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Examining Prospective Science Teachers' Satisfaction with Their Department

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ABSTRACT *The purpose of this study was to explore how satisfied prospective science teachers are with their department (academic staff and administration) at different Faculties of Education in Turkey. For this purpose, Prospective Science Teachers Satisfaction Questionnaire (PSTSQ) was developed by considering related literature. PSTSQ consists of two parts and seven dimensions, namely, General Satisfaction, Administration, Curriculum, Academic Staff, Facilities, Skills Promoted by Courses and Laboratory and its Facilities, respectively. In order to explore prospective teachers' satisfaction level, PSTSQ was administered to 410 fourth-year students who enrolled in science education programs at six different Faculties of Education. The participants of the study were asked to respond to the 82 items on a 5 point Likert-scale (1=strongly disagree and 5=strongly agree). The reliability analysis indicated that the Cronbach's alpha reliability coefficient (α) of the instrument was 0.89. For the purpose of the present study, only the administration and academic staff dimensions of the questionnaire were used. The participants reported that they were dissatisfied with some aspects of their department, but there was no significant mean difference between male and female students. On the contrary, significant mean differences among students from different universities in terms of their satisfaction with their departments were found.*

KEY WORDS: *Academic department, prospective science teacher, satisfaction.*

Introduction

Student satisfaction is an important indicator for the quality of undergraduate education and it is also an important outcome in its own right, due to the tendency of more satisfied students to report learning more, and have higher retention and graduation rates than less satisfied students (Student life studies, 1999). Elliot and Shin (2002) also claimed that satisfaction occurs when the students' expectations are close to their performance. They also supported that focusing on student satisfaction provides several opportunities for universities to adapt to student needs and develop a system for continuously monitoring how effectively student needs are satisfied.

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Recent changes in teacher education also required more qualified teachers, because being a qualified teacher relates to the quality of education as well. In addition to developing some teaching skills and providing opportunities to develop knowledge and methodology in the field (Corst, Lounsburg, Saudargas, & Tatum, 2000), one of the most important goals of teacher education should be to foster students' growth and development as healthy and highly motivated individuals for their teaching profession. From this perspective, meeting student expectations and needs is essential, because motivation is highly and positively related to student satisfaction (Elliot & Shin, 2002) and academic achievement in college and afterwards (Barrett, 1999).

There are of course many factors that contribute to student satisfaction. For example, the quality of the culture that the faculty members develop is considered as the cornerstone for enhancing student satisfaction in higher education (Bryant & Timmins, 2002). During the university years, students spend most of their time at the university campus, and not only with their friends, but also with their instructors. Peer groups (Lamport, 1993) and the faculty members (Feldman & Newcomb, 1969; Wilson & Gaff, 1975) have great impact on student satisfaction that contributes to their motivation. According to several researchers (Umbrach & Porter, 2002; Erdogan & Usak, 2004), department culture and climate have an impact on student learning and satisfaction. In addition to the academic department (administration and academic staff), other factors that contribute to student satisfaction are guidance and campus life (Gatfield, Barker, & Graham, 1999).

Literature Review

As a result of the changes in the educational system, the students' satisfaction became a main objective of the university authorities (Elliott & Shin, 2000), and increased attention has recently been placed on student satisfaction in teacher education institutions. An important factor associated with student satisfaction is the interaction between students and their academic department (Karemera, Reuben, & Sillah 2003). Several studies focused on evaluating college and student interaction. Most of the studies conducted prior to the 1960s were included in a comprehensive literature review by Feldman and Newcomb (1969). Evidence from this review indicates that faculty members may affect student performance not only positively, but also negatively. Recently, several studies evaluated the impact of academic department on student satisfaction (Karemera, et al., 2003; Elliott & Shin, 2002; Umbach & Porter, 2002). The findings pointed out that academic departments have an impact on student satisfaction and student performance. College impact on students relates primarily to college faculty members (Umbach & Porter, 2002) and administrative personnel. Several studies also indicated that GPA (Unbach & Porter, 2002) and gender (Karemera, et al., 2003; Unbach & Porter, 2002) are also predictors of student satisfaction. Thus, there are many factors influencing student satisfaction stemming from both campus environment (guidance, campus setting, campus life, academic department, administration, and academic staff) and student characteristics (GPA and gender).

In the professional literature, we did not identify any relevant study in Turkey where student satisfaction with their department was investigated. In addition,

most of the studies on student satisfaction were carried out with students in colleges of science, arts and literate (Feldman & Newcomb, 1969), but we did not come across with any study conducted with students in faculties of education in Turkey. Many questionnaires have been also developed (Sheridan College, 2001; Carilli, 2000; Northern Nevada College, 1995) for exploring student satisfaction in terms of different faculties, institutions, and departments of graduate and undergraduate programs. Nevertheless, we could not identify any questionnaire that targeted prospective science teachers' satisfaction with their departments.

In the present study, we investigated the extent of satisfaction of prospective science teachers with their department (academic staff and administration) at different Faculties of Education in Turkey, using the Prospective Science Teachers Satisfaction Questionnaire (PSTSQ). We also tried to investigate whether there was any significant mean difference in student satisfaction between male and female students, and among students from different departments of science education at Turkish universities

Methodology

Participants

This was an exploratory study where the degree of satisfaction of prospective science teachers with their department was investigated. Prospective Science Teachers Satisfaction Questionnaire (PSTSQ) was administered to the participants in classroom settings. Prior to the administration of the questionnaire, the purpose of the study was clearly explained and students were informed that adequate time would be provided for answering the questionnaire. The total sample consisted of 410 (218 females, 190 males, and 2 no response) prospective science teachers from six education departments at different universities. Table 1 summarizes demographic data of the participants. Students' age (85.6%) ranged from 20 to 25, and the most common Grade Point Average (GPA) of the participants ranged from 2.50 to 2.99 (37.6%).

Table 1
*Demographic Data of the Participants (n = 410)**

University	Number of Students			Age	GPA
	Females	Males	Total	(*X*)	(*X*)
Middle East Technical University	22	12	34	22,97	2,59
Dokuz Eylul University	26	21	47	21,59	2,58
Gazi University	59	43	102	22,24	2,73
Süleyman Demirel University	17	11	28	21,71	2,78
Black Sea Technical University	40	59	99	21,52	2,39
Pamukkale University	54	44	98	21,43	2,63

• Two students did not mark their gender, three did not specify their age, and 36 did not provide their GPA

Prospective Science Teacher Satisfaction Questionnaire (PSTSQ)

Prospective Science Teachers Satisfaction Questionnaire (PSTSQ) was used as

the data collection instrument. PSTSQ was developed by Erdogan and Usak (2004) for prospective science teachers and consists of two parts. The first part consists of 4 questions asking for participants' gender, GPA, age, and their university. The second part includes seven dimensions and 82 five-point Likert-type items, ranging from 5(strongly agree) to 1(strongly disagree) in terms of their satisfaction.

In order to develop PSTSQ, the existing literature (Community College, 2003; Pell & Jarvis 2003; Elliott & Shin, 2002; Cypress College, 2001; Sheridan College, 2001; Carilli, 2000; Hom, 2000; Howard Community College, 2000; Northern Nevada College, 1995; Walker-Marshall & Hudson,1999; Fujita–Starck, & Thomson, 1994; Kelly, 1994; Knight, 1994; Patti, Tarpley, Goree, & Tice, 1993) was carefully reviewed. PSTSQ includes seven dimensions, namely, General Satisfaction (10 items), Administration (12 items), Curriculum (12 items), Academic Staff (13 items), Facilities (13 items), Skills promoted by courses (8 items), and Laboratory and its Facilities (14 items), respectively.

In the questionnaire, students were asked to rate their overall satisfaction of the science education program offered in their own department. A greater mean value suggests a greater satisfaction level, and a smaller mean value a smaller satisfaction level.

Data Collection

In Turkey, there are 65 educational faculties (Higher Education Council - YOK, 2004) and, in almost each one of them, there is a science education department. From the total number of students in the existing departments, we selected students from only six different faculties, and, consequently, the results of the study are representative of the prospective science teachers from the selected departments. The sample of universities was a convenient one.

At the beginning of the study, the initial sample (N=542) constituted all the senior prospective science teachers in these six universities. The PSTSQ was administered to the initial sample, but only 410 students completed the questionnaire. The average response rate was 75, 6%. Some students were absent during the administration and were not willing to participate in the study. Table 2 summarizes the response rate for each university.

Table 2
Response Rate of Each University

	Number of Questionnaires		
Name of the University	Distributed	Obtained	Response rate (%)
Middle East Technical University	90	34	37.7
Dokuz Eylul University	100	48	48
Gazi University	102	102	100
Süleyman Demirel University	50	28	56
Black Sea Technical University	100	99	99
Pamukkale University	100	99	99
Total	542	410	75.6

Results

Data obtained through PSTSQ were analyzed using SPSS (version 11.0). The data cleaning process, such as, detecting missing responses and replacing them with the mean, was firstly performed. The missing data did not exceed 10 % of the total data and were replaced with the mean value (Tabachnick & Fidell, 2001). Statistical analyses, such as, reliability analysis, descriptive statistics, and two-way MANOVA, were then performed. Table 3 represents Cronbach's alpha (α) coefficient for each dimension of the questionnaire and for the PSTSQ as a whole. Reliability analyses indicated that Prospective Science Teacher Satisfaction Questionnaire had high internal consistency reliability for each dimension and for the total questionnaire. Cronbach's alpha (α) of the overall questionnaire was 0.89 and for the seven dimensions ranged from .71 to .89. These results indicate that the total questionnaire is highly reliable.

Table 3
Reliability of Each Dimension of the PSTSQ

Dimensions in the questionnaire	Cronbach's alpha (α)
General Satisfaction (10 items)	0.71
Administration (12 items)	0.78
Curriculum (12 items)	0.81
Academic Staff (13 items),	0.88
Facilities (13 items)	0.83
Skills promoted by courses (8 items)	0.83
Laboratory and its Facilities (14 items)	0.89

For the purpose of the present study, only two dimensions of PSTSQ were taken into consideration; *administration (12 items)* and *academic staff (13 items).* Table 4 presents descriptive statistics for each item of the two dimensions of the questionnaire. The scores for the administration dimension ranged from 60 to 12, and for the academic staff dimension from 65 to 13. A higher mean score indicates that the students were more satisfied with their department and a lower mean score indicates that students were less satisfied (or dissatisfied).

As shown in Table 4, the highest mean score for the administration dimension was 3.60 (out of a five point scale) and the lowest score was 2.60. In addition, the highest mean score for academic staff dimension was 3.55 and the lowest score was 2.75. The findings also indicate that the students were moderately satisfied with the administration of their departments. As shown in Table 4, some mean values were under average indicating that students were slightly dissatisfied with their departments for information given to the students regarding science education program at the very beginning of the semester (52.6%), re-enrollment process done in each year (47.6%), the department web-page (38.5%), and the department (43.9%) and faculty (47.3%) notice board as an information source, and more specifically the information provided to students about their rights (54.9%). They also believed that the student elected to represent the student body in the department did not defend students' rights in the council of the department (44.9%). On the other hand, students were moderately satisfied with the issues of communication between students and administrators (63.7%), support provided by administrators (74.9%) and the responsiveness of student affairs (64.4%) to the students' problems, and faculty web page as an information source (60.7%). The

Table 4
Means and Standards Deviations of "Administration" and "Academic Staff" Satisfaction

Item	Dimension I: Items pertaining to Administration satisfaction	Mean	SD
1	Program information given at the beginning of the semester	2.67	1.14
2	Communication between students and administrator of the department	3.01	1.16
3	Accessibility of department administrator	3.60	1.10
4	Re-enrollment process	2.73	1.25
5	Enough support of administrator to student problems	3.08	.99
6	Enough support of student affairs to student problems	3.04	1.22
7	Department web page as a information source	2.97	1.24
8	Faculty web page as a information source	3.00	1.20
9	Department bulletin boards as a information source	2.92	1.30
10	Faculty bulletin boards as a information source	2.80	1.23
11	Providing adequate information for rights that the students have had	2.60	1.25
12	Department students candidate	2.62	1.21

	Dimension II: Items pertaining to Academic Staff satisfaction	Mean	SD
1	Accessibility	3.56	1.08
2	Support for writing homework	3.04	1.13
3	Support for planning homework	3.23	1.16
4	Feedback given	3.10	1.02
5	Academic competence of academic staff	3.37	1.14
6	Support to the student problem	3.14	1.10
7	Entering the class on time	3.38	1.04
8	Finishing the class on time	3.46	1.18
9	Manner of giving the lessons	2.75	1.06
10	Encouraging participation in class activities	2.80	1.16
11	Method and techniques used in the class	2.75	1.11
12	Creating academic environment in the class	2.93	1.20
13	Creating friendly atmosphere in the class	3.15	1.17

students also reported that they were satisfied with the accessibility of the department administrators (81.2%). Some results contradict the conclusions of a previous study (Kelley, 1994), where students expressed high satisfaction with the dimensions of the classroom (97%) and friendliness of faculty and staff (95%).

The results in Table 4 also indicate that the students expressed moderate degree of satisfaction in terms of academic staff. As understood in the dimension-II in Table 4, students rated instructors' manners of giving the lesson (39.3%), encouraging participation in class activities (44.9 %), methods and techniques that the instructors used through the classes (44.9%), and creating academic environment in the class (41.9%) as below average. As indicated by the students, they were moderately satisfied with support provided by academic staff to students' problems (70.7%) and for writing (64.4%) and planning homework (69.5%), feedback given to the completed homework (69%), and creating friendly atmosphere in the class (68.8%). Students were satisfied with the issues of accessibility of academic staff (79%), entering (78.3%) and finishing (74.6%) the class on time, and academic competence of academic staff (78%). These results

corroborate the results of previous studie (Carilli, 2000; Patti, Tarpley, Goree, & Tice, (1993). Kelley (1994) also found similar results with our study in that the students were satisfied with the availability of faculty staff and helpfulness of faculty.

A 2 (gender) x 6 (universities) MANOVA, with performance on each dimension of the PSTSQ as the two dependent variables, was carried out. Table 5 summarizes the MANOVA results.

Table 5
A 2 (Gender) x 6 (Universities) MANOVA with Dependent Variables Administration and Academic Staff Satisfaction

Sources (effects)	Dependent Variables	SS	MS	df	F	Sig. (p)
University	Administration	21440.9	4288.2	5	123.69	.000
	Academic Staff	24080.4	4816.1	5	95.25	.000
Gender	Administration	35.3	35.3	1	1.02	.313
	Academic Staff	.02	.02	1	.00	.985
University x Gender	Administration	320.7	64.1	5	1.85	.102
	Academic Staff	127.8	25.6	5	.51	.772
Error	Administration	13729.2	34.7	396		
	Academic Staff	20022.9	50.6	396		
Corrected Total	Administration	36216.5		407		
	Academic Staff	44498.6		407		

The results in Table 5, indicate that there was no significant interaction effect between gender and universities for either Administration, F (5, 396) = 1.85, p. = .102, or Academic Staff satisfaction, F (5, 396) = .51, p. = .772. The main effect for gender was not also significant for either Administration, F (1, 396) = 123.69, p. = .000, or Academic Staff Satisfaction, F (1, 396) = .00, p. = .985. There were however significant differences among the different Universities for both the Administration, F (5, 396) = .123.69, p. = .000, and the Academic Staff Satisfaction, F (5, 396) = 95.25, p. = .000.

Post hoc comparisons were subsequently performed in order to identify the existing significant differences among the six Universities. The means and standard deviations for each university and the pair-wise differences, in terms of Administration and Academic Staff Satisfaction are presented in Table 6 and Table 7, respectively.

Table 6
Differences among Universities on Administration Satisfaction

University	Mean	SD	1	2	3	4	5
METU (1)	32.47	6.95					
Dokuz Eylül University. (2)	25.23	6.77	*				
Gazi University. (3)	46.93	3.17	*	*			
Süleyman Demirel University. (4)	35.54	7.98	NS	*	*		
Black Sea Technical University. (5)	31.99	5.78	NS	*	*	NS	
Pamukkale University. (6)	30.43	6.67	NS	*	*	*	NS

- NS = non-significant differences between pairs of means
- (*) An asterisk = significance using the Scheffe Procedure

As indicated in Table 6, in terms of Administration satisfaction there were no significant differences between METU and Süleyman Demirel University, METU and Black Sea Technical University and between METU and Pamukkale University, or Black Sea and University and Pamukkale University, and between Black Sea Technical University and Suleyman Demirel University, while the other pair-wise differences were found to be significant. The students of Gazi University indicated the greatest satisfaction among the six universities. The level of satisfaction of the students in Süleyman Demirel University was above the average, while the other four universities showed Dokuz Eylül University approximately average satisfaction regarding overall administration satisfaction.

Table 7
Differences among Universities on Academic Staff Satisfaction

University	Mean	SD	1	2	3	4	5
METU (1)	45.64	8.75					
Dokuz Eylül University. (2)	31.30	8.20	*				
Gazi University. (3)	52.42	3.38	*	*			
Süleyman Demirel University. (4)	42.75	8.87	NS	*	*		
Black Sea Technical University. (5)	36.26	6.96	*	*	*	*	
Pamukkale University. (6)	34.92	8.19	*	NS	*	*	NS

- NS = non-significant differences between pairs of means
- (*) An asterisk = significance using the Scheffe Procedure

The results in Table 7 indicate that most of the pair-wise comparison among the six Universities proved to be significant. On the other hand, there were no significant mean differences between Pamukkale University and Dokuz Eylül University, and between Pamukkale University and Black Sea University, and also between Middle East Technical University and Suleyman Demirel University.

The senior students in the department of science education in Gazi University were those who were the most satisfied with academic staff while the senior students in the department of science education in Dokuz Eylül University were the least satisfied. Students' degrees of satisfaction in the other universities were around the average.

Summary and Conclusion

The study investigated prospective science teachers' satisfaction with regard to their department for the dimensions of administration and of academic staff. The PSTSQ, consisting of 82 items with a five-point likert scale, was administered to the 410 senior students from six different science education programs in Turkey for obtaining relevant data. The survey responses indicated overall student satisfaction with administration and academic staff in their science education program. The results in Table 4 indicate that the mean values of satisfaction for both dimensions (administration and academic staff satisfaction) ranged from 3.60 to 2.60 indicating that the students were only moderately satisfied with these issues.

In a research study conducted by Umbach and Porter (2002), it was claimed

that gender issues were relatively unexplored in examining student satisfaction. They also stated that in some other studies, females tended to have lower satisfaction than males. The results of the studies carried out separately by Bell (1994) and Carilli (2000) provided support to this claim, but the findings of the present study do not confirm these results and clearly indicate that there were no significant mean differences between males and females regarding departmental satisfaction.

The issue of differences among different universities was not explored in previous studies. As indicated by existing literature, there was no study aiming to explore and compare more than one university in relation to students' satisfaction. From this perspective, the present study could contribule to the professional literature, because it provides evidence indicating the level of student satisfaction depends on the University that students attend. For example, students in the Gazi University were relatively more satisfied with their department than the students from the other universities.

The results of the study somehow parallel to the results of the Jenkins and Downs's (2001) study, where students were moderately satisfied with instructors' and administrators' responses to their needs. In addition, the present results are not quite different from the results of some other studies (Carilli, 2000; Kelly, 1994: Patti et al., 1993). In her study, Carilli (2000) found that the students were satisfied not with the support and advice provided by the academic staff, but the students were not satisfied with the enrolment procedures. The students in the study of Kelly (1994) were satisfied with the helpfulness and availability of faculty and class size. In their study, Patti et al. (1993) also found that students were moderately satisfied with the attitudes of non-academic staff and faculty toward themselves.

In the literature, several researchers mentioned the importance of interaction between faculty and students (Tam, 2002; Lambort, 1993). Since the faculty has the greatest effect on students' outcomes, the faculty should take into account student needs and expectations in their department and mission statements. As asserted by Elliot and Shin (2002), student satisfaction has a positive effect on student motivation and student success. Focusing upon students satisfaction will allow the teacher education institution to more successfully prepare their students.

The findings of the present study indicated that students were dissatisfied with some aspects of their department, and that students' satisfaction was generally moderate with their department. Science Education Departments, including both administration and academic staff, should be more careful about program information given at the very beginning of the semester, re-enrollment process, providing adequate information for students' rights, having the students engage in any decision-making process through the student representatives in the department council, designing and providing department bulletin board and web page as an information source, encouraging the students to participate in class activities, using diversity of methods and techniques in the class, and creating more appropriate academic environment.

This study included the students from only six departments of science education from six universities. Thus, additional data seem rather necessary before reaching more general conclusions. The study was also exploratory in scope, not explanatory, and it did not provide in-depth information about why the prospective

science teachers were satisfied or dissatisfied with their department. For further research studies, qualitative studies should be carried out with prospective students to answer the question of "Why", and to find out the reasons of students' satisfaction/dissatisfaction with their department.

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