

## RESEARCH ARTICLE

## Factors Affecting Elective Course Preferences of Veterinary School Students in Türkiye

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**Abstract:** It is aimed to investigate the factors affecting the elective course preferences of veterinary students in Türkiye and to evaluate these factors according to specific socio-demographic criteria. "Elective Course Preference Attitude Scale" was applied to 765 students from 18 veterinary faculties. Data were analyzed with SPSS 25.0. Female students made up 52.4% of the participants. It was determined that the personal score was lower in men than in women. The environmental score was low in the 1<sup>st</sup> and 2<sup>nd</sup> grades, and in the 3<sup>rd</sup> and 4<sup>th</sup> grades, the structural score was high. While the additive score was low for the students studying in the Eastern, Central Anatolian and Black Sea regions, the environmental score was low in the Marmara Region. It was determined that the environmental score of the students studying in the faculties founded after 2007 was low. The fact that students need knowledge and experience in choosing elective courses reveals the effect of the friend factor while their expectation of contribution to personal and professional life reveals the effect of regional opportunities. The elective course pool to be prepared in line with the interests, wishes, and needs of the students will contribute to their motivation and self-efficacy perceptions. Choosing elective courses in line with the professional, academic and personal factors and the student's academic profiles will be beneficial in increasing learning and success levels.

**Keywords:** Education, Elective course, Student, Türkiye, Veterinary medicine, Veterinary school

## Türkiye'de Veteriner Fakültesi Öğrencilerinin Seçmeli Ders Tercihlerine Etki Eden Faktörler

**Öz:** Türkiye'de veteriner fakültesi öğrencilerinin, seçmeli ders tercihlerine etki eden faktörlerin araştırılması ve tercihlerini etkileyen bu faktörlerin belirli sosyo-demografik kriterlere göre değerlendirilmesi amaçlandı. 18 veteriner fakültesinden 765 öğrenciyeye "Seçmeli Ders Tercihi Tutum Ölçeği" uygulandı. Veriler SPSS 25.0 ile analiz edildi. Katılımcıların %52.4'ünü kadın öğrenciler oluşturdu. Personel skorunun erkeklerde kadınlara göre düşük olduğu belirlendi. 1 ve 2. sınıflarda çevresel skor düşük, 3 ve 4. sınıflarda ise yapısal skor yüksek olarak belirlendi. Doğu, İç Anadolu ve Karadeniz Bölgesinde öğrenim gören öğrencilerde katıksal skor, Marmara Bölgesinde ise çevresel skor düşük olarak tespit edildi. 2007 yılından sonra kurulan fakültelerde öğrenim gören öğrencilerde çevresel skorun düşük olduğu belirlendi. Öğrencilerin seçmeli ders tercihinde bilgi ve tecrübeye ihtiyaç duymaları arkadaş faktörünün, kişisel ve mesleki yaşama katkı beklentileri ise bölge olanaklarının etkisini ortaya koymaktadır. Öğrencilerin ilgi, istek ve ihtiyaçları doğrultusunda hazırlanacak seçmeli ders havuzunun motivasyon ve öz yeterlik algılarına katkı sağlayacağı; mesleki, akademik ve kişisel faktörler ile öğrencilerin akademik profilleri doğrultusundaki seçmeli ders tercihinin öğrencilerin öğrenme ve başarı düzeylerini artırmada yararlı olacağı söylenebilir.

**Anahtar sözcükler:** Eğitim, Öğrenci, Seçmeli ders, Türkiye, Veteriner fakültesi, Veteriner hekimliği

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## INTRODUCTION

Obtaining a veterinary school diploma in Türkiye requires the completion of a five-year (10 semesters) education in a veterinary school. Despite the different systems applied in veterinary schools, the curricula are developed in the context of the minimum requirements set by the European Association of Veterinary Education Organizations (EAEVE) and the World Veterinary Medical Association and implemented in all veterinary schools in Türkiye [1]. Veterinary schools in Türkiye are divided into divisions, and each division is divided into departments. Despite some minor differences in the organization of departments, there are five main divisions in veterinary schools. As a result of increasing contacts with EAEVE, coordination among veterinary schools is increased, and thus Turkish veterinary medicine schools adapt to the European education system. This alignment includes audit visits by EAEVE expert committees to assess the suitability of faculties with the European education system.

As the curriculum content of veterinary schools reaches significant proportions following advances in medical knowledge and biotechnology, it becomes impossible to ensure that all students at the beginning of their careers have such a broad knowledge base [2]. Therefore, the education curriculum should increase students' ability to adapt to changing conditions, instill the desire and ability to work in teams, and develop their life skills. Academic education and innovations are expected to awaken the intellectual curiosity and commitment to lifelong learning that graduates will need to maintain the confidence of the society where they will work in the future [3].

Problem-based learning amplifies life experiences to promote learning, integration of knowledge, and lifelong learning skills, which are essential for veterinary education. In addition to problem-based learning, there is a need to continuously evaluate the teaching strategies used in veterinary medicine schools to ensure effective learning [2].

Veterinary educators are responsible for preparing students for the profession through an intensive and professional training program. This program requires training in many areas so that students become proficient in the expected knowledge, skills, and abilities of veterinary medicine [4]. In this context, counselors can help students choose the courses that best meet their needs by encouraging them to consider their interests and motivations [5].

Elective courses (EC) are optional courses explicitly designed to increase and reinforce knowledge, facilitate academic study, and increase student participation in the scientific research process [6]. The choice of ECs is an essential factor in which the student will discover interests

and abilities in own professional career, test and develop knowledge and experience as a result of own decisions, and prepare for the future [7,8]. This course format, common in higher education, offers students the chance to receive a "multi-dimensional" education outside a predetermined lesson plan [6]. It is also reported that it is a model that provides flexibility in choosing the course and maintains its popularity [9].

ECs not only help students accumulate enough credits to complete their undergraduate degrees but also provide knowledge beyond the core subject to increase achievements. For this reason, the importance of supporting knowledge must first be established in the student's mindset. Therefore, it is important to reveal the preferences of ECs in order to manage demand and supply. Understanding the patterns and determinants of demand, including understanding why one elective is preferred over another, should aid in planning EC offerings and resources (e.g. facilities and instructors) [5].

In general, ECs aim to develop individuals socially and culturally. It is emphasized that there is a relationship between the success obtained from these courses and culture, art, sports, health activities, environmental awareness, and communication skills [10]. However, it is reported that in veterinary schools, where ECs are offered in addition to the compulsory course load, students' interest in ECs decreases due to the intensity of the courses [11]. For ECs to be successful, students' interests and wishes must be prioritized, and appropriate conditions must be provided [7]. For this reason, a flexible curriculum that provides a solid basic education, and sufficient time for relevant ECs, should be the cornerstone of veterinary education [11].

The associate and undergraduate education and training regulations of universities in Türkiye set out the courses that are planned to be taught and included in the ECs pool, and the procedures and principles to be followed for taking these courses [12-14]. According to the "European Veterinary Education Evaluation System Standard Operating Procedure Guide", each student should freely choose the course from the list of allowed courses due to the nature of the EC. In the guide, it is stated that the total number of courses that each student will take from various course groups, the selection procedures of the ECs, and the definition of the degree of freedom in their selection (the number of students required to open the ECs, etc.) should be made [15].

This study aimed to investigate the factors affecting the ECs preferences of the students studying at veterinary schools located in different geographical regions of Türkiye and to evaluate these factors according to specific socio-demographic criteria.

## MATERIAL AND METHODS

### Ethical Statement

This study was carried out with the approval of Selcuk University Faculty of Veterinary Medicine Experimental Animal Production and Research Center Ethics Committee (SÜVDAMEK) dated 27.02.2020 and numbered 2020/24.

### Data Collection

The study material consisted of data from 765 students studying at 18 different veterinary schools in Türkiye.

The “Elective Course Preference Attitude Scale” developed by Aslım et al.<sup>[16]</sup> was used. The data for this study was obtained anonymously, and the confidentiality of the participants was protected.

A sample size of 765 achieves 84.259% power to detect an effect size (W) of 0.1000 using 5 degrees of freedom Chi-Square Test with a significance level (alpha) of 0.05000.

### Statistical Analysis

The scale was applied to the students between 26.03.2021 and 14.04.2021, and the data were obtained. SPSS 25 (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.) statistical package program was used to evaluate the data obtained in the study. Mean±standard deviation and Median (Maximum-Minimum) percentage and frequency values were used for the variables. Variables were evaluated with the Shapiro-Wilk and Levene Test after controlling for normality and homogeneity of variances. While performing data analysis, Independent two-group t-test (Student's t-test) for two-group comparison, Mann Whitney-U test when prerequisites are not met, One-Way Analysis of Variance (One-way ANOVA) for three or more group comparisons, and Tukey from multiple comparison tests. Kruskal Wallis test and Bonferroni-Dunn test, one of the multiple comparison tests, were used when the HSD test did not provide it. Categorical data were analyzed with Fisher's Exact Test and Chi-Square test. In cases where the expected frequencies were less than 20%, the Monte Carlo Simulation Method was used to include these frequencies in the analysis. The values of  $p < 0.05$  and  $p < 0.01$  were accepted for the significance level of the tests.

## RESULTS

A total of 765 students, 124 were from the Mediterranean Region, 98 were from the Eastern Anatolia Region, 113 were from the Aegean Region, 95 were from the Southeastern Anatolia Region, 110 were from the Central Anatolia Region, 84 were from the Black Sea Region and 141 were from the Marmara Region. The number of female students was 401 (52.4%) and 364 (47.6%) male. 146 (19.1%) of the participants were 1<sup>st</sup>-grade, 207 (27.1%)

were 2<sup>nd</sup>-grade, 148 (19.3%) were 3<sup>rd</sup>-grade, 119 (15.6%) were 4<sup>th</sup>-grade, and 145 (19.0%) were of 5<sup>th</sup>-grade students. The findings regarding the factors affecting the choice of ECs according to the regions where the faculties are located, the date of foundation, the grade of the students, and their gender are presented in *Table 1*.

In the study, it was examined whether gender affected the attitude of choosing ECs. The additive score showed statistical similarity according to gender. Personal score is lower for men than for women. Structural, Instructor, and Environmental scores are not distributed differently by gender (*Table 1*).

It was examined whether the students' attitudes towards ECs changed according to the geographical regions they studied. The additive scores of students studying in Eastern Anatolia, Black Sea, and Central Anatolia regions are statistically lower than in other regions. Personal, Structural, and Instructor scores are statistically similar according to the education regions. The Environmental score of the students studying in the Marmara region was statistically lower than those in other regions (*Table 1*).

Considering the differences in the ECs preference attitudes of the universities according to the foundation date, Additive, Personal, Structural, and Instructor scores are statistically similar according to the university foundation dates. The Environmental score of the universities founded in 2007 and later was statistically lower than those founded in other years (*Table 1*).

Additive scores of students in the attitudes of choosing ECs according to the class they are studying were found to be statistically lower in 4<sup>th</sup> and 5<sup>th</sup>-grade students compared to other classes. The personal score of the students studying in the 5<sup>th</sup> grade was observed to be lower than the other classes. The structural score is statistically similar according to classes. Instructor scores of 3<sup>rd</sup> and 4<sup>th</sup>-grade students are higher than others. The environmental score was lower in 1<sup>st</sup> and 2<sup>nd</sup>-grade students compared to other grades (*Table 1*).

The degree of participation of the students to the factors (additive, personal, structural, instructor, and environmental) in the ECs preference attitude scale was determined statistically. The frequency and percentage values of the obtained data are presented in *Table 2*.

## DISCUSSION

Universities generally contribute to economic growth and national competitiveness by equipping students with higher-order thinking and academic skills<sup>[17]</sup>. In university education, students are offered many ECs apart from the compulsory courses and are given a choice that can meet the student's wishes<sup>[18]</sup>. In this freedom of choice, the friend

Table 1. Factors affecting the choice of ECs according to socio-demographic data

Factors		Factor 1 Additive		Factor 2 Personal		Factor 3 Structural		Factor 4 Instructor		Factor 5 Environmental					
The range of points to be obtained from the factor (min.-max.)		6	30	5	25	10	50	4	20	3	15				
Descriptive statistics		M (IQR)		M (IQR)		M (IQR)		M (IQR)		M (IQR)					
Gender	Female		27.0 (6.0)	21.0 (5.0)	38.0 (8.0)	15.0 (5.0)	11.0 (6.0)	n=401		52.4%					
	Male							26.0 (6.0)	20.5 (5.0)	39.0 (9.0)	15.0 (5.0)	11.0 (5.0)	n=364		47.6%
	Test Statistics (z value)		0.579	2.214	1.535	0.911	1.804						P		0.562
	Geographical Region		Mediterranean		27.0 (6.0) <sup>ab</sup>	21.0 (4.0)	39.0 (8.0)	15.0 (3.0)	10.0 (5.0) <sup>ac</sup>	n=124		16.2%			
		Eastern Anatolia		25.0 (5.2) <sup>b</sup>	20.0 (5.2)	39.0 (9.2)	15.0 (5.0)	12.0 (6.0) <sup>b</sup>	n=98		12.8%				
		Aegean		27.0 (6.0) <sup>bc</sup>	21.0 (4.0)	40.0 (8.0)	16.0 (5.0)	12.0 (5.0) <sup>b</sup>	n=113		14.8%				
		Southeastern Anatolia		28.0 (7.0) <sup>ab</sup>	22.0 (5.0)	38.0 (10.0)	15.0 (4.0)	11.0 (5.0) <sup>bc</sup>	n=95		12.4%				
		Central Anatolia		25.0 (7.0) <sup>b</sup>	20.0 (5.0)	38.0 (8.5)	14.0 (5.0)	11.0 (4.0) <sup>b</sup>	n=110		14.4%				
		Black Sea		25.0 (7.0) <sup>b</sup>	21.0 (4.0)	39.5 (7.0)	14.0 (5.0)	12.0 (5.7) <sup>b</sup>	n=84		11.0%				
		Marmara		27.0 (6.0) <sup>ac</sup>	21.0 (5.0)	38.0 (9.0)	15.0 (5.0)	9.0 (6.0) <sup>a</sup>	n=141		18.4%				
Test Statistics (H value)		13.412		11.313	11.052	3.167	27.606	P		<b>0.037</b>	0.079	0.087	0.788	<b>&lt;0.001</b>	
Founding Date of the Faculty	1985 and before		26.0 (6.0)	20.0 (4.5)	39.0 (9.0)	14.5 (5.0)	11.0 (6.0) <sup>a</sup>	n=118		15.4%					
	1986-2006							27.0 (7.0)	21.0 (5.0)	39.0 (8.0)	15.0 (5.0)	11.0 (6.0) <sup>a</sup>	n=445		58.2%
	2007 and after		27.0 (6.0)	21.0 (4.2)	38.0 (8.2)	15.0 (4.0)	10.0 (6.0) <sup>b</sup>						n=202		26.4%
	Test Statistics (H value)							3.113		4.409	0.371	2.149	20.951	P	
Grade	1 <sup>st</sup> grade		28.0 (6.0) <sup>a</sup>	22.0 (4.0) <sup>a</sup>	38.5 (7.2)	15.0 (5.0) <sup>a</sup>	10.0 (5.0) <sup>a</sup>	n=146		19.1%					
	2 <sup>nd</sup> grade							27.0 (6.0) <sup>a</sup>	21.0 (5.0) <sup>ab</sup>	37.0 (10.0)	14.0 (4.0) <sup>a</sup>	10.0 (6.0) <sup>a</sup>	n=207		27.1%
	3 <sup>rd</sup> grade		26.0 (6.0) <sup>ab</sup>	21.0 (5.0) <sup>ab</sup>	39.0 (9.0)	16.0 (5.0) <sup>ab</sup>	11.5 (6.0) <sup>b</sup>						n=148		19.3%
	4 <sup>th</sup> grade							25.0 (6.0) <sup>b</sup>	21.0 (4.0) <sup>ab</sup>	39.0 (7.0)	16.0 (4.0) <sup>ab</sup>	12.0 (6.0) <sup>b</sup>	n=119		15.6%
	5 <sup>th</sup> grade		25.0 (8.0) <sup>b</sup>	20.0 (5.0) <sup>b</sup>	38.0 (9.5)	15.0 (5.0) <sup>a</sup>	12.0 (6.0) <sup>b</sup>						n=145		19.0%
	Test Statistics (H value)							21.888		9.600	8.041	10.357	30.429	P	

M: Median, IQR: Interquartile range, H value: Kruskal Wallis H test, z: Mann Whitney U test

**Table 2.** Frequency and percentage values of the ECs preference attitude scale item pool

Questions	Frequency and Percentage Values									
	Absolutely I agree		I agree		I am undecided		I do not agree		Absolutely I do not agree	
	n	%	n	%	n	%	n	%	n	%
<b>Factor 3: Structural</b>										
1. "The content of the course" is effective in my choice of ECs.	359	46.9	284	37.1	52	6.8	38	5.0	32	4.2
2. The "course selection system" has an effect on my choice of ECs.	212	27.7	305	39.9	100	13.1	95	12.4	53	6.9
3. "The way the course is taught (traditional lecture, student research, student presentation, etc.)" is effective in my choice of ECs.	252	32.9	290	37.9	92	12.0	80	10.5	51	6.7
4. "Class hours (morning or afternoon)" is effective in my choice of ECs.	227	29.7	225	29.4	103	13.5	109	14.2	101	13.2
5. "The fact that it is close to the courses I have taken so far and that I have been successful in" is effective in my choice of EC.	233	30.5	296	38.7	111	14.5	76	9.9	49	6.4
6. "ECs I have taken before" are also effective in choosing EC.	200	26.1	290	37.9	119	15.6	94	12.3	62	8.1
7. "Whether the course is applied or not" is effective in my choice of EC.	273	35.7	259	33.9	123	16.1	54	7.1	56	7.3
8. "Whether the course I will take is up-to-date or not" is effective in my choice of ECs.	308	40.3	273	35.7	97	12.7	47	6.1	40	5.2
9. "Whether the course is encouraging for research or not" is effective in my choice of EC.	256	33.5	258	33.7	128	16.7	74	9.7	49	6.4
10. "No absenteeism problem" is effective in my choice of EC.	268	35.0	195	25.5	119	15.6	97	12.7	86	11.2
<b>Factor 4: Instructor</b>										
11. "My views about the lecturer giving the course" are effective in my choice of EC.	439	57.4	216	28.2	46	6.0	33	4.3	31	4.1
12. "The academic career of the lecturer (Prof.Dr.-Assoc. Prof.- Asst.Prof.)" is effective in my choice of ECs.	152	19.9	170	22.2	154	20.1	139	18.2	150	19.6
13. "The faculty members I consulted" are effective in my choice of ECs.	145	19.0	212	27.7	150	19.6	133	17.4	125	16.3
14. "Examination system (written, oral, test, etc.) of the lecturers giving the course" is effective in my choice of ECs.	298	39.0	246	32.2	87	11.4	78	10.2	56	7.3
<b>Factor 1: Additive</b>										
15. "The fact that it can contribute to my professional life" is effective in my choice of ECs.	474	62.0	214	28.0	43	5.6	17	2.2	17	2.2
16. "The fact that it can contribute to my academic development" is effective in my choice of ECs.	420	54.9	226	29.5	69	9.0	26	3.4	24	3.1
17. "The fact that the course can contribute to my personal development" is effective in my choice of ECs.	394	51.5	247	32.3	70	9.2	23	3.0	31	4.1
18. "The fact that the course can contribute to my general culture" is effective in my choice of ECs.	327	42.7	279	36.5	90	11.8	31	4.1	38	5.0
19. "The fact that it can increase my theoretical knowledge" is effective in my choice of ECs.	314	41.0	280	36.6	98	12.8	36	4.7	37	4.8
20. "The fact that it can increase my practical skills" is effective in my choice of ECs.	389	50.8	230	30.1	76	9.9	36	4.7	34	4.4
<b>Factor 2: Personal</b>										
21. My personal interests are effective in my choice of ECs.	440	57.5	233	30.5	37	4.8	25	3.3	30	3.9
22. My "personal abilities" are effective in choosing ECs.	339	44.3	252	32.9	97	12.7	42	5.5	35	4.6
23. My personal expectations are effective in my choice of ECs.	375	49.0	264	34.5	66	8.6	28	3.7	32	4.2
24. My "expectations about academic life" are effective in my choice of ECs.	325	42.5	235	30.7	105	13.7	47	6.1	53	6.9
25. "The fact that my grade point average can increase" is effective in my choice of ECs.	319	41.7	216	28.2	108	14.1	69	9.0	53	6.9
<b>Factor 5: Environmental</b>										
26. "Students who have taken that course before" are effective in my choice of ECs.	271	35.4	221	28.9	98	12.8	90	11.8	85	11.1
27. "Courses chosen by my circle of friends" are effective in my choice of ECs.	189	24.7	220	28.8	134	17.5	109	14.2	113	14.8
28. "The opinions of upper-class students even though they do not take that course" are effective in my choice of ECs.	172	22.5	219	28.6	104	13.6	122	15.9	148	19.3

factor is stated as the essential element of the theme of factors consisting of the person responsible for the course, the content of the course, credit filling, and transportation factors <sup>[19]</sup>. Students can be affected by their friends' preferences in choosing ECs, and their preferences can also change according to the number of people choosing the course <sup>[20]</sup>. In the study, it was determined that the ECs preference attitudes of the universities differ according to the foundation date, and the "environmental" score of the students studying at the universities founded before 2007 was statistically higher than the students studying at the universities founded in other years (*Table 1*). The students prioritize the environmental factors (*Table 2*, Factor-5) that may guide them compared to the students in other institutions. The friend factor is influential in choosing ECs, possibly due to the students' need for experience and knowledge.

It is reported that universities with a long history in the big cities <sup>[21]</sup> and universities located in metropolitan cities are relatively more prestigious and preferred. It has also been revealed that the social demand for higher education in Türkiye is a conscious demand driven by the popularity and quality of universities rather than an effort to enter any higher education institution <sup>[22]</sup>. Especially Istanbul and Ankara are among the centers where universities are most located in Türkiye. This situation has severe opportunities regarding population, economic development levels, technical infrastructure, and faculty members and naturally affects the differences between regions <sup>[23]</sup>. In the study, it was determined that the student's attitudes towards ECs preferences changed according to the regions where they were educated, and the "environmental" score of the students studying in the Marmara region was statistically lower than those studying in other regions (*Table 1*). When the possibilities of the Marmara region are evaluated, it can be stated that the expectations of the students who may have chosen the Marmara region as career-centered may also be high. It can be said that they chose the course with a more decisive demand such as the contribution they can make to their personal and professional life (additive factor) (*Table 1*, Factor-1) without being affected by the friend and student factor (*Table 1*, Factor-5).

The fact that students can choose ECs according to their needs and interests in university education affects their academic success positively. It contributes positively to their characteristics, such as motivation and self-efficacy. Motivation stems from the individual's personal, social, educational, and professional needs, and is closely related to academic success <sup>[24]</sup>. ECs recommendation systems, which are tried to be developed in this direction, not only benefit undergraduate students who need advice on course selection in various fields but also focus on improving

course selection processes during pre-registration <sup>[25]</sup>. The study determined that the "additive" scores of the students studying in the Eastern Anatolia, Central Anatolia, and Black Sea regions were statistically low (*Table 2*, Factor-1). In contrast, the "environmental" scores were high (*Table 2*, Factor-5). The ECs to be opened within the scope of the interests, wishes, and needs of the students studying in the mentioned regions may contribute to their motivation and self-efficacy perceptions in parallel with the above study data. Thus, they can also come to the fore in "additive" factors such as professional, academic, and personal factors that are important in choosing ECs. In this context, offering ECs to students according to their academic profiles with ECs suggestion systems can also be beneficial.

It has been reported that students studying at veterinary schools have intensified their applied courses (clinic, laboratory, etc.) since the 3<sup>rd</sup> -grade. Therefore, they have difficulty coping with stress due to the intense curriculum content <sup>[26]</sup>. The essential relationship between instructor motivations and students' learning experiences must be addressed but explored in depth. A good instructor can motivate students even in the most boring subject and significantly increase their learning ability <sup>[27]</sup>. Instructors' motivation is considered an important factor for their cognition and experience and for students' learning experiences <sup>[28]</sup>. The students' opinions about the instructor are also very effective in selecting ECs <sup>[29]</sup>. In the study, when the students' attitudes towards ECs preference according to the class they study were examined, it was determined that the "instructor" score of the 3<sup>rd</sup> and 4<sup>th</sup>-grade students was higher than the other classes (*Table 1*, Factor-4). In the ECs preference of the students, it was found that the opinions of the lecturer who gave the course had the highest rate (57.4%, n=439) within the education factor (*Table 2*, Factor-4). In parallel with the above study data, the instructor factor greatly affected the students. Due to the pressure created by the intensive course curriculum and the anxiety of passing the course and grade, it can be stated that all the characteristics of the faculty members, such as their behaviors, scientific capacity, teaching, and grading, are effective factors in the choice of ECs. In addition, the high "environmental" scores of 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup>-grade students (*Table 1*, Factor-5) indicate that students take into account the opinions of others (environmental factor) about perceived instructor quality when choosing courses. This situation supports using the instructor and social impact framework in analyzing the student's course selection.

The study of McKenzie and Schweitzer <sup>[30]</sup> on 1<sup>st</sup>-grade students at a university in Australia revealed that academic achievement from the past is the most important

determinant of university adjustment. Some studies [31-33] indicate that university students' level of adjustment to higher education life, according to gender, shows no differentiation. 1<sup>st</sup>-grade veterinary students' concerns about the quality of teaching, the number of courses, the course grades, and the standards and general requirements in some courses are reported as important stress factors [26]. For students in the 2<sup>nd</sup> and higher grade, the change in interest is much less. A study on determining the shared ECs preferences of 2<sup>nd</sup>-grade undergraduate students states that the selected courses may differ according to the student's field of interest [8]. In the study, the 1<sup>st</sup> and 2<sup>nd</sup>-grade students were less affected by environmental factors (students taking the course, their friends, and the opinions of upper-class students) in choosing ECs compared to other classes ( $P < 0.05$ ) (Table 1, Factor-5). In light of this, it can be stated that this situation may have occurred due to the role of "person-environment harmony" and students' interests. The role of these factors in choosing ECs should be investigated in more detail.

It is important to determine students' ECs expectations. This information can strengthen and support intrinsic and/or extrinsic motivations and thus help improve student engagement and learning outcomes [34]. Many factors influence choosing ECs, including personal and professional development, interests, and attractiveness. It is reported that students firstly believe that these courses will contribute to their personal development, secondly, they think that these courses will be beneficial for their professional development, and finally, they prefer these courses because they think that they are suitable for their field [24]. In a study conducted with 3<sup>rd</sup> and 4<sup>th</sup>-grade students of the Biology, Physics, and Chemistry departments of the Faculty of Arts and Sciences, the factors affecting the course selection of female students were; In the first degree, it is reported that the opinions of the faculty members, the way the course is taught in the 2<sup>nd</sup>- grade, and personal interests in the 3<sup>rd</sup>- grade are effective [29]. In the study, when the effect of gender on the attitude toward ECs preference was examined, it was seen that the "personal" score of female students was higher than that of males (Table 1). In addition, it was seen that the ability to contribute to the professional life was the first choice in the preference of ECs (62.0%,  $n=474$ ), personal interests were the second (57.5%,  $n=440$ ), and the views about the instructor who gave the course were the third (57.4%,  $n=439$ ) (Table 2). Female students emphasize to personal development in their ECs preferences because they think that these courses will contribute to their personal development and increase their grade point averages (Table 2, Factor 2). Ulusoy et al. [24] are parallel with the study data, and Tezcan and Gümüş [29] prioritize the additive, personal,

and instructor factors, respectively, unlike the study data, pointing out that the order of factors may change among students studying in different faculties. In addition, following the findings of Tezcan and Gümüş [29], it can be said that the teaching style of the instructor and the grading system may be an effective factor that should be taken into account in the choice of ECs in general.

As a result, the fact that the courses can contribute to the professional life and that their interests are at the forefront in the ECs preferences indicates that the students are open to self-development and make an effort to access the information they need. Therefore, a wide range of ECs based on improving student participation and learning outcomes is needed so that students can choose courses that can contribute positively to their characteristics, such as intrinsic motivation, interests, and self-efficacy, and thus strengthen their potential to increase learning and achievement levels.

In the future, it is thought that determining students' perspectives on ECs during their education, together with their justifications, will help enrich the content of in-field and out-of-field ECs and increase the variety of ECs according to needs, taking into account the advantages and disadvantages of faculties in different geographical regions. Orientation activities are critical, especially for 1<sup>st</sup>- grade students, to know about their faculties and the courses they will take in terms of person-environment harmony. Therefore, it can be said that restructuring such promotional activities in the light of the obtained data, determining new roadmaps for the needs that may change in the future, and putting more emphasis on study skills and academic success in terms of career development, taking into account the gender factor, can make a difference in choosing the right course. It is also thought that revealing the reasons why one EC is preferred over another will help in the planning of EC offers and available resources (facility, equipment, etc.), and thus allow sufficient resources to be allocated to ECs with high demand.

#### Availability of Data and Materials

The data supporting this study's findings are available on request from the corresponding author (A. Yiğit). The data are not publicly available due to privacy or ethical restrictions.

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#### Competing Interests

The authors declared that there is no conflict of interest.

### Author Contributions

G. Aslım, A. Yaşar and A. Yiğit conceived and executed the idea, G. Aslım and A. Yaşar designed questionnaire, G. Aslım, M. A. Tekindal and E. Çelik collected data, G. Aslım and M. A. Tekindal analyzed results, G. Aslım, A. Yaşar, E. Çelik and A. Yiğit wrote the manuscript, G. Aslım and A. Yiğit detailed revision of the manuscript. All authors listed have made a substantial, direct, and intellectual contribution to the research and approved it for publication.

### Ethical Approval

This study was carried out with the approval of Selçuk University Faculty of Veterinary Medicine Experimental Animal Production and Research Center Ethics Committee (SÜVDAMEK) dated 27.02.2020 and numbered 2020/24.

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