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Intervention of Information Synthesization, Making Inferences, and Visualization with Iranian Undergraduates' ESP Reading Comprehension Achievement

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Abstract

This study investigated the intervention of information synthesization, making inferences, and visualization with Iranian undergraduates' ESP (accounting) reading comprehension achievement. 90 ESP university students majoring in accounting have participated in this study. Based on the QPT proficiency test, they were assigned into three homogeneous groups. The pretest showed that the three groups were not significantly different, and then accounting reading comprehension was taught as the treatment. In group A, the focus was on "information synthesization strategy", in group B, the emphasis was on "making inferences strategy", and in group C, the teacher focused on visualization strategy. The results of the post-test revealed that although each of these three strategies improved ESP reading comprehension, information synthesization had the most effect, making inferences had a medium effect, and visualization had less effect on improving the students' ESP reading comprehension ability. This study has implications for students, teachers, and also curriculum developers.

Keywords: Reading comprehension, Information Synthesization, Making inferences, Visualization, English for Specific Purposes

1. Introduction

Reading comprehension is such an activity that many teachers do not understand clearly the amount of the problems and difficulties that their

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students encounter to understand a text. Thus, many reading comprehension problems are unnoticed, and so no actions are taken to remedy this situation. Low proficiency level students, who read scientific texts, have to cope with the L2 linguistic challenges and have to negotiate many science concepts and the language of science (Fang, 2006).

Reading and interpreting texts in English plays a crucial role in everyday living and the academic setting. ESP is a novel area in Iran. The teachers and the students use traditional methods for teaching and learning ESP courses. ESP students in Iran encounter many difficulties in comprehending specific text, which causes failure in scientific concepts. Applying proper strategies can help readers to have a better understanding of the text.

According to Zimmermann and Hutchins (2003), it is better to use seven usual strategies to create meaning: creating mental images by using visual, using relevant background knowledge to improve understanding, asking questions to clarify, making predictions, and focusing attention on the main ideas, making inferences by using prior knowledge and information from the text to make predictions or draw conclusions, determining the main ideas to distinguish between important and unimportant matters, synthesizing information as it evolves in the text to gain the overall meaning, use problem-solving strategies to be aware of when they understand and when they don´t. The purpose of this study was to examine the effect of three common types of reading comprehension: strategies, including information synthesization, making inferences and visualization on the ESP reading comprehension of Iranian ESP students. The research question of the present study was as follows:

Q1: Is there any significant difference among the effects of information synthesization, making inferences, and visualization strategies on ESP reading comprehension ability of ESP university students majoring in accounting?

The research hypothesis of the present study was as follows:

H01: There is not any significant difference among the effects of information synthesization, making inferences, and visualization strategies on ESP reading comprehension of university students majoring in accounting.

2. Review of the literature

Comprehension consists of three elements: the reader, the text, and the comprehension activity. A reader must have specific cognitive capacities: attention, memory, critical analytic ability, inference and visualization, motivation, interest, self-efficacy as a reader, and linguistic and vocabulary knowledge, knowledge of domain and topic, linguistic and discourse knowledge, knowledge of specific comprehension strategies depend on the texts in use and the activity in which one is engaged (Snow, 2002).

Reading comprehension is a flexible and continuous cognitive and creative process. The contribution of conceptually driven (top-down) and data-driven (bottom-up) processes to the construction of a mental model of text ideas will integrate information from the text-based model and prior knowledge using inferential processing. Reading comprehension difficulties are related to the integration of factors like biological, cognitive, or behavioral issues that may situate within or outside of the learner (Woolley, 2011).

Ziyaeemehr (2012) proved that Collaborative strategic reading is an effective way to activate and improve students' comprehension of text. Teaching reading comprehension strategies, such as summarizing, making concept maps, questioning, and comprehension monitoring are cognitive strategies, metacognitive strategies, or self-regulatory strategies. Teaching and learning these strategies increase reading comprehension achievements (Cromley & Snyder-hogan, 2010). (Akyel, & ErÇetin, 2009) emphasized the positive effect of teaching strategies for reading comprehension of those who can use these strategies better are good readers. Different scholars suggested different models of strategies for better reading comprehension. They believe that cognitive differences cause different cognitive and reading abilities (Motallebzadeh & Tabatabaee Yazdi, 2016).

Gholami, Ahghar, and Ahghar (2012) investigated the effects of teaching cognitive and metacognitive strategies on EFL students' reading comprehension. The results revealed that teaching cognitive and metacognitive strategies enhanced intermediate student's reading comprehension. This fact suggests that reading strategies are essential in helping students reading comprehension development. Oakley (2011) introduced five cognitive strategies; summarizing, visualizing, questioning, making inferences, and predicting. (Singhal, 2001) defined summarizing, paraphrasing, analyzing, and using context clues as cognitive strategies.

Learning strategy has two key components. First, a learning strategy involves cognitive processes used to complete tasks as reading texts, writing essays, or taking lecture notes. Second, a learning strategy involves metacognitive processes used to choose a strategy for the task, monitor the success of the elected strategy, and measure the result of using the strategy. Each learning strategy as a set of short steps leads to successful task completion and a specific conclusion. These steps lead learners to use specific cognitive and metacognitive strategies and help learners apply appropriate procedures, skills, and rules (Schumaker et al., 2006). Good readers apply and integrate multiple strategies to handle the integrated task of reading comprehension (Hock & Mellard, 2005).

Reading comprehension is a process that consists of memory, thinking, visualization, understanding vocabulary, and knowing how properly decode. Teaching students how to use strategies explicitly help them become more independent readers and become more responsible for their learning. Receiving proper reading comprehension strategy instruction and help the students to master the strategy then use these strategies properly (Ness, 2011). Moore and Lo (2008) stated that visualization, summarization, making inferences, and making connections are four of these general strategies that claim to help students improve their reading comprehension.

Seven main reading comprehension strategies include: Asking Questions, Making Connections, Visualizing, Predicting, Determining Importance, Inferring, Synthesizing. Syntheses and summaries are related, but they are different from each other. The meaning of the prefix "syn" is together. Synthesizing a text is the process of gathering together background knowledge, recently learned information, connections, inferences, and summaries into a general and original understanding of the reading material to form new ideas and opinions. Students should internalize and grow and change the text as thinkers instead of retelling it. They need to evaluate and reflect on what they are reading regularly. A synthesis goes way on the far side that outlines summary or retelling from the text.

A summary may cause synthesis, but it doesn't stop there. In synthesizing reader summarizes or retells and adds to his thoughts, experiences, opinions, interpretations, and connections to produce a new concept. Synthesis can integrate ideas from across multiple texts to form new big concepts. Synthesizing is a process that develops and expands when a reader gets deeper into the text. Experts have agreed that the result of synthesizing is enhancing the knowledge of the reader, by

making synthesization, they gain some new understanding and a reader has not considered before until reading the text, they receive a deeper understanding or become appreciative of information after reading a text, as a result of the text. In different genres, syntheses differ. Readers synthesize to form a new, deepened, or changed understanding about the character and events in a fictional text and nonfiction text. The readers synthesize information that they have learned from multiple sources (Classroom Nook, 2019). By summarization, students learn how to summarize the reading material by reading the passage, stopping at certain points then explaining the text aloud. Students can practice by reading a passage and then explaining to a partner or a teacher the text they have read.

Serafini (2004) stated that making inferences is a strategy for reading comprehension. Students use their knowledge in reading comprehension in addition to using information from the text, they also Making an inference that does not create in a vacuum, is a result of a process that requires reading a text, noting specific details, and then putting those details together to achieve a new understanding (Oglan, 2015). Students seek the factual information of a text by making observations. Students join their background knowledge and their experiences to create new meaning. They use photographs or pieces of art to be skillful in the process of making inferences (Preszler, 1925). Teachers can use inference strategies to meet at least five essential instructional purposes engage student curiosity, find main ideas, develop and test hypotheses, develop powerful explanations and interpretations, and develop students' habits of mind (Silver, Dewing, & Perini, 2012).

To be good at making an inference, pupils need to be active readers, monitor comprehension and repair misunderstandings, have a rich vocabulary, have sufficient working memory. The skill of making an inference is also facilitated by having background knowledge and also by sharing the same cultural background as that assumed by the text (Kispal, 2008). Making inferences is taught through reading a passage aloud in a class with some of the details missing. The teacher and the story can guide and model the students to ask appropriate questions to fill in the main missing details. The students can use graphic organizers as a guide after reading some parts of the text. Make connections is a similar way as making inferences. They read the passage, and then they find a link to what they have read to their own life. All four strategies integrate to make one large strategy. These strategies are mastered and taught separately (Prado & Plourde, 2011).

Sanati (2020) concluded that the impact of visualization on enhancing students' reading comprehension ability of Iranian intermediate EFL learners was useful and noticeable. The results of some studies in Iran confirmed that reading comprehension by using visualization would cause better reading comprehension among EFL learners. Visualization strategies should be taught explicitly by constructing mental images in the mind during reading selection and.

Agustina (2014) stated that ESP is defined variously. Some scholars describe ESP as the teaching of English for any specified purposes. Others scholars more precisely describe it as the teaching of English used for vocational or professional purposes and used in academic studies or for those English speakers who learn English for specific purposes. English for the Specific Purposes (ESP) is considered as a means to equip learners with the specific English proficiency level for target needs where the language will be used. ESP provides materials, methods, and instructional objectives developed based on learners' potential of interests and needs, from the early 1960s; ESP is one of the most prominent areas of English foreign language. Hutchinson and Waters (1987) considered ESP as the leaves and branches of a language tree. Therefore General English as the roots of the language tree supports ESP to grow to pave the way for the learners to achieve their desired academic progress. Fadel and Elyas (2015) investigated the students' attitudes towards ESP needs and concluded that students consider ESP crucial and necessary for their academic progress.

Wu (2014) stated that the learning difficulties in the English for Specific Purposes (ESP) vocabulary courses and the preferred teaching method among Taiwanese junior college students. Vocabulary abstractness followed by pronunciation, word length, and orthography was the most difficult for most participants. Teaching authentic teaching materials should be combined with ESP vocabulary to increase learners' learning motivation. The first criterion for ESP courses should be learner needs. Instructors will have efficient learning materials to teach the learners if the material has been recorded, analyzed, and organized properly.

The aim of ESP courses is to provide certain English proficiency level for target needs for the learners (Sujana, 2005). In ESP context, English is not only as a commonly placed compulsory subject matter to be learned in the curriculum, but also as a means for the students learning in their fields of study. Therefore ESP is the combination of English language and subject matters in the instruction, in which the

students are able to use what they learn in their English classes in their study, whether it be education, sciences, economics, accounting, Islamic studies, business management, or tourism. In fact, their abilities in their subject-matter fields are of a great importance and can help to English acquisition. The simple question of what the students learn English for is the foundation of ESP and the answer to the question relates to the learners needs, the language and the skills they need to master and how well, and also the learning context that is the genres they need to master either for production or comprehension purposes (Dudley-Evans, 2001).

To sum up teaching the comprehension strategies to the students and developing how and when to use these strategies which range from the simple to the complex by improving the necessary metacognitive awareness can be considered as key comprehension strategies. Readers need to activate, organize and use their background knowledge to help them understand what they are reading. Cognitive scientists believed that in utilizing schema theory readers connect their background knowledge to the new knowledge of a text. They activate a schema when they start reading. Also, schemas knowledge of a text's organization develops students' understanding of that text. Generating and asking questions includes readers asking themselves questions during the reading of a material. The ability to generate proper questions when they read is valuable and helpful to identify main information, integrate and summarize data and to emphasize on the most important data in a text. Making Inferences which is crucial to successful reading readers needs to draw conclusions or evaluate from data in a text to enhance their abilities to create meaning. In making inferences by using the clues that provided with authors in a text that readers combine information of the text with their background knowledge. Summarizing strategy is the ability of readers to synthesize and connect the information in a text together and to explain them in their own word. Summarizing or synthesizing is an important strategy to enable readers to remember and recall text quickly. Visualizing involves the ability to make mental images of a text to understand a text during reading. Visualizing is helpful to recall what they have read especially in narrative texts. Comprehension monitoring enables the readers to know the meaning of text, and to apply appropriate strategies to increase their understanding. Readers utilize a variety of strategies to create meaning when they read. They have conscious control of their strategy, and do not use the same strategies; they are flexible in using different strategy they can make decisions and switch from one strategy to the other one as they read. The

strategy instruction can be implicit or explicit (Texas Educational Agency, 2002).

3. Methodology

3.1. Participants

Participants of this study were 90 university students majoring in Accounting. They were selected based on their proficiency level from 125 students. Quick Placement Test of Oxford University Press and University of Cambridge Local Examinations Syndicate (2001) was administered to estimate the homogeneity, and students whose average was close to each other were selected. All the students had already passed their general English courses. They were assigned into one experimental group and two comparison groups.

3.2. Materials and Instruments

The pretest consisted of 2 ESP reading comprehension passages of accounting, each with ten true /false items. The post-test was the same as the pretest. The tests were adopted from the first and second chapters of the book "English for the Students of Accounting I" by Aghvami (2019), so the tests were validated, and the reliability was 0.80 that was acceptable.

3.3. Procedure

This study investigated the Intervention of Zimmerman & Hutchins' (2003) information synthesization, making inferences, and visualization on Iranian undergraduate ESP (accounting) learners' reading comprehension achievement. The design of the study was pretest, treatment, and post-test. The independent variables were information synthesization, making inferences, and visualization. The dependent variables were Iranian undergraduate ESP (accounting) learners' reading comprehension achievement. At first Quick Placement Test of Oxford University Press and the University of Cambridge Local Examinations Syndicate (2001) was administered to ensure that the participants were homogeneous. The participants were assigned into three groups, 30 students in the experimental group (A), 30 students in the comparison group (B), and 30 students in the comparison group (C). A pretest was administered first between all groups to assess their ESP reading comprehension ability.

After the pretest, in the experimental group (A), the focus was on the information synthesization strategy. In teaching reading comprehension,

the teacher helped the students to gain the main ideas. The teacher asked them to summarize the material by developing questions like: "What happened in the text? Can you identify the most important ideas? What did you think about that idea? If they had trouble recognizing important information and pulling ideas together, the teacher helped them look for prompts in the text. Authors leave clues to help readers determine the importance and synthesize information. Phrases like "as a result" or "in conclusion" are clues that the writer is about to wrap up a section or sum up a plot. Using these clues, a reader can stop and think, prepare to analyze, and recognize concepts.

In the comparison group (B), the teacher emphasized the making inferences strategy. Making an inference involves using what you know to guess what you don't know or reading between the lines. So the teacher used the model called "It says, I say, and so" by Beers (2003) helped the students guide them through the process of drawing inferences from the written texts. Indicating some clues and some experiences helped the students to gain and figure out the main ideas. By their background knowledge, students must recognize the relevant information and write down those specific details. Then they need to understand what the texts mean to answer the question. Students followed these five instructional steps.

Step 1: Read and view the text.

Step 2: understand the text by saying some clues and some experiences.

Step 3: List the relevant details.

Step 4: Put details together.

Step 5: Determine what they mean (Linder, 2014).

In the comparison group (C), the focus was on visualization strategies. To clarify the lesson and show some images, films, slides, pictures, computers, books, printed materials, and chalkboards were applied. At the end of the treatment that took ten sessions, the post-test was administered between 3 groups to assess the impacts of the treatment on the ESP reading comprehension.

3.4. Data Analysis

In this research study, Statistical Package for Social Sciences (SPSS) was used to answer the research questions, and the statistical tool for analyzing the data of the study was through a one-way analysis of variance (ANOVA). To investigate whether the groups differed at the pre-test stage, one-way ANOVA indicated that there was not any

significant difference between the mean score of the participants' pre-test of ESP reading comprehension, and the standard deviations of them were also close to each other; this revealed that there was the possibility for homogeneity of variance.

Table1. *Descriptive statistics of pretest of the study*

groups	**N**	**Mean**	**Std. Deviation**
synthesization	30	27.37	4.909
making inferences	30	27.63	4.664
visualization	30	28.80	6.031
Total	**90**	**27.93**	**5.214**

Table 1 demonstrates the descriptive statistics of the pretest of the study. The inferential analysis of the pretest scores has presented in Table 2. The significant value of Levene's test was equal to 0.593. So the variance across the study groups was the same, or the groups were homogeneous, belonging to the same population at the beginning of the experiment.

Table 2. *Test of homogeneity of variances of pretest*

pretest			
Levene Statistic	df1	df2	Sig.
.525	2	87	.593

Based on Table 3, the significant value for ANOVA was bigger than the preset alpha level ($p > 0.05$). It revealed that the assumption of homogeneity of variances has justified.

Table 3. *ANOVA for the Pre-test Scores*

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	34.867	2	17.433	.636	.532
Within Groups	2384.733	87	27.411		
Total	2419.600	89			

Another one-way ANOVA has run on the post-test scores to investigate the possible differences between the groups. Table 4 displays the descriptive analysis of the post-test. The results showed that the mean of the three groups differed and varied significantly from the

pretest score. Therefore, the treatments have a significant effect on the post-test.

Table 4. *Descriptive analysis of the post-test*

groups	**N**	**Mean**	**Std. Deviation**
synthesization	30	86.43	4.083
making inferences	30	92.17	3.797
visualization	30	80.33	3.623
Total	**90**	**86.31**	**6.166**

The p-value for Levene's test of the posttest was higher than the preset alpha level ($p > 0.05$) level of significance. Thus, the assumption of homogeneity of variances has justified. Table 5 indicates the test of Homogeneity of Variances of the posttest.

Table 5. *Test of Homogeneity of Variances for posttest*

posttest			
Levene Statistic	df1	df2	Sig.
.058	2	87	.944

According to Table 6, the small significant value for ANOVA suggests the mean difference was statistically significant.

Table 6. *ANOVA for the Post-test Scores*

posttest	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	2101.089	2	1050.544	71.282	.000
Within Groups	1282.200	87	14.738		
Total	3383.289	89			

The Post-Hoc test (Scheffe) has run to compare the means of the three groups. The multiple comparisons of the result have presented in Table 7. It revealed that all the three mean are significantly different from each other. The confidence interval for each comparison set contains no zero, which indicates a significant, meaningful difference between the mean scores.

Table 7. *Multiple Comparisons of the post-test*

(I) group	(J) group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
synthesization	making inferences	-5.733*	.991	.000	-8.20	-3.26
	visualization	6.100*	.991	.000	3.63	8.57
making inferences	synthesization	5.733*	.991	.000	3.26	8.20
	visualization	11.833*	.991	.000	9.36	14.30
visualization	synthesization	-6.100*	.991	.000	-8.57	-3.63
	making inferences	-11.833*	.991	.000	-14.30	-9.36

* The mean difference is significant at the 0.05 level.

Table 8 indicates that the three groups belong to three different populations at the end of the experiment.

Table 8. *Homogenous subset of the posttest*

posttest Scheffe				
group	N	Subset for alpha = 0.05		
		1	2	3
visulization	30	80.33		
synthsization	30		86.43	
making inferences	30			92.17
Sig.		1.000	1.000	1.000
Means for groups in homogeneous subsets are displayed.				

4. Discussion

Based on the analysis results, the three strategies for teaching reading comprehension improved the participants' ESP comprehension to varying extents, and that the mean difference was in favor of making inferences. A further finding was that a combination of Information Synthesization (IS), making inferences and visualization had proved comparatively more effective in aiding learners' reading comprehension than either of these strategies alone. These findings provided an empirically justified answer to our research question, asking about the comparability or comparability of the effects produced by different reading comprehension strategies on learners' ESP reading comprehension ability. The results of the Post-Hoc Scheffe test showed that there was a statistically significant difference between the mean

scores of the three groups. Based on these findings making inferences, visualization, and information synthesization strategies improved ESP learners' reading comprehension.

The result rejected the null hypothesis, and implied that making inferences, visualization, and information synthesization had a significant impact on learners' ESP reading. The highest mean difference has belonged to the group who received treatment based on the making inferences strategy. It has revealed that the making inferences strategy of reading comprehension improved the participants' performance on ESP reading comprehension tests more than information synthesization and visualization strategy of reading comprehension. Additionally, the lowest mean difference has belonged to the comparison group C who received treatment through visualization. It showed that the information synthesization strategy of reading comprehension improved the participants' performance on the ESP reading comprehension test more than the visualization strategy of reading comprehension.

This study confirmed (Küçükoğlu, 2013), who tried to analyze the improvement of the students' reading skills after they have taken presentations on reading strategies. The researcher has provided reading awareness to the students by teaching reading comprehension strategies, and in this way, a meaningful reading experience for the students has developed. This study is in line with (Moghadam, 2002), who examined the role of the explicit training of a selected number of cognitive reading strategies on students' comprehension of ESP texts. He concluded that that participant with reading strategy training benefited from the ESP reading comprehension of texts. Changing the way of teaching ESP reading comprehension helps ESP learners to read efficiently and accurately. The researcher has provided ESP learners to have better reading comprehension by applying the three types of methods, information synthesization, making inferences, and visualization. So, they were more beneficial to improve students reading comprehension. The findings have benefits for syllabus designers, ESP teachers, and the ESP students.

Tabatabaei and Mokhtari (2014) indicated that the ESP program should emphasize learners' needs, the nature of students' majors, and their professional needs to increase students' internal motivation to learn English. Visual aids, pictures, and images are not used in ESP classes adequately nowadays, and they do not seem to be suitable to make ESP learners motivated, using computers and advertising can be highly effective. Pourhosein Gilakjani and Sabouri (2016) suggested EFL

teachers who are responsible of teaching reading comprehension strategies to their learners, to help EFL learners extend their background knowledge, teach text structures and how to recognize and apply the text's organizational structures to understand, learn, and remember content. They should persuade them to monitor, and evaluate their own reading comprehension skill. They can guide their learners to relate the sections of a text and teach general structures of informational texts and discussion on the meaning of texts. They should choose appropriate texts with comprehension difficulty and word recognition for the learners' to support comprehension development, reading ability and the educational tasks, and to find the advantages and goals of reading comprehension.

Reading comprehension strategies as a comprehension processes enable readers to create meaning from the printed text effectively, to tackle a reading task, and to interpret their reading. Good readers draw on prior experience and knowledge and apply them to make connections for understanding the text better (Harvey & Goudvis, 2007). Adults should improve their strategies, they need to learn how to draw inferences and summarize to study higher level literacy, and to apply metacognitive strategies (Hock & Mellard, 2011).

The findings of the studies on the impact of reading strategy instruction on reading comprehension indicated that strategy training with an emphasize on comprehension monitoring can help students overcome their problems in reading ((Kalua, 2012). Reading is an interactive process while comprehension is a constructive process; comprehension instruction should focus teaching students how to use a set of text comprehension strategies and how to develop their sense of conscious control, or metacognitive awareness (Kazemi et al., 2013). By considering the effect of implementing the reading strategies on reading comprehension, students should be encouraged and guided to use reading strategies. Students should know what they are going to learn, they should recognize the important part of the text and which strategies they are going to use. So, the teacher' job is to teaching how to learn. Through strategy teaching the students' learning will be better. The teachers' responsibility is to determine the proper strategies that the students use and need and adjust them to his/her own teaching method. The use of reading strategies is one of the activities which improve reading comprehension skills in foreign language learning.

The strategic reading techniques were effective and beneficial in improving and developing EFL reading skills and provided a useful framework for expanding reading skills. Teaching reading is a process,

not a product. Readers should use new techniques for providing feedback to EFL learners in reading, like reading conferences, peer-review, and self-correction. During the application of the strategic reading techniques students should practice reading activities. Teachers should create a sense of cooperation and duty within the groups by assigning rules to the students to do; also, there should be a sense of positive interaction and competition between students to do the assigned tasks correctly. Good students much try to help weak students to improve their reading skills. Teaching students to use strategic reading and understanding the meaning of the text by asking questions, rereading, restating made the textual materials more comprehensible and were very constructive. By predicting skill, exchanging ideas, and questioning students enabled to share their ideas, to encourage the students to continue and develop their reading comprehension. By summarizing, organizing and restating reading information students enabled to focus on main and sub-main ideas of a reading text (Okasha, 2020)

5. Conclusion

Reading comprehension is a critical skill for all types of learners in the academic setting. The reading strategies improve reading comprehension ability, and without considering this important factor in reading comprehension, academic learners encounter many struggles and troubles in their academic careers. This study investigated three reading comprehension strategies introduced by Zimmerman and Hutchins' (2003) for reading comprehension, making inferences, visualization, and information synthesisation on ESP reading comprehension. The effects of these three strategies on the ESP reading comprehension has revealed that making inferences strategy was the best one between the three, and applying all three types of reading strategies together during ESP reading comprehension will improve reading comprehension.

In the scope of reading comprehension strategies, the available findings have related to General English, and investigation of each of these strategies on ESP reading comprehension are rare, so by generalizing the result of the available studies in the field of general reading comprehension, we can come to the same conclusion for ESP reading comprehension. The findings obtained in this study showed that successful ESP readers should gain technical information of their major, and utilize proper strategy to develop their quality of their reading comprehension. Making inferences strategy, information synthesization

and visualization are 3 strategies that help ESP readers to enhance their reading Comprehension. This study had some theoretical and pedagogical implications, for materials writers, teachers, course and syllabus designer, researchers, Curriculum and test developers, teacher trainers, students and learner in the field of language teaching and learning in ESP contexts, who can apply the findings of this study to change the attitudes towards the content of a syllabus. The students also could benefit from the findings and apply it in their reading comprehension. The different strategies reading, writing speaking and listening also can provide a basis for further research.

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References

Aghvami, D. (2019). *English for the students of AccountingI*. Tehran: SAMT.

Agustina, T. (2014). English for specific purposes (ESP): An approach of English teaching for non-English department students. *Beta: Jurnal Tadris Matematika*, *7*(1), 37–63.

Akyel, A., & ErÇetin, G. (2009). Hypermedia reading strategies employed by advanced learners of English. *System*, *37*, 136–152.

Classroom Nook. (2019). Reading Comprehension Strategy Series: How To Teach Visualizing in the Upper Elementary Classroom. Retrieved from https://www.classroomnook.com/blog/teaching-visualizing

Cromley, J. G., & Snyder-hogan, L. E. (2010). *Reading Comprehension of Scientific Text : A Domain-Specific Test of the Direct and Inferential Mediation Model of Reading Comprehension Reading Comprehension of Scientific Text : A Domain-Specific Test of the Direct and Inferential Mediation Model of Reading Comprehension*. (August). https://doi.org/10.1037/a0019452

Dudley-Evans, T. (2001). Team-teaching in EAP: Changes and adaptations in the Birmingham approach. *Research Perspectives on English for Academic Purposes*, 225–238.

Fadel, S., & Elyas, T. (2015). ESP needs analysis to integrate a scientific reading program in the English language institute at King AbdulAziz University. *International Journal of Educational Investigations*, *2*(4), 14–27.

Fang, Z. (2006). The language demands of science reading in middle school. *International Journal of Science Education*, *28*(5), 491–520.

Gholami, A., Ahghar, M. R., & Ahghar, M. (2012). *The effect of teaching cognitive and metacognitive strategies on EFL students ' reading comprehension across proficiency levels*. *46*(1987), 3757–3763. https://doi.org/10.1016/j.sbspro.2012.06.142

Harvey, S., & Goudvis, A. (2007). *Strategies that work: Teaching comprehension for understanding and engagement*. Stenhouse Publishers.

Hock, M. F., & Mellard, D. F. (2011). Efficacy of learning strategies instruction in adult education. *Journal of Research on Educational Effectiveness*, Vol. 4, pp. 134–153. https://doi.org/10.1080/19345747.2011.555291

Hock, M., & Mellard, D. (2005). Reading comprehension strategies for adult literacy outcomes. *Journal of Adolescent & Adult Literacy*, *49*(3), 192–200.

Hutchinson, T., & Waters, A. (1987). *English for specific purposes*. Cambridge university press.

Kalua, F. (2012). Reading for empowerment: Intertextuality offers creative possibilities for enlightened citizenry. *Reading & Writing-Journal of the Reading Association of South Africa*, *3*(1), 1–5.

Kispal, A. (2008). *Effective Teaching of Inference Skills for Reading. Literature Review. Research Report DCSF-RR031*. ERIC.

Küçükoğlu, H. (2013). Improving reading skills through effective reading strategies. *Procedia-Social and Behavioral Sciences*, *70*, 709–714.

Moghadam.Kh, M. (2002). The effect of strategies-based instruction on student's reading comprehension of ESP texts. *Mirza Koochak Khan Higher Fisheries Education Centre*, 1–17. Retrieved from www.itvgil.ac.ir

Moore, C., & Lo, L. (2008). Reading comprehension strategy: Rainbow dots. *Journal-International Association of Special Education*, *9*(1), 124.

Motallebzadeh, K., & Tabatabaee Yazdi, M. (2016). The relationship between EFL learners' reading comprehension ability and their fluid intelligence, crystallized intelligence, and processing speed. *Cogent Education*, Vol. 3. https://doi.org/10.1080/2331186X.2016.1228733

Ness, M. (2011). Explicit reading comprehension instruction in elementary classrooms: Teacher use of reading comprehension strategies. *Journal of Research in Childhood Education*, *25*(1), 98–117.

Oakley, G. (2011). The assessment of reading comprehension cognitive

strategies : Practices and perceptions. *Australian Journal of Language and Literacy*, *34*(3), 279–293.

Oglan, V. A. (2015). Chart Sense: Common Sense Charts to Teach 3-8 Informational Text and Literature. *Language Arts*, *92*(5), 368.

Okasha, M. A. (2020). *Using Strategic Reading Techniques for Improving EFL Reading Skills*.

Pourhosein Gilakjani, A., & Sabouri, N. B. (2016). How Can Students Improve Their Reading Comprehension Skill? *Journal of Studies in Education*, *6*(2), 229. https://doi.org/10.5296/jse.v6i2.9201

Prado, L., & Plourde, L. A. (2011). Increasing reading comprehension through the explicit teaching of reading strategies: Is there a difference among the genders? *Reading Improvement*, *48*(1), 32–44.

Preszler, J. (1925). *On target: Strategies to help struggling readers*. Black Hills Special Service Cooperative (BHSSC).

Sanati, Z. (2020). The Effects of Visualization Training Techniques on Reading Comprehension Ability of Iranian Intermediate EFL Learners. *Journal of Language Teaching and Research*, *11*(1), 73–85.

Schumaker, J. B., Deshler, D. D., Woodruff, S. K., Hock, M. F., Bulgren, J. A., & Lenz, B. K. (2006). Reading strategy interventions: Can literacy outcomes be enhanced for at-risk adolescents? *Teaching Exceptional Children*, *38*(3), 64–68.

Serafini, F. (2004). *Lessons in comprehension*. Portsmouth, NH: Heinemann.

Silver, H. F., Dewing, R. T., & Perini, M. J. (2012). *Inference: Teaching students to develop hypotheses, evaluate evidence, and draw logical conclusions*. ASCD.

Singhal, M. (2001). Reading Proficiency, Reading Strategies, Metacognitive Awareness and L2 Readers. *The Reading Matrix*, Vol. 1, pp. 1–23.

Snow, C. (2002). Executive summary. In *Reading for Understanding: Toward an R&D program in reading comprehension.*

Sujana, D. I. M. (2005). *Establishing English Competencies for Students of Tourism Department [Online](nd] Available from*.

Tabatabaei, O., & Mokhtari, A. (2014). ESP Learners' Perception of ESP Program Problems at Iranian Universities (A Case Study of Islamic Azad University Najafabad Branch). *Theory and Practice in Language Studies*, *4*(6), 1144–1154. https://doi.org/10.4304/tpls.4.6.1144-1154

Texas Educational Agency. (2002). Comprehension Instruction, 4-8. Retrieved from http://www.netxv.net/pm_attach/67/TRI-

Comprehension_Instr.pdf.

Woolley, G. (2011). Reading comprehension. In *Reading Comprehension* (pp. 15–34). Springer.

Wu, L.-F. (2014). Technical college students' perceptions of English for specific purposes vocabulary learning and teaching. *International Journal of English Language Education, 2*(1), 176–186.

Zimmerman, S., & Hutchins, C. (2003). *7 keys to Comprehension. Title*. New York: Three Rivers Press.

Ziyaeemehr, Z. (2012). *The Efficacy of Collaborative Strategic Reading on the Reading Comprehension of ESP Learners*. *2*(1), 38–42. https://doi.org/10.3968/j.hess.1927024020120201.2198