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Level of Awareness of Biology and Geography Students Related To Recognizing Some Plants

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Abstract
The aim of this study is to investigate the awareness of the geography and biology students about recognizing some plants which they see frequently around them in accordance with the information they gained during their education process. The sample of the study consists of 37 biology and 40 geography students studying at the Ahmet Keleşoğlu Education Faculty of the Necmettin Erbakan University. This study was designed according to qualitative research model and case study pattern was used. Students were given a questionnaire which was prepared in advance containing colourful photographs of 8 plants. Students were asked to answer questions about the characteristics of plants under each plant photograph. By analyzing the obtained data, a frequency table was created and by giving the frequency and percentages of answers of biology and geography students together created the opportunity of comparing them. When the obtained data are evaluated, it is seen that the recognition and awareness of plants of both the geography students and biology students are not at the expected level. In addition to developing the cognitive structures of the students about the plants in their environment, their environmental conscience and awareness needs to be increased.
Keywords: Awareness, recognition of the plants, environmental perception, teacher candidate.

1. Introduction

The coexistence of theory and practice in education has a great importance for the candidate teachers to achieve the desired qualifications. In this direction, the teacher candidates need to put the theoretical knowledge they have acquired into practice, make observations in the natural environment within the possibilities they have and examine these environments.

Regardless of what level of instruction is being taught and what the subject is – whether about general information or about preparation to a discipline related profession- the educators have a common goal: students' using their development capacity effectively. There are three important capacities that enable the individual to develop: capacities of perceiving, feeling and making (Ülgen, 1983). The concepts of lifelong training and on-the-job training represent educational readiness. Educational readiness requires to access information from many sources, to assess the information reached, to share and argue the information without knowing the time and space limitations and to use this information in life when necessary (Aruk, 2008: 23). Learning is a relatively permanent change in behaviour that occurs as a result of a certain level of interaction of an individual with his/her environment (Senemoğlu, 2009: 4). Behaviourist theory argues that learning has developed as a consequence of the link between stimuli and behaviour and advocates that behavioural change occurs with reinforcement and it cares about the operant results of education (Keleş and Çepni, 2006: 66). Learning is not a phenomenon that takes place in a moment, it happens in a process. The encounter with the stimulant, the recognition, the acquisition, the processing and the storage of the student constitute the basic elements of this process. Today, all widely accepted learning models accept the concept of attention as the mechanism that initiates learning (Öztürk, 1999). It is not very efficient to teach the geography science -in general- or physical geography courses -in particular- in a classroom in terms of students access. Especially, deprivation of the nature based physical geography lessons, from the applied teaching method appears as an important deficiency. This situation leads students to memorize, and thus there arises "the problem of perception" because they cannot fully understand the subject (Özgen, 2011:373). In this context, it is obvious that practical or visual education is very important when it is considered that in biology education many subjects are nature-centered. In biology and geography teaching departments, both environmental science and biogeography courses are taught and these courses have a close relationship with the field observations. The knowledge of students who do not have the chance to see the field or the information they receive in their natural environment remains at the theoretical level. One of the most common problems in education is that the learned information cannot be used in everyday life. Again, one of the problems is that attention of the students cannot be drawn to the topics they are learning and the perception cannot be created enough that the information they learn will be useful in their daily lives. In this direction, it is necessary to create awareness in order to be able to have an idea about the objects and phenomena which are seen or passed by every day. In order to fulfill his/her responsibilities, a person who is constantly interacting with the environment must have environmental education at a certain level and have environmental awareness. Only by this way, individuals become sensitive, develop positive aspects for the environment and improve their environmental awareness.

As well as providing information, environmental education also affects human behaviour. Providing positive and permanent behavioural changes and ensuring active participation of individuals in solving problems is the main objective of environmental education (Şimşekli, 2004:84). It is called as "environmental education", which provide information and methods to enable people to analyze and evaluate the results of all kinds of behaviours and actions in the natural, technical and social environment (Çepel, 2006:26). And all educational levels have surely great importance in terms of environmental awareness of individuals. However, when it is thought that the educators who work at all levels of education are the products of a higher education institution, environmental education given in higher education institutions that train the educators who will take part in all of the educational levels plays a key role in the awareness, knowledge, attitude and consciousness of the individuals towards the environment (Güven & Aydoğdu, 2012:186). The person with environmental awareness is not only environmentally friendly but also the one who is not neutral or insensitive to the deterioration of the environment, does not act egoistically and does not transform his personal gains into greediness (Erten, 2004). To find a "sustainable" balance in the relations between man and nature, a new understanding and a new perspective is needed to increase ecological / environmental awareness. The new ecological paradigm emphasizes the importance of creating ecological awareness and it emphasizes the importance of environmental education to contribute to the sustainable development of countries. (Tunç et al. 2012:229). Because the environment is a natural habitat where human beings influence and are influenced by all kinds of activities. This environment must be preserved and sustainable. This can only be achieved by knowing the meaning and characteristics of the natural environment.

Within the scope of scientific studies related to education, since it takes a long time to determine the behavioural changes of the individuals, indirect variables are tried to be observed with various variables such as environmental attitude, environmental awareness and environmental sensitivity. There are various consequences of educational research carried out both in the classroom and outside the classroom about the relation between these variables (Okur-Berberoğlu & Uygun, 2012: 460). One of the most important problems in education today is that the theoretical knowledge cannot be transferred to practice. Unfortunately, students have difficulty in converting the information they learn theoretically into practice. In order to overcome these deficiencies, students should be given more opportunities for sightseeing, observation and examination.

1.1. Aim of the Research

In this study; it is aimed to determine the knowledge level, awareness and perceptions of university students about plants. For this purpose, a study was carried out to determine the environmental awareness of the students who study in geography and biology departments.

2. Method

2.1. Research Model

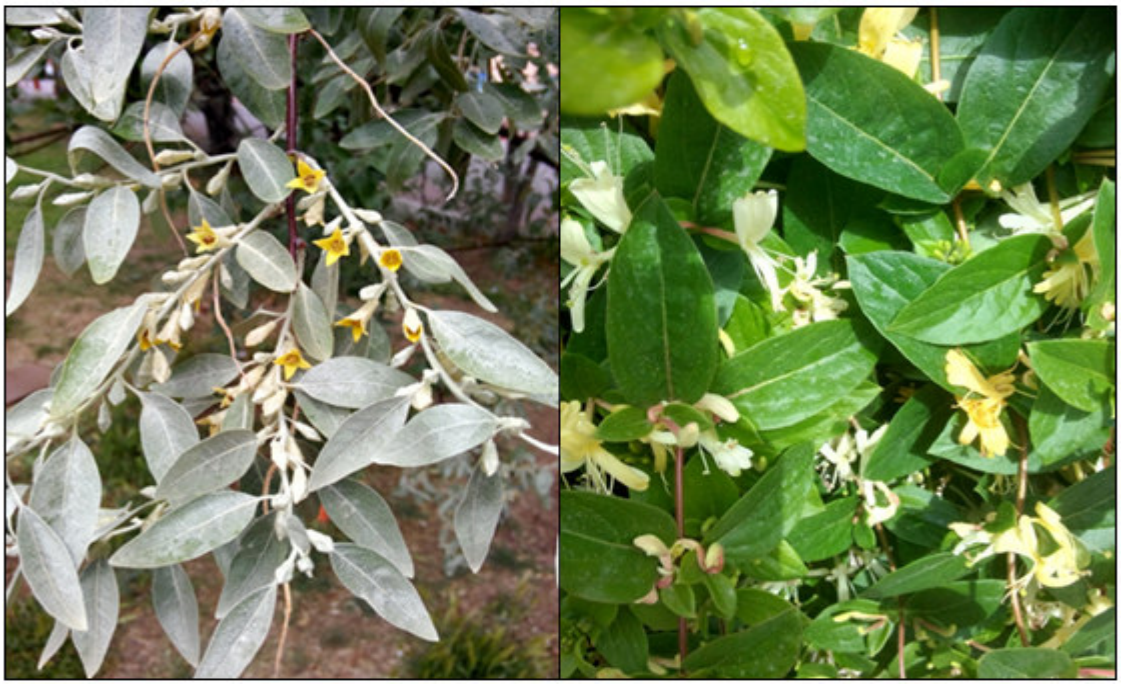
This study is a qualitative research and from qualitative research approaches, case study pattern was used. The basic feature of the case study is to determine one or more cases deeply. In other words, the factors related to this situation (environment, individual, events, processes, etc.) are investigated through a holistic approach and focused on how they affect the situation and how they are affected by the situation (Yıldırım & Şimşek, 2016: 73).

2.2. Working Group

Group is composed of teacher candidates studying at geography and biology teaching departments of Ahmet Keleşoğlu Education Faculty of Necmettin Erbakan University in 2015-2016 academic year. The common feature of the students involved in the research is that they have all taken the courses about biogeography and the environment. 37 students from biology and 40 students from geography participated in this survey.

2.3. Data Collection and Data Analysis

In this study, case study pattern from qualitative research approaches was used. In the analysis of the data obtained in the research, descriptive analysis technique was used. The purpose of such analysis is to present the findings to the reader in an organized and interpreted way. The data obtained for this purpose are first described systematically. Then, these descriptions are explained and interpreted, cause-effect relationships are examined and some results are reached (Yıldırım & Şimşek, 2016: 239-240).



Picture 1. Oleaster and Honeysuckle, among the plant samples used in the measurement

A questionnaire form was prepared for data collection, plant photos were placed on a page and plant characteristics were asked under each plant photograph. Before the questionnaire is applied to the students, the purpose of the research is explained and the importance of writing only their own information is explained. The survey form, which is a data collection tool, was distributed to the students and asked to answer the questions about the characteristics of the plants. In this context, students were given a questionnaire containing 8 pre-prepared colourful photographs of plants (Figure 1). 8 plant species presented to students in order to collect data are the plants that students can see most and they are required to identify them. Plant photos in the survey are weeping willow, plane tree, linden, honeysuckle, oleaster, acacia, cedar and juniper. Under each plant photo, regarding the plant recognition criteria, it was asked whether the plant is evergreen or non-evergreen, needle-leaved or broad-leaved, gymnosperms or angiosperms, bloomy or bloomless, having seeds or seedless. In addition scientific names and Turkish names of plants were also asked. The obtained data were calculated for all the criteria and a frequency and percentage table were created. The values calculated for each criterion were written separately for biology and geography students to allow making comparisons.

Some of the features related to the plant shown in the figure are given. From these features, put a (X) sign to the right of them.
Scientific name of the plant:
Turkish name of the plant:

Evergreen	( )	*Non-evergreen*	( )
Needle-leaved	( )	*Broad-leaved*	( )
Gymnosperms	( )	*Angiosperms*	( )
Bloomy	( )	*Bloomless*	( )
Having seeds (Seedy)	( )	*Seedless*	( )

Figure 1. Example of Recognition Criteria of Students Participating in the Survey

In addition, the frequencies and percentages of plant characteristics left unanswered are also listed separately for each property. Thus, the awareness of the participants who recognize the plant has been tried to be determined, both in terms of scientific knowledge and recognition of the plants that they have constantly encountered. By asking students to write both the scientific name of the plant and the Turkish name of the plant widely known among the people, the ability to relate the information they have learned in the lessons to the information they have learned in daily life has been tried to be determined. Thus, with this survey, the level of awareness of geography and biology students about the plants in their environment was tried to be determined.

3. Findings

In this section students' answers are interpreted by showing them as a table.

Table 1. Status of the students participating in the survey about recognizing plants

n=77 Biology: 37 Geography: 40		Scientific name				Turkish name			
		Biology		Geography		Biology		Geography	
		f	%	f	%	f	%	f	%
Weeping Willow	Correct	5	13,5	13	32,5	29	78,3	37	92,5
	Wrong	-	-	-		-	-	1	2,5
	Unanswered	32	86,4	27	67,5	8	21,7	2	5
Acacia	Correct	4	10,9	3	7,5	12	32,4	27	67,5
	Wrong	-		-	-	4	10,8	3	7,5
	Unanswered	33	89,1	37	92,2	21	56,7	10	25
Honeysuckle	Correct	-		-	-	23	62,1	17	42,5
	Wrong	-		-	-	1	2,7	2	5
	Unanswered	37	100	40	100	13	35,1	21	52,5
Plane Tree	Correct	1	2,7	9	22,5	17	45,9	21	52,5
	Wrong	-		1	2,5	11	29,7	15	37,5
	Unanswered	36	97,2	30	75	9	24,3	4	10
Linden	Correct	-		16	40,0	15	40,5	25	62,5
	Wrong	-		-	-	3	8,1	3	7,5
	Unanswered	37	100	24	60,0	19	51,3	12	30
Oleaster	Correct	-		1	2,5	30	81,1	36	90
	Wrong	-		-	-	-	-	1	2,5
	Unanswered	37	100	39	97,5	7	18,9	3	7,5
Cedar	Correct	7	18,9	7	17,5	10	27,0	7	17,5
	Wrong	12	32,4	11	27,5	21	56,7	25	62,5
	Unanswered	18	48,6	19	47,5	6	16,2	8	20
Juniper	Correct	5	13,5	4	10	11	29,7	6	15
	Wrong	13	35,1	6	15	17	45,9	19	47,5
	Unanswered	19	51,3	30	75	9	24,3	15	37,5

In the research, firstly the ability of students to recognize plants was evaluated. Scientific and Turkish names of the plants were asked and the responses from the students are presented in Table 1. It is seen that students have difficulty in identifying plants with their scientific names. 13 students from 40 geography students (32.5%) and 5 students from 37 biology students (13.5%) accurately expressed the weeping willow (*Salix sp.*) correctly and they could not write the type of the plant. While plane tree (Platanus sp.) was correctly identified by 9 geography students (22.5%), only 1 student (2,7%) correctly identified it. Linden (Tilia sp.) was correctly expressed by 16 geography students. From other trees, while acacia (*Acacia sp.*) was expressed correctly by 4 biology and 3 geography students, scientific names of plants such as honeysuckle (Lonicera sp.) and oleaster (Elaeagnus sp.) were not written correctly and left unanswered by students. It is noteworthy that at the point of writing the Latin (scientific) names of plants, the students preferred not to write anything almost a hundred percent. For example; it is seen that 100% of the biology students do not respond when the scientific name of linden and oleaster is asked. Of the geography students, 40% of them answered correctly for linden, but 97.5% of them answered incorrectly for oleaster. Again, the scientific name of the honeysuckle tree has not been written correctly by the students of both departments, and students have preferred not to answer this question. It seems that there are contradictions in their minds about recognizing plants such as cedar (Cedrus sp.) and juniper (Juniperus sp.) with scientific names. Because just a few students wrote the scientific names correctly but the majority of the students gave wrong answers and left them unanswered (Table 1).

But, students mostly knew the plants with their Turkish names. For the weeping willow, 29 (78.3%) of the biology students and 37 (92.5) of the geography students answered correctly. From other plant species; for acacia 12 biology and 27 geography students, for honeysuckle, 23 biology and 17 geography students; for plane tree, 17 biology and 21 geography students; for linden, 15 biology students and 25 geography students; for oleaster, 30 biology and 36 geography students answered correctly. It is observed that the most accurate answer percentage (bio; 81.1% and geo: 90%) of students of both education departments belongs to the writing of the name of oleaster in Turkish. In terms of recognizing plants with Turkish names, students sometimes preferred to leave the answers unanswered with the thought of giving less wrong answers. It is also seen that there are contradictions in the minds of the students in Turkish names of cedar and juniper as in their scientific names. For cedar, the biology students' wrong response rate was 56.7% while the correct response rate was 27%. Geography students gave more wrong answers (62.5%) than the biology students while writing the Turkish name of cedar tree. The rate of wrong answers of the students of both departments is higher than the correct answers.

Table 2. Opinions of the students participating in the survey about the characteristics of plants

n=77 Biology: 37 Geography: 40	*Weeping Willow*				*Acacia*				*Honeysuckle*				*Plane Tree*			
	Biology		Geography		Biology		Geography		Biology		Geography		Biology		Geography	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Needle-leaved	4	10,8	2	5,0	-	-	1	2,5	-	-	3	7,5	1	2,7	-	-
Broad-leaved	33	89,1	38	95,0	33	89,1	39	97,5	33	89,1	37	92,5	33	89,1	40	100
Unanswered	-	-	-	-	7	18,9	-	-	4	10,8	-	-	3	8,1	-	-
Gymnosperms	5	13,5	8	20,0	7	18,9	25	62,5	8	21,6	24	60,0	13	35,1	23	57,5
Angiosperms	21	56,7	25	62,5	20	54,0	7	17,5	19	51,4	8	20,0	18	48,6	14	35,0
Unanswered	1	2,7	7	17,5	10	27,0	8	20,0	10	27,0	8	20,0	6	16,2	3	7,5
Bloomy plant	19	51,3	3	7,5	32	86,4	39	97,5	32	86,4	37	92,5	23	62,1	12	30,0
Bloomless plant	18	48,6	35	87,5	1	2,7	1	2,5	-	-	3	7,5	11	29,7	28	70,0
Unanswered	-	-	2	5,0	4	10,8	-	-	5	13,5	-	-	3	8,1	-	-
Seedy	28	75,6	21	52,5	29	78,3	30	75,0	29	78,3	30	75,0	29	78,3	35	87,5
Seedless	5	13,5	16	40,0	1	2,7	7	17,5	1	2,7	7	17,5	-	-	3	7,5
Unanswered	4	10,8	3	7,5	7	18,9	3	7,5	7	18,9	3	7,5	8	21,6	2	5,0
Non-evergreen	34	91,8	38	95,0	36	97,2	38	95,0	31	83,7	33	82,5	33	89,1	37	92,5
Evergreen	1	2,7	2	5,0	1	2,7	2	5,0	3	8,1	3	7,5	1	2,7	2	5,0
Unanswered	2	5,4	-	-	-	-	-	-	3	8,1	4	10,0	3	8,1	1	2,5
n=77 Biology: 37 Coğrafya: 40	***Linden***				***Oleaster***				***Cedar***				***Juniper***			
	Biology		Geography		Biology		Geography		Biology		Geography		Biology		Geography	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Needle-leaved	2	5,4	2	5,0	4	10,8	7	17,5	32	86,5	40	100	34	91,9	40	100
Broad-leaved	32	86,4	38	95,0	29	78,4	33	82,5	-	-	-	-	-	-	-	-
Unanswered	4	10,8	-	-	4	10,8	-	-	5	13,5	-	-	3	8,1	-	-
Gymnosperms	14	37,8	29	72,5	11	29,7	24	60,0	22	59,5	7	17,5	22	54,5	4	10,0
Angiosperms	20	54,1	8	20,0	20	54,1	14	35,0	5	13,5	26	65,0	9	24,3	29	72,5
Unanswered	3	8,1	3	7,5	6	16,2	2	5,0	10	27,2	7	17,5	6	16,2	7	17,5
Bloomy plant	24	64,8	28	70,0	29	78,4	38	95,0	9	24,3	-	-	11	29,7	2	5,0
Bloomless plant	6	16,2	10	25,0	-	-	-	-	21	56,8	40	100	19	51,4	38	95,0
Unanswered	7	18,9	2	5,0	8	21,6	2	5,0	7	18,9	-	-	7	18,9	-	-
Seedy	31	83,7	34	85,0	30	81,1	31	77,5	26	70,2	27	67,5	25	67,6	21	52,5
Seedless	-	-	1	2,5	1	2,7	2	5,0	6	16,2	12	30,0	3	8,1	12	30,0
Unanswered	6	16,3	5	12,5	6	16,2	7	17,5	5	13,5	1	2,5	9	24,3	7	17,5
Non-evergreen	31	83,7	38	95,0	29	78,4	35	87,5	5	13,5	1	2,5	5	13,5	2	5,0
Evergreen	3	8,1	2	5,0	3	8,1	4	10,0	30	82,0	39	97,5	31	83,8	38	95,0
Unanswered	3	8,1	-	-	5	13,5	1	2,5	1	2,7	-	-	1	2,7	-	-

It is seen that the students give more correct answers for the plants with broad leaves. Only for weeping willow and oleaster trees, just a few students from both biology and geography departments gave the answer as their being needle-leaved. For weeping willow biology students gave wrong answers with the rate %10,8 and geography students with the rate %5, and for oleaster tree, biology students gave wrong answers with the rate %10,8 and geography students with the rate %17,5. Very few similar opinions were expressed among other plants. This indicates that students have contradictions in their mind when they see these types of leaves as they have not fully structured the shape of needle and broad leaf in their minds. For cedar tree; 32 biology students (86.5%), 40 geography students (100%), for juniper tree; 35 biology students (%91,6), 40 geography students (%100) answered correctly by telling their being needle-leaved. There are only a few biology students who do not give answers for these two needle-leaved trees. Geography students have learned more about plants in the form of trees in the lessons and field-trips so this enables them to give more correct answers.

It is seen that the students are not able to construct the concepts of gymnosperms and angiosperms which are frequently used in discrimination of plants in their minds they have lack of information. For these concepts, geography students gave more wrong answers. Biology students correctly used the response of plants with seeds for the first 6 plants because they learned these concepts in many different courses. But from biology students 5 of them used the expression of gymnosperms for weeping willow, 7 for acacia, 8 for honeysuckle, 13

for plane tree, 14 for linden and 11 for oleaster. In terms of geography students these numbers are: 8 for weeping willow, 25 for acacia, 24 for honeysuckle, 23 for plane tree, 29 for linden and 24 for oleaster. Geography students have shown that they do not have enough information on this topic using the expression of gymnosperms for angiosperms. Because, in order to distinguish gymnosperms and angiosperms plants, academic knowledge is needed along with recognizing the plant. Biology students receive training at a level to make this distinction. But, the fact that they have problems in recognizing plants may have caused them to be mistaken. Similar results emerged for cedar and juniper. 22 (59.5%) of the biology students expressed cedar as gymnosperms, whereas 26 (65%) of the geography students expressed the same plant as angiosperms. 22 biology students expressed the juniper as gymnosperms and 29 geography students expressed it as angiosperms. According to this situation, for juniper and cedar, while biology students mostly used the expression of gymnosperms, geography students used the expression of angiosperms. It is noteworthy that the right response rates of biology students are higher.

Another question is whether plants are bloomy or bloomless plants. The most wrong answer to this question is about weeping willow and plane tree both from biology and geography students. For weeping willow, 18 biology students (48.6%) and 35 geographer students (87.5%) stated its being bloomless plant. For plane tree, 11 biology students (29,7%) and 28 geography students (70%) stated its being bloomless plant. And there is a similar situation for linden; 6 biology and 10 geography students used expression of bloomless for this plant. The number of students among biology students who are indecisive and unresponsive to the subject whether especially linden and oleaster are bloomy or bloomless plants is relatively higher than geography students. Geographer students mostly answered this question in the direction of bloomy plants.

Both biology and geography students used the bloomless plant expression for cedar and juniper. These plants are bloomy plants, but since flowers are not as flashy as other plants (there are no flower leaves such as calyx and corolla), they are perceived as flowering plants. It is observed here that students probably do not know the differences between gymnosperms and angiosperms, and it is also observed that they evaluate the conifers as they see, not according to academic knowledge.

For the weeping willow, biology students with 28 frequency and geography students with 21 frequency answered the question “seedy or seedless plant?” as “it is seedy”. 16 students from the geography evaluated the weeping willow as a seedless plant, while 5 of the biology students shared the same view with the geography students. It is seen that geography students gave the answer of “seedless” with 7 frequency for plants such as acacia and honeysuckle. There is a similar situation for cedar and juniper plants. While for cedar, 6 students from biology and 12 students from geography gave the answer of “seedless”, for juniper 3 students from biology and 12 students from geography used the expression of “seedless”. For all plant species, the number of students who do not respond to the question of “seedy plants or seedless plants” is higher in biology students than in geography students. From biology students, 7 students for acacia, 7 students for honeysuckle, 8 students for plane tree, 6 students for linden and 6 students for oleaster didn’t give an answer. From geography students, 5 students for linden and 7 students for oleaster didn’t give an answer for this question (Table 2).

For the plants used in the research, it is seen that the students answered a significant level of correct answer for the question of “evergreen plant or non-evergreen plant?” But, even if it is at a low level, some students have answered for the weeping willow which is non-evergreen plant as follows. 34 (91.8%) of the biology students and 38 (95%) of the geography students answered correctly. The correct answer for acacia is 97.2% in biology students and 95% in geography. And for other plants, students gave the answer of “non-evergreen” with the frequencies of; biology 31 geography 33 for honeysuckle, biology 33 geography 37 for plane tree, 31 biology 38 geography for linden, 29 biology 35 geography for oleaster. For cedar, 30 (82%) of the biology students, 39 (97%) of the geography students, and for juniper 31 of the biology students and 38 of the geography students have defined these plants as evergreen plants. The number of students who gave the answer of “evergreen” for non-evergreen plants and “non-evergreen” for evergreen plants such as cedar and juniper is quite low. In addition, the number of students who did not give answer to this question is also very low.

4. Result and Discussion

With this study, carried out to determine the level of recognition and awareness of some plants of biology and geography students, the plant samples frequently encountered by students in their surroundings were used as material. According to the results of the research, environmental awareness of the students is not at an adequate level. Because it is not enough to have an academic course in order to have information about the seasonal development and general characteristics of the plants growing in our vicinity. You need to be aware of the biodiversity in the area, know them and know their characteristics. It is a need for biodiversity to be protected and sustainable. Geography students gave a certain level of accuracy in recognizing plants. 37 of 40 students pronounced the Turkish name of weeping willow correctly. While 36 students gave the correct answer for oleaster, the frequency of the correct answers for the other plants is over 20. The correct answer frequencies of biology students are lower for the same plants. From biology students, for weeping willow 29 of them and for

honeysuckle 23 of them pronounced their Turkish names correctly. The recognition frequencies for other plants are below 20.

Biology students gave the correct answers about general characteristics of plants considerably and along with this the frequency of the students who gave the wrong answer or do not answer has an important value. It is also similar for geography students. However, the number of geography students who were indecisive or do not answer questions is less. Both biology and geography students correctly analyzed the needle leaved and broad leaved plants from photographs. However, some students gave the answer of "needle leaved" for broad leaved plants and some students did not give answer. The number of them is very small. All geography students gave correct answer for cedar and juniper which are needle leaved plants. But from biology students, 5 students for cedar and 3 students for juniper gave the answer of "broad leaved".

Geography students answered more wrongly on the other criterion; the question of "gymnosperms or angiosperms" and expressed the angiosperms as gymnosperms. The answers of biology students are more consistent for this question which requires scientific knowledge. It would be an appropriate assessment to explain this in the way that biology students see these concepts in detail in very different lessons. The fact that the students have problems in recognizing the plants also affects their correct answers. Because students identify certain concepts with plants in their minds and fall into contradiction when they encounter a different plant than they learn. There are also similar results for cedar and juniper. While biology students mostly used the expression of gymnosperms for juniper and cedar, geography students used the expression of angiosperms as answer. The number of students who are indecisive and unresponsive to the question of "a bloomy or bloomless plant?" which was asked for linden and oleaster is relatively higher than the number of geography students. Geography students answered this question mostly as bloomless plant. Both geography and biology students have used the expression of bloomless for cedar and juniper at a high rate. This is a consequence of students' using images they see to inference more than scientific information.

For the plant samples shown, both biology and geography students gave correct answers with a high rate to the question of "a seedy or seedless plant?" The number of students who do not respond for all plant species is higher in biology students than in geography students. But the number of geography students who gave the answer of "seedless plant" for the seedy plant samples is relatively higher than the number of biology students. For the plants used in the research, it is seen that the students gave correct answers at a significant level for the question of "evergreen or non-evergreen plant?"

According to the results of the study, biology students' information level about recognition of general characteristics of plants is better than geography students. Biology students mostly preferred to be cautious when they did not know certain characteristics of plants. It can be said for geography students that they know better about plants and their environmental awareness is also better. While biology students correctly expressed the general characteristics of the plants they know correctly, geography students could not write general characteristics of plants at the same level. But the reason why the geography students are more careful about environmental observation can be explained by their recognition of plants. Biology students have a better understanding of the characteristics of plants and this may be related to the lessons they have taken before. Because they take a lot of courses related to botanical science during their undergraduate education.

However, the reason why geography students have higher frequency of recognizing plants from photographs can be explained by that they made more frequent trips during their education and they met more frequently with these plants and by this way even if it's a little, an awareness was developed in the students. In short, it is not enough for the students to have information, it is also necessary to have awareness along with the information.

Oğuz et al. (2011: 38) stated that students are not as aware of environmental issues as they are expected, and argued that students' knowledge, awareness levels and attitudes, behaviours are not directly proportional. In other words, they have expressed the opinion that knowledge and awareness do not always play an effective role in individual's environmental attitudes and daily behaviours. According to Güven & Aydoğdu (2012: 195), low level of knowledge and awareness of individuals regarding environmental problems is an important reason of negative attitudes and behaviours that cause these problems. Of course, the identification and elimination of environmental problems is possible only if they are recognized. Because to expect from individuals who are unaware of the problems to be sensitive to these problems and to change their behaviours which may cause problems is not possible. From this point of view, it is considered that determining and increasing the level of awareness of the individuals about environment and environmental problems is one of the preconditions for coping with environmental problems. Cin & Yazıcı (2010: 5) studied on the observation and awareness of the perception of earth forms that water created in the research they conducted on children aged 8 years. They examined the children who have directly observed the features such as river, lake and sea and those who have not but they reached the conclusion that there is no significant difference.

The results that were made in the researches carried out before and also in this study; is the lack of observations and perceptions of the environment by the students. These results also confirm the sense of

selectivity in perception. It is seen that in general people and specifically students do not have an observation to create awareness about the objects or phenomena that they see every day

When the findings obtained from this research are evaluated, we can say that most of the students have information about the plants growing around their environment. But, some students do not have enough scientific information about both recognizing plants and the general characteristics of plants and although they encounter constantly; they are unable to notice the changes in the plants due to their indifference to the plants around them.

Although most of these plants are known plants, students did not recognize or misunderstood the plants from their photos when they saw them. For this purpose, training programs and practices should be carried out to enable the students to become educated and knowledgeable in order to increase their awareness.

In this context, it should be known that the inclusion of active processes in education is an important and necessary subject. It is necessary for the students to have the scientific information and equipments necessary for recognizing the plants and animals in their environment, learning their characteristics and observing them. So, care should be taken to ensure that students are taught with appropriate methods and techniques for cognitive development at every stage of education.

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