, email: gulhizp@yahoo.com.tr

Abstract: Higher order thinking is the ability to think beyond the memorization of phenomenons and knowledge. Through higher order thinking skills, students can combine their present knowledge with the newly-learnt knowledge, and produce solutions on a subject. The purpose of the present research is, examining the affect of direct reading and thinking activity strategy (DR-TA) that was revised based on metacognitive skills on the 4th graders' development of evaluation and interpretation which are among higher order thinking skills in reading. The research was designed as an experimental study with pretest-posttest control group; and the higher order thinking skills in reading scale was implemented on students as pre-test and post-test. A total of 86 primary school 4th graders; the Control Group (28 students), the Experiment Group-I (30 students), and the Experiment Group-II (28 students) formed the study-group of the present research. DR-TA strategy was implemented on Experiment Group-I, and DR-TA strategy revised according to metacognitive strategies was implemented on Experiment Group-II. The collected data were analyzed with one-way variance (ANOVA). The findings revealed that, revised DR-TA strategy is effective at a significant level on the evaluation and interpretation steps which are the top two steps of metacognitive thinking skills in reading.

1. Introduction

Reading is defined as a complex process that consists of many interpenetrating skills and methods (Tankersley, 2005). This process consists of six components, each of which is of equal importance and shouldn't be ignored in reading. These components that form the basis for the efficient reader are presented schematically in Figure 1 (Tankersley, 2005).

Among the components presented in Figure 1, *phonological awareness* refers to an individuals' awareness of various methods to be used to arrange and cut the mother tongue into smaller sections (Chard and Dickson, 1999); *phonics* refers to defining the relationship between phonemes and graphemes; and analysis refers to be able to use the visual, syntactic and semantic clues in extrapolating from words and sentences (Tankersley, 2005).

The concept of *vocabulary* refers to the body of words that we can understand, recognize by listening, use actively in spoken language, read, and write; and the concept of *fluency* refers to the skill of reading by comprehending a text fully, using appropriate expressions in an accurate, correct, fast and easy way (Johns and Lenski, 2001).
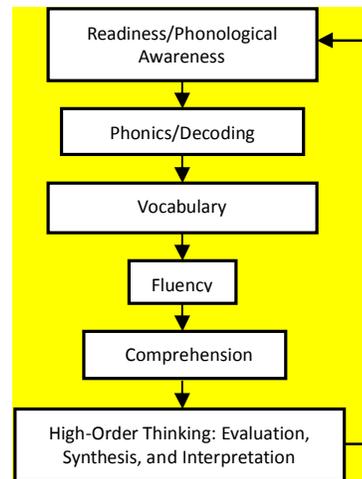

Figure 1. Components of Reading

Comprehension is defined as the process of extrapolating of the words encountered during listening, speaking, reading and writing; and it is perceived as the "essence of reading (Durkin, 1993). So indeed, it is observed that comprehension comes into prominence among the common features of the definitions of reading in the literature. Whatever the purpose of reading is; it can either be getting some news from newspaper or getting some information

from a novel, story or course-book; the ultimate purpose is comprehending the reading material. In this case, it would be right to claim that the main purpose of reading is "accurate and correct comprehension of what is read".

The main purpose of teaching reading is, enabling students to handle texts at *higher order thinking* levels such as; evaluation, synthesis, analysis, and interpretation. This is the top step in the components of reading. Evaluation refers to determining the main idea or concept in the text. In other words, evaluation involves making decisions about the ideas in the text. Synthesis means that students combine a new knowledge with the existing knowledge; and present a new idea and a new way of thinking. Harvey and Goudvis (2000) define synthesis as a skill that changes the thinking process of the readers. Analysis refers to comparing the prior knowledge with the knowledge learnt through reading. These comparisons enable readers to make generalizations of what they read, and therefore to have a judgment and an idea about that subject. Interpretation is readers' determining a point of view about the text.

1.1. Reading comprehension, higher order thinking and metacognition

Review of the related literature reveals that reading comprehension studies are the starting point of higher order thinking (Tankersley, 2005). General judgment in the literature is that, comprehension is a part of lower order thinking skills and a complementary element for the development of higher order thinking skills. In other words, comprehension is a skill which is a pre-condition for higher order thinking, and exists among higher thinking skills (Crowl et al., 1997).

Literature involves many researches on the effects of reading comprehension skills on higher order thinking, and the theoretical relationships between these concepts (Fogarty, 1994; Palincsar & Brown, 1984; Richardson and Morgan, 1997; El-Koumy, 2004; Tankersley, 2005; Rusnak, 1983; Barron, 1990). The findings of these researches show that the independent variable of these researches; reading comprehension strategies have positive effects on the higher order thinking of students at various grades at a significant level. These findings support that, even as a pre-condition, there is relationship between comprehension and higher order thinking.

Direct Reading and Thinking Activity (DR-TA), which is one the focus points of the present research and is defined as one of reading comprehension strategies in the literature was developed by Stauffer (1969) and is an appropriate strategy for processing all types of higher order texts. DR-TA strategy starts with the examination of the title and the subject of the story or the chapter to be read. Based of this information, students make guesses and form expectations about the subject of the text. Then, either the teacher reads the material aloud, or the students read it by stopping at the marked points. The steps of the strategy involves logical stopping points, sub-titles, ends of chapters or interesting points in the story. At each stopping point, teachers ask open-ended questions to reveal the guesses or ideas about the text. DR-TA structure encourages students to judge their opinions and connect their ideas with the text (Tankersley, 2005).

Examination of the findings of some researches on the effects of DR-TA strategy on higher order thinking skills present some conclusions focused on especially evaluation and interpretation skills.

In one of these researches, Richardson and Morgan (1997) emphasize that, DR-TA strategy has significant contributions to the development of the logical induction skills by making judgments through establishing connections between element in the text that are related to each other and making interpretations via these evaluations.

In another research, El-Koumy (2004) states that DR-TA which requires readers to evaluate their guesses related to the texts they read, is a strategic process that develops not only reading comprehension skills but also higher order thinking skills.

Concordantly, Tankersley (2005) emphasize that DR-TA strategy is an evaluation and interpretation oriented strategy that enables teachers to get a lot of information about their students' thinking processes, ideas, prior knowledge and learning styles.

Besides the above mentioned researches, Rusnak (1983) and Barron (1990) state in their researches that DR-TA has positive effects on the higher order thinking.

These researches support the findings in the literature that reading comprehension is a complementary element of higher order thinking. It is also a frequently emphasized situation in the literature that teachers can use these strategies to develop metacognitive skills that refers to the active control of cognitive processes that are integrated with learning process and not separated from higher order skills while performing the teaching of comprehension strategies in order to develop higher order thinking skills to the students (Irwin, 1991; Fogarty, 1994; Walsh & Sattes, 2005). The differences between comprehension and metacognitive strategies that can affect higher order thinking are only at the point of how these strategies are arranged and implemented. According to

Gourgey (1998), the main difference between comprehension strategies and metacognitive strategies is that the cognitive activities of metacognitive strategies are monitored and evaluated by the teacher.

Metacognitive strategies involve three parts emphasis in the area of reading; planning, self-monitoring, and self evaluating (O'malley and Chamot, 1990). These metacognitive strategies entail specifying a purpose for reading, planning how the text will be read, self-monitoring for errors in reading comprehension, and self evaluating on how well the overall objectives are being fulfilled, which allow for taking corrective measures if comprehension is not being achieved.

Based on the above mentioned information, the present research is conducted with the admission that DR-TA is effective on higher order thinking in reading and the presumption that teaching of metacognitive strategies contribute to higher order thinking. With this purpose, DR-TA strategy which is defined as a reading comprehension strategy was revised according to steps of SQ3R which is a metacognitive strategy.

The SQ3R strategy that is another focus point of the present research (which stands for Survey, Question, Read, Recite, Review) was developed by Robinson (1961) to provide a structured approach for students to use when studying content material. This strategy has proven to be effective and versatile and can easily be integrated into many content areas and across grade levels. Students develop effective study habits by engaging in the pre-reading, during-reading, and post-reading steps of this strategy. The SQ3R literacy strategy helps enhance comprehension and retention of information. It is metacognitive in nature in that it is a self monitoring process (Conner, 2002).

Five steps to the SQ3R literacy strategy (Robinson, 1961)

(1) Survey: By surveying the chapter titles, introductory paragraphs, bold face, italicized headings, and summary paragraphs, the reader gets an overview of the material. surveying also gives enough information to generate individual purposes for reading. (2) Question: Purpose questions are often provided at the beginning of the chapter. I not, the reader can turn section headings into questions. The main objective is to have questions for which answers are expected to be found in the passage. (3) Read: The student is to read to answer the purpose questions formulated in Step 2, Question. (4). Recite: Student should try to answer questions without referring to the text or notes. This step helps in transferring information from short-term to long-term memory. (5) Review: Students review the material by rereading parts of the text or notes. Students verify answers given during Step 4, Recite. This helps retain information better and gives immediate feedback.

1.2. The purpose of the research

The purpose of the present research is determining the effect of the revised version of Direct Reading and Thinking Activities (DR-TA) using metacognitive strategies which is a reading comprehension strategy, on the 4th graders' development of evaluating and interpreting skills which are stated among the higher order thinking skills in the literature.

In accordance with the purpose of the research, the answers to these questions are sought:

1. Do the 4th graders' who form the study-group of the present study, development of reading evaluation skills vary at a significant level at the end of the teaching processes; as anticipated in 4th grade Turkish Course curriculum, and activity structures in Turkish Course Books (Control Group), direct reading and thinking activities (Experiment Group-I) and direct reading and thinking activities revised according to metacognitive strategies (Experiment Group-II)?

2. Do the 4th graders' who form the study-group of the present study, development of reading interpreting skills vary at a significant level at the end of the teaching processes; as anticipated in 4th grade Turkish Course curriculum, and activity structures in Turkish Course Books (Control Group), direct reading and thinking activities (Experiment Group-I) and direct reading and thinking activities revised according to metacognitive strategies (Experiment Group-II)?

2. Materials and Methods

In the present research, it is planned to examine the effect of Direct Reading and Thing Activity (DR-TA) strategy revised based on SQ3R which is a metacognitive strategy, on the development of interpretation and evaluation which are higher order thinking skills in reading. With this purpose, an experimental study with pretest-posttest control group was organized. In the present research, there are 2 experiment groups and 1 control group. The procedures presented in Table 1 were implemented on these groups.

Table 1 shows that possible variation in the development of evaluation and interpretation skills of students in all study groups via using Higher Order Thinking Skills Scale as pre-test and post-test was tested by researchers. Table 1 also shows that only the education in the curriculum was provided for the students in the Control Group, only direct reading and thinking activities were implemented on Experiment Group-I, and direct reading and thinking activities revised according to SQ3R metacognitive

strategy were implemented on Experiment Group-II.

Table 1. Procedures implemented on Control, Experiment-I and Experiment-II groups

Group	Pre-test	Experimental Procedure	Post-test
Control	HOTSS*	-	HOTSS
Experiment 1	HOTSS	DR-TA**	HOTSS
Experiment 2	HOTSS	DR-TA+SQ3R***	HOTSS

*   Higher Order Thinking Skills Scale
**   Direct Reading and Thinking Activities
***   Direct Reading and Thinking Activities revised in the context of SQ3R strategy that is a metacognitive strategy

2.1. Study group

86 4th grade students who study at a primary school in Konya provincial center in Turkey form the study-group of the research. These students are grouped as follows: Control Group (28 Students), Experiment Group-I (30 Students), Experiment Group-II (28 Students).

2.2. Data collection tools

In the present research, in order to collect data before and after teaching on experiment and control groups, evaluation and interpretation dimensions of Reading Higher Order Thinking Skill Scale was used as pre-test and post-test. Tracy and Gibson (2005) used three steps in the development of this scale.

1. Primarily, the related literature was reviewed in the Concepts Definition Step which is defined as the first step of the development of Reading Higher Order Thinking Skill Scale. Considering the theoretical structure that defines higher order thinking skills in reading and related researches, 4 dimensions that form the afore mentioned thinking skills were determined: Analysis, synthesis, evaluation, and interpretation (Bloom   et al.,1956 Tankersley, 2005). In the present research evaluation and interpretation dimensions which are considered as top steps of higher order skills in the literature were investigated.

2. After determining the dimensions, related literature was reviewed again in the step of selection question types for these dimensions. It was concluded that, open-ended questions would be more appropriate for evaluating more complex situations like higher order thinking skills. Then, at least 5 open-ended questions were prepared for each dimension for the trial form of the scale. This form was reviewed considering the dimensions that constitute higher order thinking skills in reading with the help of related literature.

3. After validity and reliability studies, the final form of the scale consisting of 9 items was obtained.

The ultimate form of the scale was implemented as pre-test and post-test in single 20 minute sessions.

2.3. Data analysis

In order to test the content validity of the scale, Lawshe (1975) technique was used. With this purpose, the trial form prepared as explained above was presented to 8 field experts and 2 assessment and evaluation experts. These experts graded each item as "the item measures the aimed structure", "item is related to the structure however unnecessary", or "item cannot measure the aimed structure". After these gradings, the opinions of the experts related to each item were summed up and content validity rates were obtained. Content validity rates (CVR) were calculated one by one for each item with the formula presented in Figure 2, and are shown in Table 2.

$$CVR = \frac{ne - \dfrac{N}{2}}{\dfrac{N}{2}}$$

ne is the number of experts indicating "essential"
N is the total number of experts

Figure 2: Content Validity Rates (CVR)

Table 2. Content Validity Rates (CVR) for Trial Scale

Item No	Essential	Useful/Unessential	Unessential	CVR
1	9	1	0	0.8
2	10	0	0	1
3	9	1	0	0.8
4	7	2	1	0.4
5	9	1	0	0.8
6	9	1	0	0.8
7	9	0	1	0.8
8	8	1	1	0.6
9	10	0	0	1
10	10	0	0	1

After calculating Content Validity Rates (CVR) for each item, in order to test whether items are statistically significant, comparisons with Content Validity Measures (CVM) that is calculated with standard normal distribution principles in the literature were used. The literature states that if 10 experts opinions are obtained in the researches, in order to claim that items have content validity, CVR of each item should be higher than 0.62 significance

level (Lawshe, 1975; Veneziano and Hooper, 1997). Table 2 reveals that, content validity rates of 4th and 8th items in the scale are lower than the reference value. Considering the proximity of the rates of 8th items to the reference value, and its necessity in terms of representing the dimensions of higher order thinking skills in the scale, it was decided that 8th item is revised and included in the ultimate scale, and 4th item is removed from the scale.

After eliminating the 4th item the CVR of which was found statistically insignificant, all CVR averages of the remaining items were calculated and CVI (Content Validity Index) of the whole scale was obtained. Content Validity Index of the scale was calculated as 0.84 As this calculated index is higher than 0.62 which is stated as Content Validity Measure for 10 experts' opinions in the literature, it was concluded that content validity of the whole scale is statistically significant.

In addition, scoring reliability method which is one of the principal methods in determining reliability was used in the present research. This type of reliability determining is conducted by determining whether scoring varies from different scorings or scorers (Turgut, 1997). Considering this, Reading Higher Order Thinking Scale was implemented on March 2014 on 112 students who are not included in the experiment and control groups but have common features with the students in these groups. Evaluations were carried by a Turkish teacher, a grade teacher and the researcher himself. Then, the scores given by the researcher were compared with the scores of other evaluators. In order to increase reliability, by providing standardization in the process of scoring the scale; and to be used in the evaluating of the answers given by students to the open-ended questions related to the texts presented to students, gradual evaluation scale developed by the researcher was used. The correlation coefficients between the scores given by the researcher and the Turkish teacher and between the scores given by researcher and the grade teacher were calculated. The results for these comparisons are presented in Table 3.

Table 3. Reliability Study for Higher Order Thinking Skills Scale

	Evaluation I (Turkish Teacher)	Evaluation II (Grade Teacher)
Evaluation III (Researcher)	0.9	0.92

Table 3 shows that, the correlation coefficient between the scores given by the researcher and the Turkish teacher was calculated as 0.90; and the coefficient between the scores given by the researcher and the grade teacher was calculated as 0.92. To be able to claim that a scale is reliable, the calculated correlation coefficient must be al least 0.70 (Turgut, 1997). Therefore, it can be claimed that Reading Higher Order Thinking Skills Scale developed by the researcher is reliable in terms of scoring.

For the implementation of the analyses mentioned above; and scoring of the pre-test and post-test forms of the ultimate scale, gradual evaluation scale developed by the researcher was used. This way, it was aimed to provide standardization in scoring. In the analyses of the students' scores in pre-test and post-test, single factor variance (ANOVA) and various descriptive statistics were used. In the analyses of the data, SPSS 18 software was used.

2.4. Activities performed in experiment groups

Direct Reading and Thinking Activity (DR-TA) was implemented on the students in Experiment Group-I. Because DR-TA strategy is based on making guesses related to the text, attention was paid on that the students hadn't read the text before. With this purpose, the text was selected from a course-book published by another publisher other than the students use in their courses. Before starting with the activities, the students were distributed an activity form that was prepared according to DR-TA strategy. The form included questions intended at making guesses about the next paragraph at certain points of the text and 3 questions were included for each text. Therefore, the activities were performed in this way: students stop at the points of guessing questions, they make guesses according to the question and their guesses are controlled. After the reading of the text is finished, the activities in the course-book were done by the teacher.

Lesson plan prepared according to the Direct Reading and Thinking Activity revised in accordance with the metacognitive strategy: SQ3R strategy was implemented on the students in Experiment Group-II. It was provided that students in Experiment Group-II hadn't read the text before. Unlike the implementation done according to DR-TA strategy, before, during, and after reading of the text, metacognitive strategy: SQ3R strategy steps (S: Students **survey** the text generally before reading it; Q: they write **questions** based on the title and the pictures, R: they **read** the text in order to seek answers for the questions related to the text, R: they **recite** a brief summary of the text after they read it, R: at the end of the lesson students **review** the newly-learnt knowledge) were conducted. During reading of the text, in accordance with the DR-TA strategy, guessing questions about the text

were included in the activity using the above mentioned form.

2.5. Activities performed in control group

As the implementation process in the Experiment Groups I and II continued, nothing extra was performed in the control group, and the Turkish teacher continued the classes within the concept of the curriculum in this group. The texts were studied according to the preparation, comprehension, construction in mind, expressing oneself, assessment and evaluation steps in the teacher's books.

10 texts included in Turkish course-books were studied in each of Experiment-I, Experiment-II, and Control Groups using the above mentioned teaching methods. The implementations between pre-test and post-test took 5 months.

3. Results

The first sub-problem of the present research is whether there is a significant difference between the Control and Experiment groups' scores obtained in the evaluation dimension of the 'Reading Higher Order Thinking Skills' scale. Some descriptive statistics on the pre-test and post-test scores of students in the study-groups are presented in Table 4.

Table 4. Averages and standard variations of the pre-test and post-test scores of the students in the study-groups related to the evaluation dimension

Dimension	Tests	Groups	N	X	SS
Evaluation	Pre-test	Exp.I	27	4,37	3,307
		Exp.II	27	4,26	2,505
		Cont.	25	3,80	3,342
	Post-test	Exp.I	27	8,41	3,640
		Exp.II	27	10,67	3,419
		Cont	25	5,92	4,991

Data in Table 4 shows that, there is an increase in the score averages of all groups after teaching. Besides, post-test scores of the students show that, the increase in the students' average scores is higher in Experiment-II and Experiment-I groups. One-way ANOVA test was conducted in order to determine whether evaluation dimension of the Reading Higher Order Thinking Skills average scores of the students in the study-group vary at a significant level across groups and the findings are presented in Table 5.

As can be seen in Table 5, according to the results of one-way variance analysis conducted in order to determine whether evaluation dimension in Reading Higher Order Thinking Skills Scale score averages of the students in the study-group vary across groups (Control, Experiment-I, Experiment-II), there is a significant difference between groups ($p < 0.05$). This finding indicates that, reading

strategies implemented in experiment groups have a significant effect on the development of students' reading evaluation skills. LSD test was conducted in order to determine between which groups the detected evaluating skills average scores differences are.

Table 5. Variance Analysis Results of the Pre-test and Post-test score averages of groups in Evaluation Dimension

Source of Variance	Sum of Squares	sd	Mean of Squares	F	p	Dif. between groups
Inter-groups	292,48	2	146,238			*Exp.II Exp.I*
Intra-group	1246,36	76	16,399	8,9	,00	Exp.I Cont
Total	1538,84	78				*Exp.II Cont*

According to the results of LSD test conducted in order to detect the source of the difference, in the development of evaluating skills between Experiment Group-II in which revised DR-TA strategy was implemented and Experiment Group-I in which DR-TA strategy was implemented directly and the Control Group in which regular curriculum was implemented, there is a significant difference in favor of Experiment Group-II ($p < 0.05$). In addition, there is a significant difference between Experiment-I and Control groups, in favor of Experiment Group-I ($p < 0.05$). This can be interpreted as that, among the students' reading evaluating skills development strategies implemented within the context of the research, DR-TA revised according to metacognitive strategy: SQ3R is the most effective one. Teaching with just DR-TA strategy is also effective at a significant level in the development of reading evaluating skill. However, revised version of DR-TA is found to be a more effective method.

Table 6:   Averages and standard variations of the pre-test and post-test scores of the students in the study-groups related to the interpretation dimension

Dimension	Tests	Groups	N	X	SS
Interpretation	Pre-test	Exp.I	27	6,37	4,533
		Exp.II	27	5,30	2,826
		Cont.	25	6,32	4,871
	Post-test	Exp.I	27	10,37	3,543
		Exp.II	27	13,07	3,441
		Cont.	25	5,90	4,865

The second sub-problem of the present research is whether there is a significant difference between the Control and Experiment groups' scores obtained in the interpretation dimension of the 'Reading Higher Order Thinking Skills' scale. Some

descriptive statistics on the pre-test and post-test scores of students in the study-groups are presented in Table 6.

Data in Table 6 shows that, there is an increase in the score averages of all groups after teaching. Besides, post-test scores of the students show that, the increase in the students' average scores is higher in Experiment Group-II. One-way ANOVA test was conducted in order to determine whether interpretation dimension of the Reading Higher Order Thinking Skills average scores of the students in the study-group vary at a significant level across groups and the findings are presented in Table 7.

Table 7. Variance Analysis Results of the Pre-test and Post-test score averages of groups in Interpretation Dimension

Source of Variance	Sum of Squares	sd	Mean of Squares	F	p	Dif. between groups
Inter-groups	739,194	2	369,597	23,4	,00	*Exp.II Exp.I*
Intra-group	1202,15	76	15,818			Exp.I Cont
Total	1941,34	78				*Exp.II Cont*

As can be seen in Table 7, according to the results of one-way variance analysis conducted in order to determine whether interpretation dimension in Reading Higher Order Thinking Skills Scale score averages of the students in the study-group vary across groups (Control, Experiment-I, Experiment-II), there is a significant difference between groups (p<0.05). This finding indicates that, reading strategies implemented in experiment groups have a significant effect on the development of students' reading interpreting skills. LSD test was conducted in order to determine between which groups the detected interpreting skills average scores differences are.

According to the results of LSD test conducted in order to detect the source of the difference, in the development of interpreting skills between Experiment Group-II in which revised DR-TA strategy was implemented and Experiment Group-I in which DR-TA strategy was implemented directly and the Control Group in which regular curriculum was implemented, there is a significant difference in favor of Experiment Group-II (p<0.05). In addition, there is a significant difference between Experiment-I and Control groups, in favor of Experiment Group-I (p<0.05). This can be interpreted as that, among the students' reading interpreting skills development strategies implemented within the context of the research, DR-TA revised according to metacognitive strategy: SQ3R is the most effective one.

4. Discussions

In the present research, the following findings were obtained based on study-group students' scores on evaluation and interpretation dimensions of "Higher Order Thinking Scale" implemented as pre-test and post-test in order to determine the effect of Direct Reading and Thinking Activities (DR-TA) which was revised using metacognitive strategies on the development of evaluating and interpreting skills which are considered as top steps of higher order thinking skills in reading for primary school 4th graders in the literature.

Analysis of the students' scores on evaluation dimension of the scale shows that, there is a significant difference between control and experiment groups (Experiment-I, and Experiment-II) in terms of the development in this dimension, in favor of experiment groups. It was also examined whether there is a significant difference between experiment groups and it was found that Experiment Group-II made a better progress than Experiment Group-I in evaluating step at the end of the teaching at a statistically significant level. In other words, among 3 strategies examined within the scope of the present research, reading comprehension strategy (DR-TA) which was revised based metacognitive strategies (SQ3R) was the most effective one.

Analysis of the students' scores on interpretation dimension of the scale produced similar results. It was found that there is a significant difference between control and experiment groups (Experiment-I, and Experiment-II) in terms of the development in this dimension, in favor of experiment groups. The comparison of the experiment groups resulted in that Experiment Group-II made a better progress than Experiment Group-I in interpreting skill at the end of the teaching at a statistically significant level. In other words, the most effective strategy in interpretation dimension, like evaluation dimension, is the DR-TA strategy which was revised based metacognitive strategies that was implemented on Experiment Group-II.

The findings mentioned above, comply with the findings of the other researches in the related literature. Related researches results also indicate that DR-TA is a strategy that develops reading comprehension (Fogarty, 1994; Palincsar & Brown, 1984; Richardson and Morgan, 1997; El-Koumy, 2004; Tankersley, 2005; Rusnak, 1983; Barron, 1990). In the present research, just DR-TA strategy was implemented on Experiment Group-I and after teaching with this strategy, it was observed that students in Experiment Group-I made better progress at a statistically significant level in term of reading evaluation and interpretation scores than the Control

Group students who were taught with regular curriculum and course-books. In the literature, reading comprehension is defined as a process that completes higher order thinking and even it is among lower order thinking steps, it is defined as a process that forms the basis of higher order thinking (Tankersley, 2005; Crowl et al., 1997). In accordance with this, it can be claimed that the effect that develops reading comprehension of DR-TA which is defined as a reading comprehension development strategy in the present research also contributed positively to the Experiment Group-I students' evaluating and interpreting skills which are higher order thinking skills and this finding can be claimed to comply with the literature.

DR-TA strategy which was revised based on metacognitive strategies was implemented on the students in Experiment Group-II. As mentioned above, the progress of the evaluating and interpreting skills of students in Experiment Group-II is better than the students in control group at a statistically significant level. What needs to be debated at this point is the source of the change occurred at the end of the teaching carried in Experiment Group-II. In other words, the difference in favor of Experiment Group-II was debated above. So, did this difference result from the DR-TA strategy which was implemented on both Experiment-I and Experiment-II groups or from the effect of metacognitive strategies on DR-TA? The finding that students in Experiment group-2 made better progress at a statistically significant level in terms of the development of evaluating and interpreting skills than the students both in control and experiment 1 groups indicates that the difference resulted from the revision process based on metacognitive strategies. This finding also complies with the findings related to the correlation between metacognition and higher order thinking in the literature (Irwin, 1991; Fogarty, 1994; Walsh & Sattes, 2005; Gourgey, 1998).

Acknowledgements

Corresponding Author:
Dr. Gulhiz Pilten
Necmettin Erbakan University
A.K. Faculty of Education
Meram 42090 Konya/Turkey
email: gulhizp@yahoo.com.tr

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