Australian Journal of Teacher Education

Volume 34 | Issue 5 Article 2

2009

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Recommended Citation
Kilinc, A., & Mahiroglu, A. (2009). The Attractors of Teaching Biology: a Perspective from a Turkish Context. *Australian Journal of Teacher Education, 34*(5).
http://dx.doi.org/10.14221/ajte.2009v34n5.2

This Journal Article is posted at Research Online.
http://ro.ecu.edu.au/ajte/vol34/iss5/2

The Attractors of Teaching Biology: A Perspective From a Turkish Context

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Abstract: Because the teaching occupation plays a crucial role in a country's development, policymakers and teacher recruitment units all around the world strive to understand how to attract individuals to this profession. However, research regarding the attractors of teaching has been conducted almost entirely in developed countries and has not focused on particular subject areas to be taught. In addition, only limited lists of attractors have been used. Accordingly, the main purpose of this study was to examine what attractors influence people who choose teaching biology as a career, and what about the Turkish culture has caused people to make this career choice. The sample consisted of 37 freshman biology student teachers (31 female, 6 male). The questionnaire included open-ended questions that were used to determine the student teachers' ideas about their career decisions. According to the results of this qualitative study, enjoy working with children or adolescents, enjoy biology and light workload were attractors that were mostly reported by student biology teachers. In addition, competitive job market, national examination system, family customs, and religious beliefs in Turkey were determinants of some attractors.

Teaching Career Trends around the World

Although teaching seems to be a profession considered essential for a country's well being, many countries around the world are experiencing difficulties in recruiting and retaining teachers (Watt & Richardson, 2007). Policymakers and educators have therefore made a genuine effort to direct people to teaching occupations, especially in developed countries. Despite these attempts, however, the shortage of teachers gradually increases.

The OECD (Organisation for Economic Co-operation and Development) survey of schools seeks to make an international comparison of how different countries overcome the shortage of teachers. Accordingly, countries choose different ways to fill teaching vacancies. Danish school authorities, for example, prefer to have teachers work overtime, while educators in Australia report a preference for high pupil/class ratios (Fine, 2005). In some parts of the US, it has been essential to shorten the school year due to the small number of teachers (Fine, 2005). In Turkey, many teachers have been employed in two or three schools to meet the need for teachers. On the other hand, students in Nigeria have to become teachers if they desire to proceed in their own education at a Nigerian University (Eijeh, 2005).

Another problem is that some teachers change their careers in the early years of working. In the US and the UK, for example, one in five teachers leave the profession within three years of entry. Despite a lack of reliable evidence, researchers estimate that about a third of teachers in Australia leave the occupation within five years of graduation (Watt & Richardson, 2007). Even though 'career changers' are not common in developing countries, unexpected decreases in the number of teachers seem to increase daily in developed countries, where people can find better employment opportunities.

The aging teaching force is another problem that policymakers and educators seek to address. Because new university graduates are not necessarily viewing teaching as a career priority, the teaching force is aging in the majority of the countries. In 2001, for example, the median age of teachers in Australia was 43 years (Watt & Richardson, 2007). Similarly, half of the teaching force was over the age of 40 in some European Union countries in 2005 (EURYDICE, 2005).

From a quality perspective, a great number of the countries face a recruitment crises in attracting well-qualified people to the teaching occupation (Kyriacou & Coulthard, 2000), as successful students often choose different career paths (See, 2004). Teacher agencies in developed countries therefore try not only to encourage more well-qualified students to apply for teacher training courses, but also try to attract people from other careers in an attempt to cope with the wide shortage of qualified teachers (Watt & Richardson, 2007).

Choosing Teaching as a Career

Deciding to become a teacher is a complicated process (Lipka & Brinthaupt, 1998). For some, the thought of becoming a teacher begins as a child. For others, the idea of becoming a teacher begins in adulthood, after other career and life experiences. However, ideas alone are not enough to understand this career decision. "Many students state their desire to teach but do not realize this goal. Consistent attractors of teaching focus on the desire to work with children and youth and to provide a meaningful service to society. These intrinsic motivations are most frequently identified as the primary attractors. Extrinsic rewards, on the other hand, are not always stated as attractors, but they do influence career decisions" (Lipka & Brinthaupt, 1998).

Researchers have carried out a great number of studies in both developed and developing countries to determine who chooses teaching as a career (Eijeh, 2005). We do know that British and Australian researchers are more interested in this subject than their colleagues, however. While most of these studies focus on the views of student teachers (e.g., Dawson, 2007, Hammond, 2002), some (Richardson & Watt, 2005, Priyadharshini & Robinson-Pant, 2003, Hammerness, 2006) concern the opinions of 'career changers', and a few (e.g., Lai, Chan, Ko & So, 2005) focus on the ideas of high school students. The interrelations among the background characteristics (ethnicity, age, gender, yearly income, parents' highest education level, etc) of the student teachers, their perceptions of teaching, and the possible reasons for choosing this profession or for changing their own careers to teaching (Jarvis & Woodrow, 2005) were investigated in these studies. Additionally, in such studies (Watt & Richardson, 2007; Sinclair, Dowson, and Mcinerney, 2006), scales were developed to determine the reasons why student teachers pick this profession as a career. In the other body of research (Stroud, Lawrence, Lenore & Rosemary, 2000; Carrington, 2002; Johnston, Mckeown & Mcewen, 1999), investigators strived to determine why elementary teaching is dominated by women.

With regard to the background characteristics of the student teachers, Gordon (2000) studied the resistance to public school teaching as a career among Asian American students.

She found that intense pressure from parents (for financial rewards, stability, and higher status), reasons involving Chinese culture, and fear of working outside of a comfort zone influenced their decisions while choosing teaching as a career. On the other hand, Carrington (2002) examined gender differences in selecting primary teaching in England and Wales. She pointed out that male respondents were generally concerned with distancing themselves from the cultural stereotypes associated with primary teaching. In another example, Weiner (1993) compared urban college students with those from Harvard. Accordingly, urban college students gave higher ratings to the importance of salary and job security, while Harvard students gave higher ratings to autonomy and the desire to change society.

Other researchers dealt with the key reasons that might have influenced the career choices of student teachers (Lai et al., 2005). They created different classifications to characterize the reasons that attract people to teaching. Sinclair and others (2006), for example, addressed several motivations that student teachers may hold when entering pre-service teacher education. These motivations are: (a) the desire to work with children; (b) the perceived value of teaching others; (c) a desire to help other people; (d) the perceived benefits of teaching; (e) dissatisfaction with a previous career; (f) intellectual reasons; (g) the influence of others; and (h) the status of teaching. In addition, researchers preferred to investigate the attractors by categorizing them into subgroups. Kyriacou and Coulthand (2000), for example, collected the possible reasons under three main titles: (a) altruistic reasons that deal with seeing teaching as a socially worthwhile and important job; (b) intrinsic reasons that cover aspects of the job activity itself; and (c) extrinsic reasons that cover aspects of the job that are not inherent in the work itself. In another study, Watt and Richardson (2007) developed a FIT-Choice (Factors Influencing Teaching Choice) model based on expectancy-value theory to categorize the possible reasons for choosing teaching as a career. In their model, the groups included ‘the personal utility value’, ‘social utility value’, ‘task demand’, ‘task return’, ‘intrinsic career value’, ‘social dissuasion’, and ‘self perceptions’.

How to Become a Biology Teacher in Turkey?

In Turkey, the formal education system comprises: primary education, secondary education, and higher education. Primary education (from grade 1 to grade 8) is compulsory, and the same curriculum is employed in all the schools. Students who complete this stage take the Exam of Accessing Secondary Education (EASE). They are then placed, in accordance with their EASE marks, into the high schools. The grade 9 curriculum, the first year of the high school, is the same in all high schools. In following year, students choose their department according to their areas of interest and academic performances. They have three alternatives at this stage: the department of science and mathematics, the department of social sciences, and the department of mathematics and social sciences. In the department of science and mathematics, for example, advanced science courses such as physics, chemistry, biology, the environment, geometry and algebra are offered.

Graduates of all high schools can complete the Exam of Accessing University (EAU), which is administered yearly. However, only those who graduated from the department of science and mathematics are given a chance to access Educational Biology Programs. Students should choose from among 24 departments one month after the results of the EAU are announced. After that, the Higher Education Council places the students into suitable higher education programs.

Only graduates of the Departments of Biology and Educational Biology in universities can become biology teachers (see Figure 1). While in 2008 there were 14 Educational Biology Programs at different faculties of education, there were 88 Biology Programs at the faculties

of science in Turkey. After reorganization by the Higher Education Council in 1998, the Educational Biology Program was lengthened from four to five year. This program is composed of two core parts. In the first part, basic culture lessons such as literature and history combine with advanced biology courses such as biotechnology, genetics, and evolution. The completion of these courses takes 3.5 years. After that, the other part including theoretical teaching courses such as classroom management, special teaching methods, teaching biology, and practical courses such as school experience, teaching practice comes, which lasts the remaining 1.5 years. However, a few teaching courses from the latter portion of the curriculum were placed into the first year of the Educational Biology Program in the 2007-2008 academic year. On the other hand, students in Biology Departments study only biology courses for four years, and those who want to become biology teachers then complete their education by attending a 1.5-year Educational Biology Program called 'Formation'. The curriculum of Formation is the same as the latter part of the Educational Biology program.

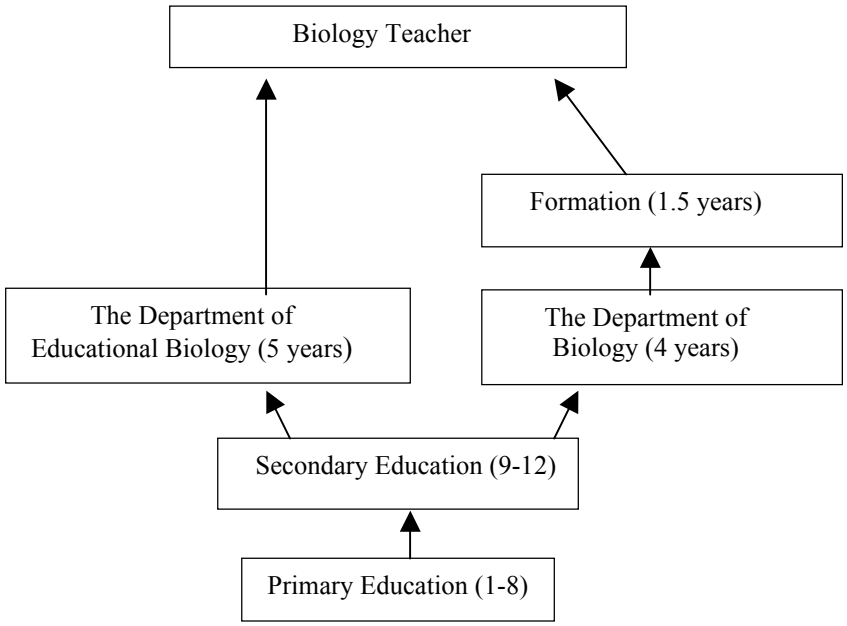

Figure 1. Required education for becoming a biology teacher in Turkey

Graduates of the Departments of 'Educational Biology' and 'Biology+Formation' complete the Election Examination for Professional Posts in Public Organizations (SEPPPO), because teachers are considered government officials in Turkey. The Higher Education Council has been administering this examination yearly since 1999. The questions that teacher candidates are presented with in the examination are not about biology or teaching biology but rather general ability (mathematics, Turkish), general culture (history, geography), and educational sciences (psychology of education, counselling, developing material and programs). The Ministry of National Education ascertains the number of biology teachers needed every year, and appointments are executed according to SEPPPO scores. In addition to working in government schools, graduates of Programs of 'Biology+Formation' or Educational Biology can work as biology teachers in private schools or in part-time preparation schools that prepare students for the EAU. These graduates can also find work as researchers in science academies.

The Problem

As can be understood from the existing literature, student teachers are still the primary source for comprehending why people choose teaching as a career. On the other hand, it is essential to understand student teachers' concerns and responses; otherwise, policy makers and practitioners will continue to introduce what they believe to be promising recruitment and retention strategies with no clear evidence of their effect (Johnson & Birkeland, 2003). At this point, we have noticed four main gaps in the existing literature. Firstly, whereas there has been considerable research on why new teachers join the profession in metropolitan countries such as USA, UK, and Australia (Bastick, 2000, Lai et al., 2005), limited research is included about developing countries. Our study has therefore arisen in response to the need to provide a profile of Turkish students (as members of a developing nation) who have decided to undertake teaching biology as a career.

Secondly, almost all researchers have projected their own studies on student teachers from different teaching programs. In doing so, they focused on the teaching profession 'generally', though there have been several studies about particular teaching programs, such as teaching ICT (Hammond, 2002) and teaching science (Wang, 2004, Dawson, 2007). We believe that studying specific teaching programs may allow us to consider attractors or background characteristics in more detail. In other words, the questions 'Why do you want to become a teacher?' and 'Why do you want to become a biology teacher?' may have different answers. Kyriacou and Coulthard (2000: 126) also suggested that:

> *...researching students' views of teaching as a career option can usefully be extended by focusing more specifically on different subject areas and age levels to explore the extent to which outlook may vary from context to context.*

Thirdly, the attractors to teaching have been specified under certain subgroups in previous studies and therefore have not been investigated individually. Hence, we strived to take a closer look at each attractor in order to acquire clear and detailed information. Finally, we noticed that researchers often used questionnaires that included closed-ended questions. We, however, wished to utilize a questionnaire containing open-ended questions. In this way, we thought that the open-ended responses would permit us to explore reasons for the closed-ended responses in the literature, and identify any comments student teachers might have that are beyond the responses to the closed-ended questions. All in all, the main purpose of this study was twofold: to examine which attractors influence people while choosing teaching biology as a career, and to investigate aspects of the Turkish culture that have caused people to make this career choice.

Methods

Sample

We chose a homogeneous sampling strategy for obtaining the sample. This technique is a purposeful sampling strategy. In purposeful sampling, researchers intentionally select individuals and sites to learn or understand the central phenomenon. When it comes to homogeneous sampling, the researcher purposefully samples individuals or sites based on membership in a subgroup that has defining characteristics. In other words, the researcher selects certain sites or individuals because they possess a similar trait or characteristic (Creswell, 2008). We were not aiming to reach a representative sample of biology student teachers in the country or the region, nor were we attempting to cover all aspects of our inquiry with all respondents. Therefore, our sample consisted of a total 37 freshman biology

students teachers (31 female, 6 male) at Gazi University (the biggest university in Turkey in terms of the number of students included in faculties of education).

Instrument and data analysis

The questionnaire consisted of three main parts. The coversheet asked for details about the participants, such as gender, age, the number of people in the family, mother's highest educational qualification and her job, and father's highest educational qualification and his job. Anonymity was maintained throughout the administration of the questionnaire. In the following part, 12 open-ended questions about the attractors, most of which were referenced in the existing literature, were asked. The wording of all the questions was: 'Did … (attractor) affect you while choosing teaching biology as a career? Please explain your response.' In addition, two extra open-ended questions were asked about the time of choosing teaching biology as a career and the possible barriers in the future.

Questionnaires were completed in a routine classroom atmosphere. Responses to each of the questions were separated from each other (to simplify the hand analyses) and rewritten in order to determine the possible themes. Three educators, who were experts on educational sciences, crosschecked these transcripts at different times, and the researchers independently looked for overlapping themes in the open-ended data. After discussions about the kinds and numbers of themes, the researchers ascertained the subcategories to each question. In the tables, the positive statements about the attractors are given from highest frequency to below, and the negative statements are included in the same order. In addition, the number of students who did not respond to the question is not shown in the tables.

Results and Discussion

Background

In terms of background characteristics of the participants (see Table 1), gender, age, number in the household, and parents' highest educational qualification as well as job qualification were examined. Of 37 participants in the sample, 31 (83.7 %) were female, and 6 (16.2 %) were male. In Turkey, new graduates of high school are typically 17 or 18 years old. As expected, a great number of the student teachers (n= 34, 91.8 %) were less than 20 years of age. Concerning the number of members in the household, most of families (n=30, 81 %) were composed of four or five persons.

Concerning the parents' characteristics, mothers of nearly two-thirds of the participants (n= 22, 59.4 %) graduated from primary school, while most fathers (n=26, 70.2 %) graduated from high school or university. With regard to parents' job qualifications, we divided the occupations (e.g., Lai et al., 2005) according to their income and social status in Turkey. For this aim, we created three levels ranging from highest to lowest: A, B, and C. Accordingly, doctors, pharmacists, engineers, and academics were included in level A; teachers, army officers, and technicians were included in level B; housewives, officers, farmers, and workers were included in level C. Unfortunately, parents' professions generally fell at level C (n=30, 82 % for mothers, n=23, 62.1 % for fathers).

We can conclude that the data about the background characteristics of the student teachers in the present study is consistent with the previous research (Fine, 2005; Lai et al, 2005; Watt & Richardson, 2008; Saban, 2003). Most of the participants in our study were female, young, and from families living in low-level economic conditions. As a result, the financial status of the family may be considered a provocative factor directing people to this career choice. In other words, because the parents have low-level job qualifications, their

children may develop a positive attitude towards teaching because it guarantees a long-term and regular income. This helps to ensure financial security, specifically that they will not live in similar situations when they have families of their own.

Background Characteristics	n	%		n	%
Mother's educ. qualification			Sex		
Illiterate	1	2.7	Female	31	83.7
Primary school	22	59.4	Male	6	16.2
Secondary school	9	24.3	Age		
University	5	13.5	18	10	27.0
Mother's job qualification			19	14	37.8
A	5	13.5	20	10	27.0
B	2	5.4	over 20	3	8.1
C	30	81.0	The number of household		
Father's educ. qualification			3	2	5.4
Primary school	11	29.7	4	19	51.3
Secondary school	13	35.1	5	11	29.7
University	13	35.1	6	4	10.8
Father's job qualification			7	1	2.7
A	10	27.0			
B	4	10.8			
C	23	62.1			

Table 1. Background characteristics of the participants

Though fathers of participants had slightly higher educational levels in comparison with mothers, almost all parents' educational qualifications were very low. This situation may also cause individuals to select the teaching profession. For example, parents may encourage their children to continue their education in order to obtain a secure profession in Turkey's competitive job market.

The time of making a decision

About half of the participants (n=16, 43.2 %) stressed that they decided to become biology teachers during the high school years (see Table 2). Among them, five said that they made this decision in the first year of high school. While one of these participants stated that his biology teacher made an impression on him, another said that he attended a high school that was closely related to teaching. At the same time, nine participants said that they decided to become biology teachers in the final year of high school. Five of these participants pointed out that their teachers in the part-time private schools affected them.

Approximately a quarter of the participants (n=10, 27%) conveyed the opinion that they decided to become biology teachers after seeing their EAU score. Examining the responses revealed that two in this group signified that they began to consider that teaching biology might be convenient for them. Another two said that they never thought about teaching biology before receiving the results of the EAU.

In addition, few participants (n=5, 13.5%) stated that they began to consider this profession while in primary school. While one of them said that his primary school teacher impressed him, another stressed that she was affected by the fact that her mother and father were teachers. On the other hand, while two participants (5.4%) conveyed that there

was not a certain time that they chose teaching biology as a career, two others (5.4%) reported that they selected this profession randomly. Another participant (2.7%) stressed that he never thought about this occupation. Only one participant (2.7%) did not provide any response to this question.

The time	n	%
During high school	16	43.2
After I have seen my EAU score	10	27.0
During primary school	5	13.5
There is no a certain time	2	5.4
Randomly	2	5.4
Never	1	2.7
No answer	1	2.7

Table 2. Point at which decision was made to teach biology

Because the student population in Turkey is quite high, the Turkish education system depends highly on single state examinations. In Turkey, as in most other countries, the demand for higher education far exceeds the number of spaces available. In light of this fact, the EAU has developed the following two objectives: a) to assure a balance between the demand for higher education and the spaces available in higher education institutions; and b) to elect and place students with the highest probability of success in all the available higher education programs, taking into consideration their preferences and performance on EAU (OSYM, 2006). After the results of the EAU are announced, students have only one month to determine the possible departments consistent with their marks. At this stage, they can choose from among 24 departments and then the Higher Education Council places them into suitable departments.

Though this examination system seems very effective, taking account the big gap between supply and demand for access to higher education, we find this construct problematic in terms of career development. Many students in Turkey do not wish to think about their possible careers until they complete the EAU. On the other hand, those who have some preliminary ideas about their possible careers are disappointed because their marks are lower than required. Participants' responses about the time of making decision also underlined this problematic structure. For example, about 30% of the participants said that they decided to choose teaching biology after seeing their scores on the EAU. Consequently, we forecast that this problem can be observed in the other countries that administer wide scale examinations in accessing universities (as in Turkey).

Another result from the present study shows that students make decisions about teaching biology careers most often during their high school years. This situation may stem from the fact that the students begin biology courses in high school. On the other hand, guidance counsellors in high schools, especially in part-time private schools, attempt to help students choose careers by using packet programs that test their preferences. Unfortunately, these efforts are restricted because students must make decisions in only one month. In this context, we believe that career development is a complex process and that opportunities introducing various careers should be created to enable students to make informed decisions about their own futures.

Attractors of Teaching Biology
Gender

As depicted in Table 3, about a third of the participants (n=12, 32.4%) pointed out that their gender had an impact on their decision. All of these participants were female and most thought that teaching was the most suitable profession for women. On the other hand, the additional two-thirds of participants (n=25, 67.5%) stated that gender did not have any influence on their decision. The participants in this group stressed that both men and women could be successful in this occupation, though some were aware of the fact that the society believed that teaching was the most appropriate profession for women.

When we review the existing literature (Carrington, 2002; Johnston et al., 1999; Saban, 2003) about the influence of gender in choosing teaching, we find that much research strived to respond to the question of why males do not choose primary teaching as a career. Participants in these studies signified that elementary teaching was closely associated with mothering and nurturing, and that males may have to confront societal negativity about choosing to work with young children. However, these results were not observed in our study, perhaps because we studied biology student teachers who were going to teach high school students.

Possible reasons why gender was not a top reason for the biology student teachers in the present study may be job market competition in Turkey and changes in prejudices. Now more than ever, males are applying to teaching programs in order to be recruited by the government. Recent economic crises in Turkey in the years 2001, 2003, and 2008 (worldwide crisis) caused trust in the private sector to decrease gradually, and in turn, people were directed to more reliable and less risky professions. In addition, though a quarter of biology student teachers thought that females both had advantages in communicating with children and needed more time for their own families, most participants believed that these prejudices were not valid in the 21st century.

Enjoy biology

As can be seen in Table 3, about three quarters of participants (n= 28, 75.6%) said that enjoying biology affected their decisions. While most participants stressed that they were interested in biology, another group stated that they enjoyed investigating and learning about nature and living things. In addition, some participants pointed out that they had certain previous experiences with biology. One participant, for example, stated that he attended Biology Olympiads, while another declared that she bought a microscope when she was in primary school. A third participant revealed that he had pets as a child.

Relatively few students (n=9, 24.3%) thought that this factor (i.e., enjoying biology) did not influence them. Some participants in this group said that they were attracted to biology because it was easy and not because they enjoyed it. Some stated other alternatives, including the fact that they did not have the necessary scores on the EAU to pursue other professions.

The subject matter to be taught has a crucial effect on student teachers, a situation that was emphasized in a few studies. Hammond (2002), for example, found that British student teachers in teaching ICT frequently drew on their previous experiences of teaching, mentoring, or helping a learner when reaching the decision to teach. Student teachers were also influenced by their special interest in ICT, and generalized from their own experiences to conclude that young learners would also find ICT an interesting and valuable subject. In another study, Dawson (2007) reported that Australian student teachers in secondary science and mathematics teaching chose their careers because of reasons such as a love of science and

mathematics, previous success in science and mathematics, holding a degree in science, and having good science and mathematics teachers. Similarly, Manuel and Hughes (2006) declared that the majority of Australian student teachers in their sample chose teaching as a career to maintain a meaningful engagement with the subject area they were drawn to.

When it comes to biology and teaching biology, a few studies sought to determine the reasons why people select careers in biology and teaching itself. Henderson, Stainstreet, and Boyes (2007) strived to understand the reasons why biology students chose biology-related careers such as teaching biology, research, and conservation. Though several participants reported that they intended to pursue a career in secondary teaching, the attractors 'good annual holidays', 'job security', and 'job satisfaction' were primarily identified by the participants. In another study, Spall, Barrett, Stanisstreet, Dickson, and Boyes (2003) investigated English undergraduates' views about biology and physics. According to their data, almost all biology students liked their area of study. This was reflected in their feeling that biology was interesting, but not necessarily easy.

We can conclude that the subject area to be taught is vital to student teachers while making a decision about their careers. Perhaps senior high school students in Turkey, in their short time given to select a department, consider their experiences related to the subject area to be taught. As a result, interests, experiences, achievement, and specific abilities about that subject area might affect students.

Social Influence

As seen in Table 3, nearly half of the participants (n=17, 45.9%) thought that their social environment (family, friends, and teachers) influenced them when they chose teaching biology as a career. The participants in this group stated that former teachers and relatives who are teachers positively affected them while making a decision. The other approximate half of participants (n=20, 54%) stated that their social environment did not affect them. Some members of this group said that this decision belonged to them, while some stated that their family rejected their decision.

The biology student teachers in the present study said that their social environments had different influences on their decisions. Though the social environment can have positive or negative effects on Turkish biology student teachers' decisions, we can conclude that family members strongly affect their career decisions. This may be less true of individuals in other countries. Even though the effect of teachers in previous school years is very common in choosing teaching around the world, the effects of family lead us to take a closer look at the structure of the Turkish culture. In Turkey, children of any family often stay with their parents until they marry, so strong relations among family members are established. In addition, parents' ideas are invaluable to children while they make decisions about their futures. This situation demonstrates that most of the student teachers initially consulted their family members before choosing teaching biology as a career. When it comes to the teachers, they can be taken as models by student teachers. Therefore, student teachers might develop positive attitudes towards this profession based on experiences in previous school years.

Social Status

As shown in Table 3, about one-third of the participants (n=13, 35.1%) believed that biology teachers' social status in society positively influenced them while choosing teaching biology as a career. The participants in this group stressed that teaching biology was a respectable and auspicious profession, had certain privileges in comparison with others, and

that teachers prepared the students for the future, as the Country's next generation (though we queried this attractor in another question). On the other hand, the remaining two-thirds of the participants (n=24, 64.8%) stated that the social status of teaching biology did not influence them. Participants in this group conveyed the idea that Turkish society did not respect this profession, either because people did not agree with the importance of the teaching profession or because the material rewards were very limited.

Though teaching has a low-level status in many developed countries (Watt & Richardson, 2008; Fine, 2005) due to the fact that there are many work opportunities with better conditions, it still maintains high status in developing countries (Saban, 2003; Lai et al., 2005). Furthermore, teaching is also highly regarded in developed East Asian countries such as Japan and South Korea (Wang, 2004).

When it comes to the Turkish sample, it appears as though the Turkish people still believe that teachers are fortunate individuals. However, many members of Turkish society also believe that teachers have financial problems. Moreover, the social status of this occupation is gradually decreasing due to economic reasons (Akbayır, 2002). Most of the biology student teachers in the present study also recognized this situation. According to participants, improving teaching's status depends highly on the material rewards and the number recruited.

Indeed, the teaching profession has an important place in Turkey's socio-cultural structure. From a religious perspective, teachers and teaching are highly valued in Islam, as Muslim leaders have addressed the importance of this profession. Here is a sample statement from a leader:

> *If someone teaches one single letter to me, I can be a slave of hers/his through forty years (Hz. Ali).*

At this stage, we can say that economic problems are important factors relating to the teaching profession's status in Turkey. Nonetheless, this profession still maintains a respectable background in terms of cultural and social values.

Financial Benefits

Social security, retirement opportunities, and regular salary are considered the financial benefits of a profession. As can be seen in Table 4, about a quarter (n=9, 24.3%) of participants stressed that the financial benefits of teaching biology affected them. Most of the participants in this group compared government schools with part-time private schools in terms of salary. These participants signified that while government schools were better than private schools in terms of social assurances and regular income, part-time private schools were more attractive than state schools in terms of income. Moreover, three participants stated that Turkey's financial conditions were not good enough and they therefore needed a profession with a regular salary.

About three quarters of participants (n=26, 70.2%) thought that these financial factors did not influence them. With regard to the reasons, many participants declared that the salary was not enough and if they thought about these factors, they would not choose teaching biology. One member of this group, for example, stated:

> *Never! Because there is no recruitment in teaching biology, everyone, who heard I would be a biology teacher, worried and some also humiliated me. In addition to this, my parents have concerns about my financial future (Participant 23).*

The attractors of teaching biology and example responses

	n	%		n	%
Gender			Enjoy biology		
Working a whole day is hard for a mother.	8	21.6	I am interested in biology.	10	27
Female teachers have more immediacy than males.	2	5.4	I enjoy investigating and learning about nature and living things.	7	18.9
Females are more disposable than males.	2	5.4	I have positive experiences regarding biology.	3	8.1
Both men and women can be successful in teaching biology.	8	21.6	Science is important for me.	2	5.4
Society believes that teaching is convenient for women but this did not affect me.	5	13.5	Biologists study concrete things.	1	2.7
Teaching is more important than a teacher's gender.	2	5.4	Biology is very popular today.	1	2.7
The EAU score rather than gender	1	2.7	I have a tendency towards biology.	1	2.7
			Teaching biology was not my first preference but I am happy now.	2	5.4
			Rather, this department was easy for me.	2	5.4
			Rather, my EAU score was influential.	2	5.4
Social influence			Social status		
In fact, my family chose this career, not me.	6	16.2	Teaching is a respectable job.	9	24.3
My former teachers affected me.	6	16.2	Teaching is a blessed profession.	3	8.1
The teachers in my family influenced me.	3	8.1	Teaching is a privileged occupation in comparison with others.	1	2.7
I wanted to be close to my friends.	1	2.7	Teachers do not have a high status because people are unaware of this job.	6	16.2
I did not wish to enter the EAU again.	1	2.7	Teachers do not have a high status because they cannot earn large amounts of money.	2	5.4
It was my decision alone.	12	32.4	People respect some teachers but not biology teachers	2	5.4
My family rejected this decision.	5	13.5	Teaching is not a respectable job, since there are a few jobs available.	1	2.7

Table 3. The attractors of teaching biology and examples of response part 1

On the other hand, some said that they did not care about the financial aspects while choosing this department; instead, they evaluated whether they enjoyed this profession. Like other questions, two participants stated that their EAU score was the main reason for their decision. Another participant pointed out that she could find money in any job if she works hard.

The financial benefits of teaching are almost the same in the countries all over the world. International studies show that in countries experiencing greater difficulty in recruiting teachers, such as the US, teaching salaries are lower than those in countries where recruitment is less of an issue, such as South Korea and Japan (National Science Foundation, 2002). As far as Turkey is concerned, teachers' salaries are very low compared to the salaries in some other human service professions, such as law or medicine (Saban, 2003). On the other hand, while a beginning teacher's median annual earning is about $10,000 (15.000 Turkish Liras), this figure is approximately $40,000 in the US. Consistent with these data, most of the biology student teachers in the present study reported that teaching biology was not a well-paid profession (though a few thought that the benefits made up for the low income). This situation was also observed in the Saban's (2003) study. The Turkish student teachers strongly disagreed with statement that 'teachers are paid quite well' because of their limited economic conditions.

Light Workload

As depicted in Table 4, nearly two thirds (n=24, 64.8%) of participants thought that the light workload in teaching biology affected them while selecting this profession as a career. They believed that this would allow for time with family, working part-time jobs, time for social activities, long-term holidays, etc. Eleven participants, for example, agreed that they could create much time for their families with this profession. Another seven reported that the long holidays were very attractive. On the other hand, one participant held the view that he could work at another job by means of the convenient timetable in teaching biology.

As far as negative answers are concerned, an additional third (n=13, 35.1%) reported that this attractor did not influence them. Three participants in this group thought that the profession was not easy and that the workload was not light. Another three participants said that the main reason for choosing the profession was enjoying biology without regard to the workload. Another participant stated that he did not view the workload as light; on the contrary, he was willing to work harder and participate in scientific activities.

In Turkey, biology teachers have a 15-hour compulsory course program each week. Though this figure seems very low, most schools need more time for biology courses due to the shortage of biology teachers. Therefore, the Ministry of Education pays extra money for each single hour over 15, and a biology teacher's schedule may contain 25-30 hours per week at some sites. On the other hand, apart from weekends, the courses are offered five days a week, with the daily program lasting from 8:30 a.m. to 3:00 p.m. In addition, there are two long-term vacations every year. The short one lasts two weeks at the end of January and takes place between two academic periods. The summer holiday lasts about three months, from mid-June to mid-September. Many teachers do not need to work second jobs during these holidays because they are married to those who have regular incomes. However, some teachers do work in part-time private schools, some have summer jobs, and some have weekend jobs.

Most of the biology student teachers in the present study stated that 'light workload' was a strong attractor for them while making their decisions. On the other hand, though this attractor was less highly rated by student teachers in developed countries, Richardson and Watt (2005) concluded that this attractor was quite effective for Australian 'career changers'.

This situation demonstrates that the workload involved in teaching is likely more important in Turkey than in other countries.

Previous Experiences with teaching

As shown in Table 4, approximately a third of students (n=15, 40.5%) reported that this attractor was important while choosing this career. Most of these participants said that they had some teaching experience with their friends and family, and that their students were pleased with their teaching. In addition, some reported that they enjoyed learning, teaching, and helping one another. Some also stressed that they already had some teaching abilities.

About two-thirds (n=22, 59.4%) of participants stressed that these factors were not important in choosing their careers. Four members of this group said that they had no particular teaching abilities. Another four stated that they believed they could be successful despite the fact that they had no experience. The other two reported that they gradually gained teaching abilities through biology teacher education.

Researchers affiliated with the teacher education literature have emphasized the positive influences of prior teaching and learning experiences (Watt & Richardson, 2007). In Australia, for example, Watt and Richardson (2008) reported that student teachers were influenced by their teaching ability-related beliefs and positive prior experiences with teaching. In their another study (2005), career changers explained that prior positive experiences with training/instructing roles and adolescents/young people encouraged their beliefs that teaching would be a career that fit their skill set, interests, and future goals. On the other hand, Wang (2004) showed that students were attracted to teaching by an early exposure to science teaching in informal settings. These experiences were part-time jobs as private home tutors, teachers in after-school learning centres, or counsellors in college-organized summer camps. Similarly, some American undergraduates pursue teaching because opportunities such as looking after younger siblings, life guarding at a pool, counselling at a camp, or babysitting children in the neighbourhood made an enormous impact on their lives. Teaching adolescents, therefore, seemed like a natural career choice (Maloy & Seidman, 1999). Because part-time jobs like ones in the US are not common in Turkey, the biology student teachers experienced teaching activities in formal settings in primary or secondary schools. Many said that they helped their classmates or younger relatives while studying for examinations.

Creating opportunities for people to experience pre-teaching activities is another important point. In the US, for example, teacher training committees tend to ask the question: ‘Does this candidate have any experience with children or adolescents that would indicate commitment to, and a talent for, teaching?’ People who want to be teachers try to gain different kinds of experiences with middle and high school aged youngsters by participating in child or youth-oriented programs and activities. This is important not only to demonstrate to admissions committees that one is interested in middle and high school age groups, but also to help one to determine whether he/she will enjoy and respect young people (Maloy & Seidman, 1999). In addition, the ‘Use your mind’ campaign was run by the Teacher Training Agency in the UK in 2001. In this campaign, individuals perceived teaching-related abilities as prominent factors in influencing their decisions to teach (Watt & Richardson, 2008). Unfortunately, there are no similar programs, campaigns, or opportunities in Turkey, apart from some volunteer education groups. The student teachers thus experience pre-teaching activities in only formal settings.

Enjoy Working with Children or Adolescents

With regard to the desire to shape children or adolescents and to convey information to them, most of the participants (n=29, 78.3%) stressed that these factors were important in selecting teaching biology as a career. As depicted in Table 4, 10 participants in this group said that they enjoyed conveying their information to younger ones. Seven participants stated that they wished to influence children's futures. Most of these participants believed that the more teachers educate children successfully, the more the country would develop. However, two of the participants gave a different explanation. They believed that children and teenagers were impressed by bad role models and thus contributed to societal problems. Therefore, they said that they would firstly seek to ameliorate these problems. Here is a response from one of these two participants:

> *Yes, because teenagers are getting bad today. I observed that many young people misbehaved under the title 'independence'. This situation bothers me. I am going to try to remedy these (Participant 30).*

Four participants, on the other hand, reported that they wished to be role models for children. These participants stressed that their teachers impressed them when they were in high school, and they believed that they could do the same for their students. The other four participants revealed that they simply liked children and teenagers.

When it comes to negative answers, a few participants (n=8, 21.6%) said that this attractor did not affect them. While one member of this group pointed out another reason (enjoying teaching biology), another said that these possible reasons were not real.

The biology student teachers in the present study rated this attractor as the most compelling. Most of them said that they wanted to be role models for children who are the country's future. The desire to work with children and adolescents has tended to dominate the reasons that people from many countries have given for choosing teaching as a career (e.g., Manuel & Hughes, 2006; Saban, 2003). We think that there are some altruistic reasons behind this demand, though these reasons were given as different attractors in previous studies (e.g., Priyadharshini & Robinson-pant, 2003). We believe that enjoying working with children and adolescents indirectly incorporates the desire to make a difference through a socially useful job. In other words, the love of children provokes aspirations such as being role models for children, shaping young ones, and in doing so, supporting the development of the country.

The cost of Becoming a Biology teacher

As can be seen in Table 5, all participants (100%) said that the cost of becoming a biology teacher did not influence them. While most stated that they did not think about this factor while choosing teaching biology as a career, a few believed that this education was not inexpensive.

Though the biology student teachers in the present study came from the families with low-level incomes, all of them said that they did not think about the cost of their university education. In Turkey, where there are many unemployed people in different branches, students and their families are aware that a certificate from high school or primary school is insufficient for any profession. In Turkey's competitive job market, employees in the private sector and official establishments look for qualified people who are well educated. It is possible that the biology student teachers did not see the cost of this education as an attractor because a university certificate is vital to find a job in Turkey's competitive job market.

The attractors of teaching biology and the examples of respond

	n	%		n	%
Financial benefits			Light Workload		
Social insurance and regular salary were attractive, but not the income level	3	8.1	Spending a lot of time with my family is important for me.	11	29.7
I need a regular income since the country's economic conditions are not good	3	8.1	Holidays are quite long and attractive.	7	18.9
The salary in private schools was very attractive	3	8.1	I can also work in another occupation.	1	2.7
The salary is not sufficient for the job	12	32.4	I think the workload is great.	3	8.1
I only considered whether I liked the profession	7	18.9	I like biology.	3	8.1
I would not have chosen this profession if I had achieved a higher place in EAU.	2	5.4	I wished to work harder.	1	2.7
If you work hard, you can find enough money everywhere.	1	2.7			
Previous experiences with teaching			Enjoy working with children or adolescents		
Students I have taught have made positive comments about my teaching.	9	24.3	I wish to convey my information to youngsters.	10	27
I think I have special teaching abilities.	4	10.8	I desire to impress children's future and shape them.	7	18.9
I like to teach and help people.	2	5.4	I want to be a model to children.	4	10.8
I think I have no particular skills associated with teaching.	4	10.8	I like children or adolescents	4	10.8
I had not had any teaching practice so far, but I think I can be successful.	4	10.8	I would like to help others.	1	2.7
			I like teaching biology	1	2.7
			The provided reasons are not applicable to me.	1	2.7

Table 4. The attractors of teaching biology and the examples of respond part 2

The Ease of Educational Biology

As depicted in Table 5, the idea that studying in this department would be easy affected about a quarter of participants (n=9, 24.3%). Five participants in this group pointed out that this factor might influence them while choosing teaching biology as a career. Another two said that they could be successful in this job because of their interest in biology. The other two stressed that they hardly studied during the preparation period for EAU, so they selected this department in order to continue to avoid studying.

On the other hand, nearly three-fourths of participants (n=28, 75.6%) stated that this factor did not affect them. Most of them did not consider the department to be easy. Regarding the possible reasons for these opinions, some students described obstacles met in this department. For example, one participant stated:

> *...because you face a number of different living things, and sometimes you dissect them. In addition, there are many Latin words to be learned in Biology. I think this profession is not easy (Participant 21).*

In this study, we incorporated easiness of the department with the possible attractors in the existing literature. We conducted some informal interviews with student teachers in previous years, and the participants in these discussions reported that one of the main reasons for choosing teaching biology as a career was that they believed it to be easy. However, most of the biology student teachers stressed that this factor did not affect them. Also, many thought that the department was not easy. Similar results were observed in a study by Spall (2003) and others, who found that only a relatively small proportion of biology students thought that biology was an easy department.

Working Conditions

As displayed in Table 5, about a third (n=12, 32.4%) of the participants said that the work environment was not risky and stressfully, which influenced them while making their choice. Six participants pointed out that there was no possible risk in teaching biology, while another two revealed that security in teaching profession was effective. Another two reported that they did not like the stress and pressure in their work environments.

The other two-thirds (n=25, 67.5%) of participants thought that these factors were not important in choosing teaching biology as a career. Eleven participants in this group thought that the profession was too stressful. While some in this group believed that the classroom management might be an important problem, a few mentioned that students' misbehaviours towards teachers might lead them to be reluctant to teach biology.

Working conditions such as stress, life security, pecking order, and competition in work environment were cited as attractors or detractors in different contexts. In China, for example, favourable working conditions attract qualified people to teaching. Most students thought that teaching was 'less stressful than most business and industry jobs' and agreed that 'life in a school environment is simpler and less complicated than most business and industry jobs' (Wang, 2004). Similarly, Dawson (2007) reported that working conditions are effective attractors of Australian student teachers. In a Norwegian sample, on the other hand, Kyrichaou et al. (2002) found that undecided students need to be convinced that teaching will offer a pleasant working environment. However, this attractor was not relatively effective for biology student teachers in the present study. Most of them thought that working conditions in this profession were difficult and that teaching was a stressed occupation, perhaps because they believed that the Turkish Education System could not provide good working conditions for teachers.

Obtaining a Job

Only two participants (n= 2, 5.4%) claimed that the easiness of obtaining a job influenced them in choosing their careers. While one participant explained that there were employment opportunities in teaching biology, another did not give a clear response.

Almost all the students (n= 35, 94.5%) thought that this attractor did not affect their decision. Most of them said that obtaining a job in this profession was too hard. In addition, many participants in this group believed that there was not enough recruitment in government schools. They also feared having to pass a difficult test (SPPPO) to be appointed. One participant in this group reported:

> *The easiness of getting a job? Very funny! Since, to find an employment in our department is too hard. Firstly, if you wish to find a job in a government school, there is no appointment. In the second place, if you want to work in part-time private schools, the need for biology teacher is too little (Participant 8).*

On the other hand, two participants reported that finding a new job depended highly on personal abilities. Similarly, one participant believed that the more one improves his/herself, the more he/she improves the chance of getting a job. Moreover, one participant said that the main reason for making her choice was her EAU score rather than this attractor.

Unfortunately, the graduates of Educational Biology in Turkey do not have a high chance of finding a long-term job. According to Table 6, which was prepared utilizing the data of the Ministry of Education and Higher Education Council, we can conclude that the programs (Biology and Educational Biology) that supply the need for biology teachers graduate many more students than can be recruited as teachers in government high schools. This gap was also demonstrated by biology student teachers in the present study. Almost none of them believed that Educational Biology provides an advantage in obtaining a job. Moreover, almost none believed that it was easy to be a biology teacher in a government school.

Individuals	**Years**			
	2003	**2004**	**2005**	**2006**
The number of graduates Educational Biology	391	380	395	382
The number of graduates in Biology	2701	2793	2890	3103
The number of appointed biology teachers	133	112	57	45

Table 6. The balance between supply and demand for biology teachers

Because of the imbalance between supply and demand in teaching biology, the graduates of Educational Biology or 'Biology+Formation' try their chances in different careers. For example, based on the results of SEPPPO, they may be appointed as government officers instead of as teachers. Government officers can work in different areas, such as customs work, or postal services. Furthermore, they can work in private part-time schools that prepare students for EAU or in private high schools as biology teachers. Some prefer working as biologists in health institutions. The conditions of the latter three alternatives, however, are quite hard and the workload is heavy. Therefore, many graduates reluctantly changed their careers due to these negative situations.

The attractors of teaching biology and the examples of respond					
	n	%		n	%
The cost of becoming a biology teacher			The ease of Educational Biology		
I did not think about the cost of the education while choosing.	37	100	I may be influenced by this factor.	5	13.5
			I studied hard while preparing for the EAU.	2	5.4
			Because I was interested in biology, I thought I could do it.	2	5.4
			This department requires a systematic studying program.	15	40.5
			If I liked teaching biology, it would be easy.	1	2.7
Working conditions			Obtaining a job		
The work environment is not risky.	6	16.2	There are some employment opportunities in teaching biology.	2	5.4
The life security was attractive.	2	5.4	I think getting a job in teaching biology is too hard.	20	54
I do not like the stress and pressure.	2	5.4	To be able to find a new job is a personal ability.	2	5.4
I think this profession is too stressful	11	29.7	If you improve yourself, you can always find a job.	1	2.7
			The main reason for getting this position was my EAU point.	1	2.7

Table 5. The attractors of teaching biology and the examples of respond part 3

Possible Barriers

As depicted in Table 7, most of the participants were concerned about possible obstacles in their future teaching life. Concern over 'not being recruited' was addressed most frequently. These participants stated that the government did not recruit enough biology teachers and that there was no recruitment during certain years. The second possible obstacle that was highly addressed by participants was students' misbehaviour. Five participants pointed out this problem and explained that students were disrespectful and behaved irresponsibly. Another possible problem for participants was the concern of not being liked by students. On the other hand, some participants stressed that not being able to teach the subject matter was a possible obstacle. Another two signified that teachers' salaries were not enough for daily consumption, which scared them. Another two explained that the region they would be appointed to was a problem. Considering the responses of these two participants, we can say that they did not wish to teach in rural parts of Turkey due to some social problems. Furthermore, an additional two participants said concerns about classroom management. They also revealed that there were many mischievous students in schools and they did not know how they could keep the discipline in the classroom, Similarly, one participant explained that he saw students' reluctance as a possible obstacle. Another participant was anxious about being considered as a teacher who could not teach well. Moreover, one participant conveyed that successful students might be a problem to him.

Answer	n	%
Not being recruited	6	16.2
Students' disrespectful behaviors	5	13.5
Not being liked by students	5	13.5
Not being able to teach	4	10.8
I do not believe that I will meet obstacles	4	10.8
Low salary	2	5.4
I will work in the rural areas.	2	5.4
Classroom management	2	5.4
I have no idea at this stage.	2	5.4
I do not want to think about this issue.	2	5.4
Working hard	1	2.7
Students' reluctance to learn	1	2.7
Successful students	1	2.7

Table 7. The participants' ideas about possible barriers to teaching biology

Few participants did not give any examples about the possible obstacles in their minds. Four participants in this group revealed that they did not believe that they would encounter any problems in the future. Another two pointed out that they did not want to think about these issues until they were appointed, and the final two also said that they did not wish to worry about negative things in their futures.

We believe that being aware of the possible problems in student teachers' minds is as important as being aware of the attractors of teaching. In this way, we can understand and investigate the attractors from a different perspective. However, there is a limited body of research regarding the possible barriers in student teachers' futures. Dawson (2007), for example, reported that Australian student teachers said that they might face some challenges such as classroom management, time management, confidence, and content knowledge when they become teachers. In another study, Henderson, Stainstreet, and Boyes (2007) reported

that English biology students found 'low pay' and 'stress in work environment' as deterrents of teaching biology.

The biology student teachers in the present study, as expected, mostly said that 'not being recruited' was an important problem they would probably face in future. This result is consistent with the fact that they did not see the factor of 'obtaining a job' as an attractor. Considering that participants identified 'enjoy working with children or adolescents' as a top attractor, it makes sense that they see 'not being able to teach' or 'not being liked by students' as possible problems.

Conclusions and Implications

In this study, we sought to understand the main attractors of choosing teaching biology as a career in a Turkish context. For this aim, we asked the popular attractors of teaching profession in the literature biology student teachers to have detailed information. On the other hand, unlike the most of the other studies, we focused on a particular subject area (teaching biology) to identify the differences, if any, between desire to choose teaching and desire to choose teaching in a particular subject area. In the last part of the study, we used possible barriers reported by biology student teachers to gain a different perspective in interpreting which attractors are more influential. In addition, we tried to utilize arguments from Turkish socio-cultural structure in order to be able to explain why biology student teachers pursued this career.

Regarding the possible attractors affecting decision-making in favour of teaching biology, the biology student teachers in the present study said that the attractors 'enjoy working with children and adolescents', 'enjoy biology', and 'light workload' were the most influential. On the other hand, the attractors 'the cost of becoming a biology teacher', 'obtaining a job' and 'the ease of Educational Biology' did not significantly affect them. As depicted in Table 8, Turkish biology student teachers were primarily affected by intrinsic and some extrinsic reasons. The same is likely true of student teachers in other countries (Synder, Doerr & Pastor, 1995, Kyricacou & Coulthard, 2000, Krei&Grmek, 2005, Bastick, 2000, See, 2004, Richardson& Watt, 2005, Watt & Richardson, 2007).

Attractor	%	Order
Enjoy working with children and adolescents	79	1
Enjoy biology	76	2
Light workload	65	3
Social influence	46	4
Previous experiences with teaching	46	5
Social status	36	6
Working conditions	33	7
Gender	32	8
Financial benefits	26	9
The ease of becoming a biology teacher	26	10
Obtaining a job	6	11
The cost of Educational Biology	0	12

Table 8. The attractors of teaching biology for Turkish student teachers

As evidenced by the findings, students in Turkey are not placed according to their interests, aspirations, or the departments they 'most wanted'. The system completely depends on a very competitive single-state examination, and the students have no other possible

careers in mind until they see their EAU scores. This situation prevents developing a career at an early age, and may lead people to change their careers (though 'career changers' have not yet been observed in Turkey due to the economic crises in the past decade). At this point, it is clear that Turkish Education System urgently needs to change this ill-suited examination process (World Bank, 2005). On the other hand, in spite of the fact that there are some attempts in newly developed curricula in Turkey, the curriculum decision-makers should more effectively use the theme 'career development' in different subject areas at different grades.

In many aspects, the findings of the present study regarding the attractors influencing young people's choice of teaching as a career in Turkey are consistent with those in Western societies. However, an interesting result in the present study is that working with children, enjoy the subject area to be taught, and the light workload are probably very strong attractors. Even if student teachers in the present study were aware that they had little recruitment chance after graduation, they listed such attractors as top reasons. Therefore, we argue that recruitment agencies in Turkey and also around the world should take a closer look at these attractors to attract well-qualified students.

In addition, we noticed that two main themes that were specific to Turkish context were responsible for why student teachers pursued this career. The first one may be the competitive job market in Turkey. As we discussed before, this situation affected the opinions of student teachers about such attractors such as gender, the cost of becoming a biology teacher and financial benefits. In order to reach a healthy career development in teaching profession, we believe that the policy makers in Turkey should create new recruitment opportunities even if the most part of the budget of the Country is being left to Ministry of National Education these days.

The second theme may be Turkish socio-cultural structure about teaching profession. In Turkish culture, the ideas of other people, especially of family members, in close environment are crucial while making a decision pertaining to future careers. There are evidences (Bodur & Sarıgöllü, 2005) about the fact that Turkish people are more externally controlled perhaps because an underlying cultural characteristic such as collectivism. Therefore, in order to attract well-qualified students, the programs to be developed in Turkey should take into account the other parties such as family members and former teachers. On the other hand, in Turkish social life, before the graduation of university, people do not necessarily prefer to work apart from such ones who have to work because of economical reasons. Therefore, in the context of career choice in teaching, we can argue that Turkish school students do not have enough experiences with teaching relative to Western Countries. Accordingly, we suggest that purposeful interventions or programs such as summer clubs in which students can find opportunities to teach or help the others can be influential so that they make informed decisions about their possible teaching careers. On the other hand, as expected, the social status of teaching biology highly affected by Turkish culture. Some students associated this attractor with economical reasons perhaps because they give much importance to socio-economic order. According to Şener and Hacer (2008), Turkish culture emphasizes dependency on the internal group and provides social order mostly via hierarchic roles. Therefore, it is likely that student teachers construct a social order in accordance with incomes of people after the economic crises in Turkey. On the other hand, some students pointed out that teaching profession have a high status perhaps because the importance of teaching in Islam. At this point, we think that knowing the socio-cultural factors related to the teaching profession in any society would help in attracting people to teaching.

Finally, the biology student teachers in the present study pointed out certain barriers in recruitment, the quality of teaching, and student misbehaviour. In previous studies, the possible barriers student teachers may face in the future are mentioned in limited proportion.

However, an awareness of these barriers will allow us not only to discourage student teachers from changing their careers (retaining perspective), but will also to give those considering teaching education programs an idea about possible problems and solving strategies (attracting perspective).

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