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## **THE ROLE OF THINK-ALOUD STRATEGIES INCLUDING THINK-ALOUD FLASHCARD GAMES ON IMPROVING IRANIAN EFL LEARNERS' READING COMPREHENSION**

**\*Farnaz Sahebkheir and Nader Assadi Aidinlou**

*Department of English Language Teaching, College of Humanity, Ahar Branch, Islamic Azad University, Ahar, Iran*

*\*Author for Correspondence*

### **ABSTRACT**

The purpose of this study was twofold: its first aim was to investigate different aspects of the think-aloud strategies that are used by EFL learners on reading comprehension tasks; secondly, it attempted to determine the effect of think-aloud strategies on developing EFL learners' reading comprehension. Students randomly assigned to an experimental and a control group by using a PET test and a reading comprehension task as a pre-test. In the experimental group, teacher explained about think-aloud strategies and practiced these strategies by a 12 flashcard game. This group also had to complete a questionnaire about which think-aloud strategies they used while reading or they found useful in completing reading comprehension tasks. These students completed the reading tasks and used different think-aloud strategies and worked collaboratively with their teachers and peers while using flashcards to practice these strategies. In the control group, students completed their reading tasks but teacher did not explain about think-aloud strategies. Furthermore, they did not have access to think aloud flashcards. Questionnaire about Think-aloud strategies showed that which strategies are more useful for students or they prefer to use in completing reading tasks. Furthermore, in the post test, experimental group outperformed the control group on completing reading comprehension tasks. The findings of the study suggest that teaching thinking-aloud strategies and practicing them by a 12 flashcard game could be a good strategy for improving reading comprehension.

**Keywords:** *Reading Comprehension, Scaffolding, Self-assessment, Social Learning, Think-aloud Flashcard Game, Think-aloud Strategies*

### **INTRODUCTION**

After semesters of teaching reading strategies, there are still some students not progressing in the area of reading comprehension. New strategies should be used to boost students reading comprehension. Teachers know that highly skilled readers use similar thought processes before, during, and after reading. They (a) adjust a reading goal according to their level of prior knowledge, (b) think strategically, (c) follow their intentions to the end of a passage, (d) monitor their comprehension, and (e) reflect on an author's purpose within the constraints of a particular genre and their own reading objective (Block, 2004; Block and Israel, 2004; Block and Pressley, 2002; Israel, 2002; Pressley and Afflerbach, 1995). Recent research reports and panel syntheses agree that all readers should use these expert thinking processes. Many less able readers, however, will not do so unless their teachers become proficient in demonstrating these thinking processes (Block and Israel, 2004; Israel, 2002; Pressley and Afflerbach, 1995). To accomplish this goal, educators have asked for more information about how to perform effective think-alouds (Baumann *et al.*, 1993; Block, 2004; Block and Israel, 2004; Block and Pressley, 2002; Duffy, 2003; Israel, 2002; Martin-Hansen and Johnson, 2006; Merchie and Keer, 2014; Oh *et al.*, 2013; Oster, 2001; Schellings, 2011; Scott, 2008; Vaezi and Alizadeh, 2011).

A think-aloud is a "metacognitive technique or strategy in which a teacher verbalizes thoughts aloud while reading a selection orally, thus modeling the process of comprehension" (Harris and Hodges, 1995). Think-aloud strategies involve the verbalization of thinking during reading, problem solving, or other cognitive tasks (Oster, 2001; Schunk, 2004). Participants might verbalize commentary, questions,

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generating hypotheses, or drawing conclusions. Thus, think-alouds may serve as both an instructional tool and method of assessment. Significant research has focused on explicit efforts to understand the thinking process and the comprehension of text (Bereiter and Bird, 1985; Davey, 1983). Utilizing think-alouds in such a manner involves teacher modeling, teacher-student interaction, and finally, the independent use by the student. However, Beck and Kucan (1997) point out that much of the research does not offer specific examples of this process. Furthermore, those that do offer specific examples, rely heavily on the internalization of the strategy by the student in a later and more independent setting, potentially missing vital information into the process of student thinking.

Think-alouds enable readers to stop periodically, reflect on the thinking they do to understand a text, and relate these literacy processes orally. Teachers use this technique as an instructional practice to help students verbalize the thoughts they use during reading, and thus bring that thinking into the open so that they can replicate it more effectively in the future (Oster, 2001). This metacognitive awareness significantly increases students' scores on comprehension tests, adds to students' self-assessment of their comprehension, and enhances students' abilities to select thinking processes to overcome comprehension challenges while they read (Block, 2004; Oster, 2001).

As an instructional practice, think-alouds differ from prompting, modeling, or giving directions. Think-alouds enable teachers to demonstrate for their students how to select an appropriate comprehension process at a specific point in a particular text. Highly effective think-alouds also describe why a specific thought process would be effective in overcoming that confusion or reading difficulty.

Thus, performing effective think-alouds has proven to be a successful practice by which teachers can explain how expert readers elicit comprehension processes separately and collectively (Block, 2004; Merchie and Keer, 2014; Oh *et al.*, 2013; Oster, 2001; Schellings, 2011; Scott, 2008; Vaezi and Alizadeh, 2011). Teachers want to boost their abilities to perform effective think-alouds and students have also expressed a need to understand their teachers' thinking during reading. Block (2004) conducted a research to determine what teachers could do to help students on developing comprehension. The most frequent response was that students wanted their teachers to explain reading processes better. They wanted teachers to (a) describe what they did to understand the "things that occurred in books," (b) show how they knew which meanings went with which words, and (c) explain "just about everything that they did in their minds to comprehend".

In Another study documented by Garcia (2002), the results show that these needs were greater for English-language learners and struggling readers. These students wanted their teachers to deliver very specific think-alouds about the following strategies: how to confirm or disconfirm what they understood, decode, infer, use prior knowledge, notice novelty, paraphrase, predict, question, read ahead, reread, restate, summarize, understand the structure of a text, use context clues, make visual images, and learn new vocabulary words. Block and Israel (2004) and Israel (2002) conducted a research on students at intermediate level and taught them, those reading strategies that highly skilled students use while reading. Furthermore, they practiced these strategies by flashcards. The findings showed that students could improve their reading skill by instructing think-aloud strategies.

Limited research has been done with think-alouds and science instruction. So, this article tries to describe the benefits and methods of teaching reading comprehension through highly effective think-alouds; how think-alouds assist students to engage their own comprehension processes; and how think-alouds can become a valuable assessment tool in classrooms, school programs, and tutorial sessions.

This article supplies several examples for teachers' use in school to teach reading comprehension. In order to find the effect of think-aloud strategies on reading comprehension, the following questions were asked:

1. What was the effect of using thinking-aloud strategies on learners' reading comprehension?
2. What aspects of thinking-aloud strategies were used by learners during reading comprehension?

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### **MATERIALS AND METHODS**

#### **Participants**

The participants in the present study were 40 EFL students from Goldis English institute in Tabriz, Iran. Students were all at intermediate level. They were chosen after assigning a preliminary English Test (PET) and a reading comprehension task (see Appendix A) for having homogeneous groups. The researcher randomly assigned them as the experimental and the control group.

#### **Instrumentation**

Different instruments used in the present study involve a preliminary English Test (PET), a reading comprehension task in the pre-test and the post-test (see Appendix A) and different reading tasks from Interchange book 1A for the treatment sessions. 12 Thinking-aloud flashcards (see Appendix B) and a questionnaire about thinking-aloud strategies (see Appendix C) were used.

#### **Procedure**

The goal of this study was to examine the effects of thinking-aloud strategies on improving reading comprehension. The researcher used a quasi-experimental research design with a sample of forty Iranian EFL learners in Tabriz-Iran. After assessing the groups' homogeneity by using a PET test (those who got 50 or more out of 100 were chosen) and a reading comprehension task as a pre-test, the researcher randomly assigned them as the experimental and control groups. Teacher in the experimental group explained about thinking-aloud strategies which are useful for reading comprehension that are widely used by highly skilled readers. Then teacher used a think-aloud flashcard game to practice these strategies while students were dealing with a reading task in their English book (Interchange 1A). Students chose strategies in flashcards one by one and tried to understand the text by using them. They also get feedback from teachers and their peers about correct use of these strategies. After one month of having treatment sessions, teacher asked students to complete a questionnaire about which thinking-aloud strategies they use more or found useful. In the experimental group, procedure in the treatment sessions was adapted from Block and Israel (2004) and Roger and Jusko (2014). The procedure was as follows:

#### **Explanation of BEFORE Reading Strategies**

##### *1-Overview the Text*

##### *2-Look for Important Information*

##### *3-Connect to an Author's Big Idea*

- *Relate pages, sections, and chapters to the main topic and main ideas. See how the main ideas are connected to the big idea.*
- *Keep the title of the text/book in mind*

##### *4-Activate Relevant Knowledge*

- *After reading the first few pages, continue reading and thinking about experiences you have had that are very similar to the experiences in the book/ reading tasks.*
- *Think about other books/ texts you've read and activities you've done that relate to this information*

##### *5-Put Myself in the Book/text*

- *pretend that you are the main character*
- *put yourself in the environment of the non-fiction topic*

#### **Explanation of DURING Reading Strategies**

##### *6-Revise Prior Knowledge and Predict*

- *expert readers revise their understanding and predict as they read in a continuous process throughout the entire reading piece*

##### *7-Recognize an Author's Writing Style*

- *Step 1- recognize the depth of vocabulary that an author uses (dense, moderate, or low level of new vocabulary words introduced)*
- *Step 2 - recognize the complexity of sentences that an author uses (complex, compound, or simple)*
- *Step 3- recognize the length of paragraphs that an author uses. Skim the book/text to find the average length of the paragraphs, and see if that meets your needs as a reader.*

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- Step 4 - recognize the frequency with which big ideas are introduced. Is it every paragraph, every 2 or 3 paragraphs, or every 5 paragraphs?
- Step 5 - recognize how sentences and paragraphs are connected. Does the author use summary paragraphs after each big idea, or transition words to signal relationships between paragraphs. Look at subheadings and signal words.

8-Determine Word Meanings:

- structural analysis and context clues
- phonics
- sight words
- words that gain meaning from syntax or semantic relationships (context clues)
- words that are long and do not frequently occur unless the content relates directly to a specific theme (context-specific words)
- unusual words (detecting accent marks and foreign derivational clues)
- words when none of the above decoding processes unlock their meanings (e.g. how you know it's time to ask a friend or teacher or to look the word up in a dictionary)

9-Ask Questions

- expert readers ask themselves questions while they read

**Explanation of AFTER Reading Strategies**

10-Notice Novelty in Text

- Expert readers reflect on an author's ideas and how they are enhanced by a writer's choice of words, genre, and individual flairs in writing style
- notice and use differences in genres' formats to comprehend subtleties of meaning
- identify subtleties in word choices
- contrast how the textual features in a genre communicate meaning
- pretend you are telling the author the individual features in his or her writing style that you most appreciate as a reader
- go back to reread and develop a more complete understanding

11-Relate the Book/text to My Life

- how to apply morals, themes, and subject content to your life

12-Anticipate Use of Knowledge

- anticipate when knowledge gained from one text can be used to comprehend a new book/text

In the control group, during treatment sessions, students were working on the same reading tasks on the same book. However, teacher did not explain about think-aloud strategies. They did not have think-aloud flashcards, either. Post -test procedure was exactly similar to the pre-test procedure and it was conducted with the same task.

**Design**

Due to the proposed research question, this study required a quasi-experimental method of research. It contained a pre-test, a post test, a control group and an experimental group.

**RESULTS AND DISCUSSION**

**Table 1: Independent sample t-test for proficiency scores**

group	N	mean	Std. Deviation	Std. Error Mean	Sig(2-tailed)	F	t	df
PET control	20	52.85	1.89945	.42473	.162	1.876	-	38
experimental	20	53.43	2.49789	.55855	.162		-	35.467
							1.425	
							.1425	

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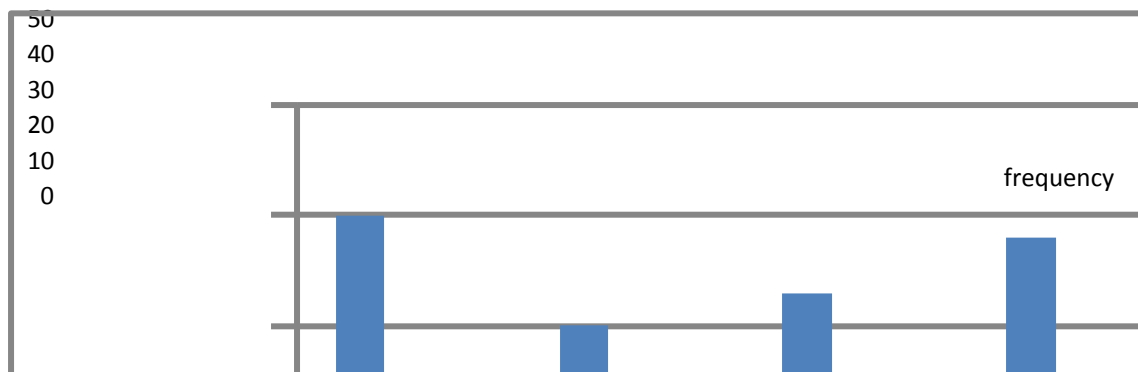
In this section, the results of t-test for proficiency test between two groups, t-test for showing the results of pre-test and post-test scores, descriptive statistics of data gained from questionnaire for think-aloud strategies will be presented. Finally, the researcher will discuss the results.

Table 1 represents the result of the t-test for proficiency test (PET) between two groups; there has not been a significant difference in scores for control group (M =52.85, SD = 1.89) and experimental group (M=53.43, SD = 2.49),  $t(38) = -1.425, P > .05$ . So, two groups at the beginning of the research are homogeneous.

**Table 2: Frequencies and proportions of different think-aloud strategies mentioned by the experimental group**

	Frequency	Percent %	Mean	Std. deviation
Overview the Text	40	93.0	1.0	.00
Look for Important Information	30	69.8	.75	.43
Connect to an Author's Big Idea	33	76.7	.82	.38
Activate Relevant Knowledge	38	88.4	.95	.22
Put Myself in the Book/text	4	9.3	.1	.30
Revise Prior Knowledge and Predict	30	69.8	.75	.43
Recognize an Author's Writing Style	24	55.8	.62	.49
Determine Word Meanings	39	90.7	.97	.15
Ask Questions	8	18.6	.20	.40
Notice Novelty in Text	5	11.6	.12	.33
Related the Book /text to My Life	7	16.3	.17	.38
Anticipate Use of Knowledge	22	51.2	.55	.50

As Table 2 indicates, the largest proportion and mean frequency of thinking -aloud strategies that are found helpful by the students are *Overview the Text* (93.0%,  $M = 1.0$ ), *Determine Word Meanings* (90.7%,  $M = .97$ ), and *Activate Relevant Knowledge* (88.4%,  $M = .95$ ).



**Figure 1: Frequencies and proportions of different think-aloud strategies mentioned by the experimental group**

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**Table3: Descriptive statistics of comparing two groups in the pre-test and post-test**

group	N	mean	Std. Deviation	Std. Error Mean	Sig(2-tailed)	F	t	df
pre control	20	3.80	1.15166	.25752	.267	.036	1.125	38
	20	3.40	1.09545	.24495	.267		1.125	37.905
experimental								
Post control	20	5.30	.57124	.12773	.000	6.551	-	38
							14.029	
experimental	20	9.05	1.05006	.23480	.000		-	29.340
							14.029	

As Table 3 shows, mean score in the pre-test for the control group is (M =3.80, SD =1.15) and experimental group (M=3.40, SD =1.09),  $t(38) = 1.125$ ,  $P > .05$ . The mean score shows that the reading comprehension scores between two groups in the pre-test were the same. In the post-test, scores for control group (M =5.30, SD =.57) and experimental group (M=9.05, SD = 1.05),  $t(38) = -14.029$ ,  $P = .000$ . The results show that there is a significant difference between two groups in the post-test. In the post-test, the experimental group outperforms the control group in completing the reading comprehension task.

The descriptive statistics of result gained from questionnaire about different think-aloud strategies used by students show that students prefer to use *Overview the Text* (93.0%,  $M = 1.0$ ), *Determine Word Meanings* (90.7%,  $M = .97$ ), and *Activate Relevant Knowledge* (88.4%,  $M = .95$ ) more than other think-aloud strategies.

Furthermore, the results show that instructing thinking-aloud strategies can improve reading comprehension. The findings of this research are consistent with the result of previous researches (Baumann *et al.*, 1993; Block, 2004; Block and Israel, 2004; Block and Pressley, 2002; Duffy, 2003; Israel, 2002; Martin-Hansen and Johnson, 2006; Merchie and Keer, 2014; Oh *et al.*, 2013; Oster, 2001; Schellings, 2011; Scott, 2008; Vaezi and Alizadeh, 2011) which stated the positive effect of Think-aloud strategies on learning and teaching. Teachers can demonstrate think-aloud strategies and ask students to identify it by holding up the flashcard that depicts that thinking process. Teachers can also pair students and ask them to perform think-alouds together.

They can then evaluate which thinking processes are easy and which ones require more practice before they become automatic during their silent reading. It involves peer think-aloud game. This fun-filled lesson is based on the principles of social learning (Vygotsky, 1962) and on scaffolded instruction (Bruner, 1978). First purpose of think-alouds strategies in this article was presenting 12 thinking processes that significantly increase students' abilities to think like expert readers. Examples were provided to show how to infuse school programs with highly effective think-alouds.

Another goal of this article was to demonstrate game-like lessons and reading assessments that have proven to assist students to use expert thinking processes independently and without teacher prompting. These lessons enable students to practice 12 thinking processes until they can perform them automatically each time they read. Our intention throughout this article was to enhance teachers' competencies to perform highly effective think-alouds and, through them, to build their students' comprehension, decoding, vocabulary, and fluency.

It has been proven that students come to realize that they can read with greater understanding and obtain more information and pleasure from books/texts when a teacher uses think alouds. As a result, fewer students struggle to comprehend texts at school and home. Students will also experience the benefits of think-alouds long after they leave the classroom. They will likely activate expert readers' thinking processes throughout their lives every time they read to achieve professional or personal goals.

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### APPENDIXES

#### Appendix A

##### Pre-test and Post-test

##### Reading comprehension task

##### **The First Computer Programmer**

Ada Lovelace was the daughter of the poet Lord Byron. She was taught by Mary Somerville, a well-known researcher and scientific author, who introduced her to Charles Babbage in June 1833. Babbage was an English mathematician, who first had the idea for a programmable computer.

In 1842 and 1843, Ada translated the work of an Italian mathematician, Luigi Menabrea, on Babbage's Analytical Engine. Though mechanical, this machine was an important step in the history of computers; it was the design of a mechanical general-purpose computer. Babbage worked on it for many years until his death in 1871. However, because of financial, political, and legal issues, the engine was never built.

The design of the machine was very modern; it anticipated the first completed general-purpose computers by about 100 years. When Ada translated the article, she added a set of notes which specified in complete detail a method for calculating certain numbers with the Analytical Engine, which have since been recognized by historians as the world's first computer program.

She also saw possibilities in it that Babbage hadn't: she realised that the machine could compose pieces of music. The computer programming language 'Ada', used in some aviation and military programs, is named after her.

Q1 - Ada Lovelace's teacher introduced her to Charles Babbage.

True  False

Q2 - Babbage programmed the first computer.

True  False

Q3 - Ada translated the article in 1842.

True  False

Q4 - The Analytical Engine was electronic.

True  False

Q5 - Luigi Menabrea designed the first computer.

True  False

Q6 - Babbage finished the machine before he died.

True  False

Q7 - Babbage's design was ahead of its time.

True  False

Q8 - Ada's work was instantly recognised as being the first computer program.

True  False

Q9 - Babbage saw that his machine could write music.

True  False

Q10 - Ada wrote military and aviation computer programs.

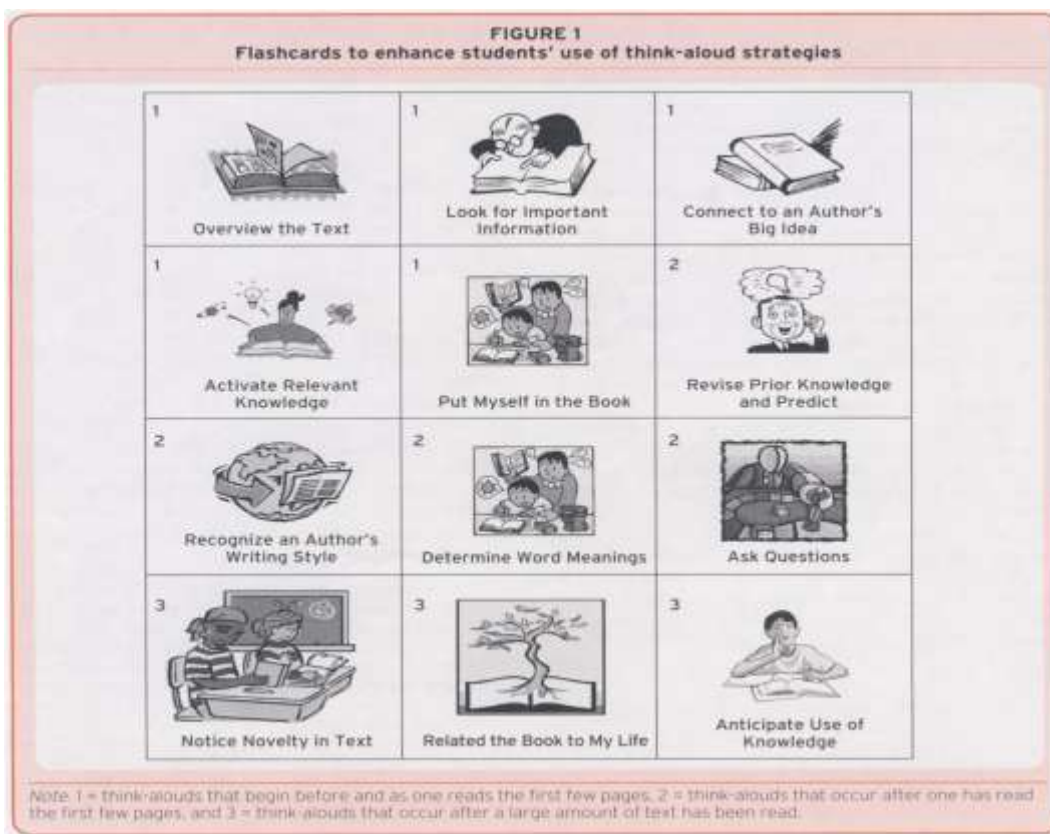
True  False



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**Appendix B:**

*12 Think-aloud Flashcards*



**Appendix C**

*Questionnaire*

Which think-aloud strategies do you like to use to help you understand your reading materials?

1. Overview the Text-----.
2. Look for Important Information-----.
3. Connect to an Author's Big Idea-----.
4. Activate Relevant Knowledge-----.
5. Put Myself in the Book-----.
6. Revise Prior Knowledge and Predict-----.
7. Recognize an Author's Writing Style-----.
8. Determine Word Meanings-----.
9. Ask Questions-----.
10. Notice Novelty in Text-----.
11. Related the Book to My Life-----.
12. Anticipate Use of Knowledge-----.