

## Effect of Nature Visuals on Listening Skills<sup>1</sup>

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**ABSTRACT** The aim of this study is to determine what type of effect use of nature visuals has on listening skill in terms of comprehension and memorability of listening texts. Sampling group of this test model study included students from a secondary education school in province of Kutahya. Study comprised pre-test and post-test implementations and tried to predict existence of difference between results. According to the results of the study, use of visual materials about the listening text increases comprehension and memorability of listening text. Success of comprehending listening texts is not affected by gender related elements. Listening texts on nature reinforced by visuals are more memorable and more understandable.

### INTRODUCTION

This study aims to research the effect of using nature related listening texts together with nature visuals on listening skills.

In the last century, the industrialization attempt of humans brought environmental and ecological problems along. Technology developed very fast in the 21<sup>st</sup> century and this only accelerated the process further. Uncalculated and unconscious exploitation of nature disrupted the ecological balance.

This situation has come to light lately and it is widely accepted that education is the key to solving this problem. Nature, environment, ecology and education are now topics that are considered within individual and education programs. And, here right at this point, we come across the concept of education. According to Atasoy and Erturk (2008), the main aim for environmental education is to raise an assertive "eco-citizen" who is sensitive and conscious about nature problems and individuals who are "global citizens" preserving their planet.

The results of the research by Tayci and Uysal (2012) shows that 8<sup>th</sup> grade students have low conscious and interest about issues of nature and environment. Also according to the results of the study conducted by Atasoy and Erturk (2008) on 1118 students, the environmental knowledge points for 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> grade students are low. In addition to this, a research by Golumbeanu et al. (2012) claims that environmental awareness among young women and men should be increased.

Nature, environment and ecology themes are subjects covered in social science classes, science and technology classes and Turkish classes. Listening activities remain secondary in the lecture process that is mostly structured with reading, writing and speaking activities. However, all language skills should be used for raising knowledge and lover for nature and environment.

Listening is one of the four basic language skills for native language education. Three articles can summarize commonalities of various definitions made for listening. It is observed there are commonalities in these definitions such as sending text, message and data in various ways, hearing the message or text sent and interpreting the message heard (Topcuoglu 2011).

But we should keep in mind that listening is not only about hearing. One of the effective elements in listening is seeing. Seeing is a factor that completes a person's hearing in interpreting the message and sender's ability to send his message completely and correctly. Since 2006,

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Turkish education programs state them together as “audio-visual” not separately as listening and seeing (Yildiz 2006). Various studies confirm the importance of visual (Miller and Burton 1994; Senemoglu 1997; Stokes 2002; Paivio 2006; Alpan 2008; Tuzel 2010).

Important effect of visuals on understanding and expression means visual literacy concept as well. Visual literacy can be defined as “skill to construct conscious visual messages and to produce meaning from visual messages in the communication process” (Tuzel 2010). According to International Visual Literacy Association (IVLA), visual literacy is “a group of vision-competencies a human being can develop by seeing and at the same time having and integrating other sensory experiences” (IVLA 2013).

Emphasizing visuals in education is not without a reason. Studies suggest that visuals have an important role in learning, restructuring, comprehending and expressing knowledge. According to famous cone of experience by Dale formed in 1960s, the more the number of sense organs used for learning process, the more the efficiency and persistency of learning. According to multiple intelligence theory put forth by Gardner in 1980s, intelligence is multi-dimensional. That is why messages shall be picked with methods which will appeal to different intelligence fields in facilitating and increasing their understandability.

When all these pieces come together, they show that different paths should be taken to transfer knowledge, emotions and views. Using only one of them is insufficient for understanding and expression process.

To what extent does using nature visuals in acquiring listening skill which has an important place in native language education render beneficial results? Existing literature offers no answer to this question. Our research will make contribution to the literature in this sense.

## METHODOLOGY

The research methodology for this research is pre-test and post-test design with control group. Students are divided into two as test group and control group, for listening texts prepared by getting expert opinion from two environment teachers, four Turkish education experts and five Turkish teachers. Test group listened to nature related texts that are reinforced by nature related visuals whereas control group

only participated to listening activities related to nature.

The study group for the research is composed of total 68 students who attend middle school. Each group has 34 students. The study took place in academic year 2012-2013 for two weeks period for two hours. Research groups were divided in a way to have two groups of students who have similar success levels for Turkish class grades. Then, groups were randomly appointed as “test group” and “control group”. While test group was tested with the aforementioned method, the control group was tested with traditional method.

The listening texts for the students were selected as texts comprising environment, nature and ecology topics. 48 texts were selected at the beginning and it went down to 20 texts after consultation with environment teachers and Turkish teachers. Text topics are “importance of environment”, “natural disasters”, “air pollution”, “water pollution”, “soil pollution”, “endangered animals”, “forest fires”, “our water resources”, “global warming” and “our duties towards environment”.

Two tests highly parallel to each other were selected. These texts both had 40 questions that would measure the level of comprehension of texts for both groups. The visuals that would be used for the second implementation together with the listening text were nature visuals that did not contain written material. Environment teachers, Turkish teachers and photograph artists were involved in process of choosing the visuals for their expert opinions. After reading texts which took approximately one minute to read, students were given 30 seconds for every question. Chosen visuals rotated with five second intervals for a period of three minutes.

To gather research data, a success test was used for measuring whether students understood listening texts or not. This test is a fill-in-the-blank style test with a total of forty questions comprised of four questions for every text. In the first implementation, the results of the test which was implemented to both groups were collected. The following week, the second test was distributed after nature visuals were used for test group.

## RESULTS

In Table 1 are findings from the analysis made on the data from the research on effects of nature visuals on listening skill:

**Table 1: Comparison of test and control groups according to pre-test results**

	<i>N</i>	<i>X</i>	<i>S</i>	<i>sd</i>	<i>t</i>	<i>p</i>
Test	34	15.55	5.15	33	-0.414	.682
Control	34	15.94	3.45			

According to the results of the first listening experiment which had no nature visuals, no significant difference was found in their listening skills:  $t(33)=-.414$ ,  $p>.01$ . According to the post-test results after listening activity, arithmetical means of test and control groups were very close to each other (Table 1). This is significant as it shows test and control groups have equal foreknowledge about the issue.

Comprehension skills of the students were observed to be higher in listening activities combined with nature visuals,  $t(33)=13.72$ ,  $p<.01$ . The students' average grade of comprehension skills from texts they listened to was higher in the test group ( $X=26.82$ ) than that of control group ( $X=17.67$ ) (Table 2).

The data obtained at the end of the research show that the means of test and control groups, which were very close to each other at the beginning, increased 72.47% ( $X=26.82$ ) for the test group and 10.91% ( $X=17.68$ ) for the control group at the end of the visually supported activity (Fig. 1).

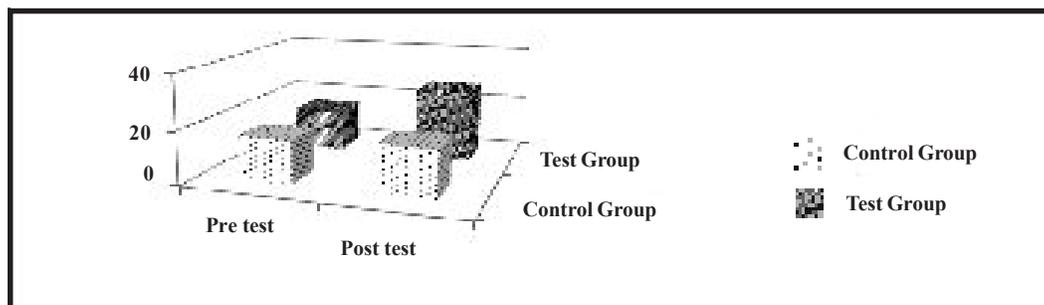
There is no significant difference on post-test results among control group students based on gender,  $t(32)=-.012$ ,  $p>.01$ . The arithmetical mean of listening skills for boys ( $X=17.66$ ) and the arithmetical mean of listening skills for girls ( $X=17.68$ ) are very close to each other (Table 3).

There is no significant difference on post-test results among test group students based on gender,  $t(32)=-.194$ ,  $p>.01$ . The arithmetical mean of listening skills of boys ( $X=26.71$ ) and the arithmetical mean of listening skills of girls ( $X=26.90$ ) are very close to each other (Table 4).

The success averages ( $X$ ) of the students in the test group before and after use of nature visuals were compared and the increase rates were shown as percent (%). The biggest increase among the increase rates was for the "importance of environment" topic (95.82%) and the lowest increase was for air pollution related text (35.21%) (Table 5).

**Table 2: Comparison of test and control groups according to post-test results**

	<i>N</i>	<i>X</i>	<i>S</i>	<i>sd</i>	<i>t</i>	<i>p</i>
Test	34	26.82	2,7	33	13.72	.000
Control	34	17.68	3.38			

**Fig. 1. Mean variation of test and control groups at the end of pre-test and post-test****Table 3: Comparison of post-test results for control group according to gender**

	<i>N</i>	<i>X</i>	<i>S</i>	<i>sd</i>	<i>t</i>	<i>p</i>
Boys	12	17.66	3.08	32	-0.012	0.99
Girls	22	17.68	3.6			

**Table 4: Comparison of post-test results for test group according to gender**

	<i>N</i>	<i>X</i>	<i>S</i>	<i>sd</i>	<i>T</i>	<i>P</i>
Boys	14	26.71	2.89	32	-0.194	.847
Girls	20	26.9	2.63			

**Table 5: Correct answer rates according to text topics**

<i>Text topic</i>	<i>First implementation (X)</i>	<i>Last implementation (X)</i>	<i>Increase (%)</i>
Importance of environment	1.41	2.76	95.82%
Global warming	1.94	2.67	37.87%
Natural disasters	2.02	2.91	43.48%
Air pollution	2.08	2.83	35.21%
Water pollution	1.82	2.82	54.83%
Soil pollution	1.61	2.52	56.36%
Endangered animals	1.5	2.29	52.94%
Our forests	1.85	2.76	49.20%
Our water resources	1.88	2.73	45.30%
Fight against erosion	1.52	2.5	63.46%

## DISCUSSION

According to the analysis, use of visuals increased comprehension of listening material as much as 72.47%. Studies from other researchers also suggest visual and oral coding of knowledge increase memorability (Senemoglu 1997; Paivio 2006). Furthermore, Stokes (2002) states that more visual element should be included in the process in order to find the balance between oral and visual organizers in education.

Nevertheless, gender does not play a role on this increase. Research by Memis and Harmanakaya (2012) on 1<sup>st</sup> grade students finds a meaningful difference in terms of visual perception levels of genders. However, the research by Akaroglu and Dereli (2012) on pre-school age group does not find any meaningful difference. At this point, we can say that the relation between literacy and gender variable can create different results. Researches on different age groups show different results. Again Stokes (2002) asserts that there should be a relation between demographic features and visual literacy.

“Dual Coding Theory” by Paivio (2006) claims cognition has two separate sub-activities. One of these sub-activities constitutes oral system and the other non-oral (visual) system. According to this theory, oral and visual stimuli should be given together rather than separately. This way, a more effective connections network

can be created in the brain. Again, according to this theory, memory performance increases by order of abstract words, concrete words and visuals. When we take all these into consideration, including concrete elements into nature topic and supporting it with visuals is in line with scientific data in order to increase comprehensibility levels for listening texts.

Cognitive and affective readiness of individual determines the effectiveness of visuals. According to Mayer and Sims (1994), students who have high special field knowledge might need visuals less or students with high spatial intelligence might be more successful in profiting from visuals than others. It is known that students usually stay away from visual implementations in classes. Interpretation of visual elements and using them in expressing and comprehension activities are not common for classes other than native language classes as well. The results of survey by Brumberger (2011) also show that most students do not have proper visual literacy. Whereas research by Sahin and Kiran (2011) shows that students consider themselves adequate in terms of visual literacy. When these results are evaluated together, visual literacy concept and individual differences phenomenon should be considered together.

Raising responsible individuals with nature and environment awareness is one of the basic duties of education. Human existence is a must for education as much as environment is a must for humans. In combat against environmental problems, environmentally literate people and students who can act in groups and individually are important elements (Hatzidiakos et al. 2009). Raising students with awareness requires effectiveness and efficiency of nature related classes. Use of visual elements obviously makes classes more effective and efficient than use of only oral elements. However, what is needed is to add this efficiency and effectiveness by adding different materials to education environment. Yalcin et al. (2003) mentions another benefit of using visuals in the class environment. They say students become more concentrated on lecture when visual and audio materials are combined with light, colour, movement and

sound. Oring (2000) says visuals make schools more attractive and motivational for students. When we take all these data into consideration, we can say that visuals serve affective field as much as cognitive field. Nature consciousness is possible only with love of nature. Students should learn love of nature in classes. Visuals are one of the most important tools for teachers to teach student love of nature. Instead of making students disinclined from class and topic with a monotone listening activity, students can learn to love class and topic with interesting nature visual.

Comparison between the results of first implementation and last implementation with listening texts mentioning various topics in nature, environment and ecology rendered surprising results. Having such a low student's awareness level on importance of nature coincides with findings by Golumbeanu et al. (2012) as well as findings by Tayci and Uysal (2012). Nonetheless, the most important point here is that this awareness and consciousness can easily be increased with correct methods and techniques. As a matter of fact, the success rate in this issue increased 95.82% in the second implementation with use of nature visuals.

One of the most effective methods for increasing awareness and consciousness is use of visuals. According to Parsa (2004) oral and visual communication are intertwined. However, as listening/ watching require less mental effort; it is becoming more prevalent every day. When we look from this perspective, we can explain advertisements prepared with photos and videos more easily in the advertisement sector. Nowadays, photographs are used in every stage of advertisement sector. Photographs, which were previously used to reinforce advertisement texts, started to stand out in time and now texts reinforce photographs (Sulduz 2012).

The lowest rate of increase was for text on air pollution. But here, we should take the first implementation results into consideration as well because although the rate of increase seemed low, this was the text that rendered the highest comprehension success in the first implementation. We can assume that students have more consciousness and foreknowledge on air pollution than other topics. In the study by Cabuk and Karacaoglu (2003), students are asked if they believe they receive enough education on air, water and soil pollution. The high-

est numbers of "yes" and "maybe" are received for air pollution section. In this sense, the findings of this mentioned study are in line with our findings as well.

The second lowest increase in the second implementation was for the text with the topic of global warming with 37.87% increase. The same reason applied here as well. As global warming issue has been coming up a lot in the last years both in written and visual media, it is possible that global warming topic has an already existing cognitive and affective infrastructure among students. Secgin et al. (2010) state in their study on primary school students that students are generally aware of global warming. The findings of this study also coincide with the aforementioned study.

When we analyze the other findings presented in the Table 5, there are some striking commonalities. Visuals used in nature and environment issues result in at least 35% increase in understanding the listening text. However, the topic of the text affects the success increase level as well. This shows the significance of cognitive and affective readiness in use of visuals.

## CONCLUSION

According to results of this study, listening texts supported by visual elements have higher memorability levels than texts that are only orally expressed. Existence of visuals in assuring organization, structuring and expression of topic in memory is of high importance. Texts supported by visuals have higher level of memorability.

Gender does not play an important role in creating meaningful difference for total points obtained from listening texts supported by nature visuals. There is no differentiation between male and female students in neither test nor control group in pre-test and post-test results. The mean for all implementations are very close to each other.

## RECOMMENDATIONS

1. Listening texts should be supported by visual elements to enhance memorability levels.
2. When choosing visuals, age, readiness and socio-cultural situations of students should

- be taken into consideration as visual literacy concept is affected from these variables.
3. Nature-related matters for this age group is more interested in the teaching-learning process should be more frequent in nature-themed activities.

### NOTES

- <sup>1</sup> Some part of this article is presented as an oral presentation in Innovation and Challenges in International Conference on Education 2013 (CICE 2013) 26 - 28 April 2013 - Kutahya, Turkey.

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