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Factors Influencing Teaching Choice in Turkey

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Why choose to become a teacher in Turkey? The authors examined motivations and perceptions among preservice teachers ($N = 1577$) encompassing early childhood, primary and secondary education. The Factors Influencing Teaching Choice (FIT-Choice) instrument was translated into Turkish and its construct validity and reliability assessed. Altruistic 'social utility values' were the most influential, followed by the desire for a secure job. Intrinsic value and perceived teaching abilities came next, contrasting with higher ratings in Western studies, alongside prior positive teaching and learning experiences. Family flexibility, job transferability and social influences were moderate, and the negative 'fallback career' motivation lowest, although not far below the scale midpoint. Science-related teacher candidates scored more highly on fallback career, had chosen a teaching career the most recently, and were lower on almost all other teaching motivations, demonstrating a less positive motivational profile. Findings are interpreted in light of the economic development and role of the teaching profession in Turkey. Less adaptive motivations belonging to preservice teachers in scientific fields highlight potential risks and recruitment strategies to optimise teacher quality in those priority fields which further research could fruitfully examine.

Keywords: teacher motivations; Turkey; science teaching

Vocational and behavioural psychologists have long considered the factors that influence people when choosing a particular career; what motivates an individual to make a career choice is complex and perhaps not always a completely rational decision. For some individuals a career relating to people would be impossible, yet for others the reverse is true; or being outdoors may be essential ingredients in the work people seek (Gottfredson, 1981; Holland, 1959). Individuals' abilities, interests, values, options, advice and opinions of family and friends can all play a role in orienting young people toward particular fields of work. Teaching as a career choice is subject to these influences as well as the pushes and pulls of policy decisions and labour market impacts.

Many countries are currently experiencing problems with teacher recruitment and retention. The number of people being attracted into teaching is declining, while the number abandoning the profession in the first three to five years is increasing (Organisation for Economic Co-operation and Development [OECD], 2005). At the same time the teaching workforce in these countries is ageing, and significant numbers of teachers are taking retirement (OECD, 2005). Governments and employing authorities in different countries are finding it difficult to sustain a suitably high-quality teaching force (OECD, 2005), resulting in considerable interest in better understanding what motivates people to look favourably

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on teaching as a career, and how those who do might best be recruited and sustained in the profession. The situation in Turkey is very different in that there is an oversupply of teacher education graduates resulting in high competition for the available teaching positions, making Turkey an important context in which to investigate teacher career choice motivations.

The cycle of teacher shortages varies across different teaching domains and from one country to another, and is reactive to shifts in policy emphases and the broader labour market. In Turkey, the retention of teachers is less of concern, neither is an ageing teacher workforce. Moreover, the age profile of Turkey is strikingly different for instance to that of other countries in Europe that are members of the OECD; 25.6% of the population are under the age of 14 (Turkish Statistics Institution, 2009). This demographic feature of the country is placing increased demand on the number and quality of teaching places required to educate the growing population. Like many countries, Turkey is experiencing teacher shortages but particularly in the domains of preschool, special education and English language teaching. The shortfall of English language teachers remains a 'prominent problem' (Eren & Tezel, 2010, p. 1416); whereas other domains such as mathematics and science teaching, visual arts and music teaching are not experiencing comparable difficulties in supply (Batuhan, 2007; National Education Statistics, 2006–2007). In accordance with the modernisation of Turkey, there is aggressive attention to the quality especially in scientific/mathematical domains. As early as grade 9 (the first year of secondary education), students are required to select science versus social science strands for their remaining education. There is consonant high attention to the quality of mathematics/science teachers, as indicated by higher requisite entry scores to undertake teacher education in those specialisms.

The economic conditions and availability of other employment options impact the supply of people seeking to undertake teacher education and to become teachers. When times are tough economically and there are fewer jobs available in the private sector, government positions such as teaching, which offer job security and a guaranteed pension fund but lower salaries, can become very attractive. In some countries such as Taiwan, teaching as a profession is held in high regard, even though the remuneration is not high (Wang, 2004); whereas in Germany, the remuneration is better than many comparable jobs, but the status is perceived as lower (Watt et al., 2012). In the case of Turkey teachers are respected, and, although the salary is not high, teachers are considered to be public servants, which provides for a high level of job security.

The educational context in Turkey

The formal education system in Turkey consists of pre-primary, primary, secondary and higher education (see Figure 1). The Turkish education system has a centralised structure to manage an extremely large number of students and is founded on annual state-based examinations at different stages of education (Çakıroğlu & Çakıroğlu, 2003; World Bank, 2005). The Ministry of National Education (MNE) is the national authority responsible for pre-college education whereas the Council for Higher Education (CHE) coordinates higher education. Primary education (grades 1–8) is compulsory, and the same curriculum is employed in all schools across the country. Students who complete this stage take the Secondary Education Entrance Exam (SEEE), and are then placed into high schools according to their results (see Kılınç & Mahiroğlu, 2009).

Secondary education lasts for four years (grades 9–12) and graduates of all high schools can complete the Exam of Accessing University (EAU), which is administered yearly. As in

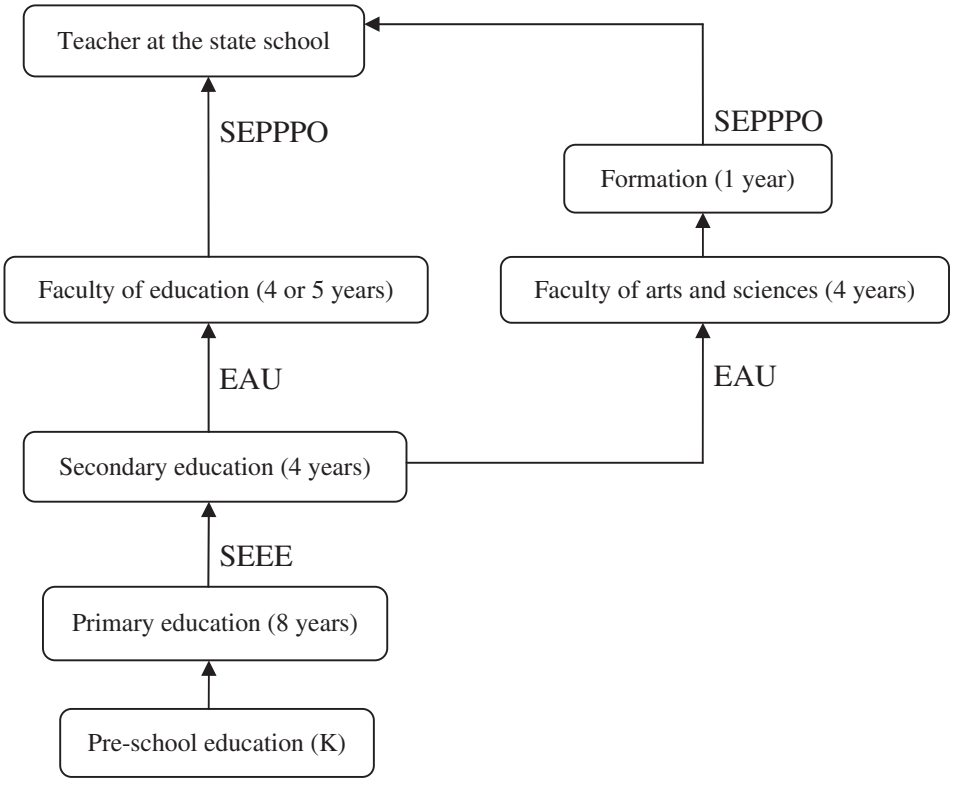

Figure 1. The steps to becoming a teacher in Turkey.

most other countries, the demand for higher education far exceeds the number of places available. In light of this, the EAU strives to achieve a balance between the demand for, and the places available in, higher education institutions (Erdoğmuş, 2004; Kılınç & Mahiroğlu, 2009; Özoğlu, 2010; Saban, 2003). Admissions to undergraduate education are based on students' composite scores, from the EAU and high school grade point average (CHE, 2010). After the results of the EAU are announced, students have one month in which to select possible university programs consistent with their examination marks. At this stage, they can choose from among 24 departments and then the CHE places them into suitable programs.

In Turkish preservice teacher education, early childhood and primary programs are for four years; secondary teaching requires five years. Additionally, four years of education are offered in some departments (e.g. music) whose target groups are both primary and secondary school students. In the case of secondary teaching, high school graduates can alternatively choose departments such as biology in the Faculty of Arts and Sciences, after which they then need to complete another one-year program of further education 'formation' to qualify to teach. These pathways are depicted in Figure 1.

Because teachers in Turkey are considered government officials, graduates must complete the Selection Examination for Professional Posts in Public Organisations (SEPPPO) administered by the CHE, if they are to become teachers in state schools. Questions focus on general ability (mathematics, Turkish), general culture (history, geography) and educational sciences (educational psychology, counselling and teaching methods). Each

year the MNE ascertains the number of teachers needed in each program, and appointments are made according to the teachers' SEPPPO scores. In general, there is an oversupply of intending teachers. For example, in 2011, 230,000 teacher education graduates sat the SEPPPO but only a very small proportion were appointed to teaching positions in state schools due to the limited number of spaces created by the MNE. When those who had hoped to become a teacher do not achieve the required SEPPPO score, they may instead be recruited as government officials in state institutions such as the postal services and customs. Alternatively, they may find employment in private test centres which prepare school students for the national examinations, or as private tutors. Test centres can be insecure forms of employment that offer low salaries, restricted work insurance and high pressure for outcomes from centre managers and parents.

Influences on the demand for and supply of teachers

As a predominantly Muslim nation of 79 million people with a secular democratic government, Turkey represents an interesting bridge between East and West. It is a rapidly developing economy with a very young population, approximately 50% are below the age of 29.2 years, while 25.6% are aged under 14 (Turkish Statistics Institution, 2009). The teacher workforce that will educate this younger generation is therefore of considerable importance to the social and economic future of the country. Unlike many member countries of the OECD (OECD, 2005), Turkey has more trained teachers than the MNE has been able to employ, to the point where the number of graduates actually appointed has fallen well short of the supply of available teacher education graduates.

Central to the demand for teachers are the policies emanating from the MNE regarding changes to education priorities. Policy decisions designed to increase the number of teachers who act as psychological guides in each school, to add a kindergarten year to the primary level years of schooling, and most recently, to increase the obligatory years of education from 8 to 12 years, impact the number of teachers required at different levels of schooling. While there is presently no shortage of available secondary school teachers in terms of overall numbers, an increase in the number of years of compulsory schooling would dramatically increase the number of teachers required by the MNE.

In the history of modern Turkey there have been attempts to put in place recruitment and admission policies for teachers but these have often been undermined or weakened by competing policies; for example, a decision to increase the duration of compulsory primary school education (Kindergarten to Year 8) resulted in a sudden need to appoint preschool teachers. Similarly, an acute shortage of primary teachers in 1995 saw 12,000 graduates, with or without a teaching certification, placed in primary schools (Saban, 2003). At the same time, there are pressures from other quarters to increase the number of university places so that the young and ambitious have greater access to higher education. In response to government policy guaranteeing availability of a university education to those who seek it, the CHE has increased the number of universities and the number of faculties of education in them, without increasing the number of new teaching positions in state schools. This means that new teacher graduates have uncertain opportunities for employment.

In the period 1998–2007, the CHE did not permit the establishment of new faculties of education in universities and decreased the number of enrolled students in teaching departments by 25%. The main reason for this decision was to reduce the pressure on already unemployed teachers by not permitting new faculties of education to enrol still more prospective teachers. However, in the following two years, the quota of teaching programs increased by about 50% and seven new faculties of education were established in different

universities, despite there being an extremely high number of available teacher education graduates who were not appointed at that time (Eşme, 2009; Özoğlu, 2010). According to non-governmental organisations operating in Turkey, there are today about 300,000 graduates of faculties of education awaiting a teaching appointment by the MNE (Türk Eğitim Sen, 2011). Clearly, there is not a problem of attracting new teachers in Turkey, as there in many countries of the OECD and elsewhere, although the probability of appointment to a position remains uncertain for teachers in most domains.

Scholars substantially agree that the Turkish teacher training system has some problems concerning resources and physical infrastructure, the quality of education, as well as recruitment and admission policies (Eşme, 2009). The quality of teacher education can vary greatly depending on the overall quality of the university, with inconsistencies between teacher education courses and insufficient numbers of lecturers, and although teacher education is not necessarily an easy option for a university education, there is considerable variation in the quality of the teacher education candidates, with the higher entry scores for science and mathematics teaching being comparable with engineering (in some universities), physics, chemistry and biology. There is also a lack of continuity between the practices in state schools and the curricula of teacher training programs which have been developed around 'best practices' in Western countries, without taking account of, or sensitivity to, local needs and understanding. Teacher education is subject to a high level of centralised political influence through policies determined by the CHE which do not permit course flexibility at the local level. These factors all impact on the quality of teacher education (Çakıroğlu & Çakıroğlu, 2003; CHE, 2007; Özoğlu, 2010).

Who chooses teaching in Turkey?

As is the case in other countries of the OECD (OECD, 2005), including the United Kingdom (Carrington, 2002) and Australia (Watt & Richardson, 2007), teaching in Turkey is a career preferred by females, perhaps related to family flexibility and part-time work opportunities (Bourne & Özbilgin, 2008; Kılınç & Mahiroğlu, 2009; Topkaya & Uztosun, 2012). People who choose teaching in Turkey often come from families with middle to low levels of socioeconomic status (e.g. Saban, 2003), one-parent working families in which only the father has a paid job (Kılınç & Mahiroğlu, 2009; Saban, 2003), and lower levels of educational achievement (e.g. Özsoy, Özsoy, Özkara, & Memiş, 2010). The majority of mothers are employed as housewives, while fathers work as self-employed, skilled and unskilled workers, teachers and government officials (Aksu, Demir, Daloğlu, Yıldırım, & Kiraz, 2010; Saban, 2003). Mothers mostly have a primary school-level certificate (e.g. Yamaner & Kartal, 2001), whereas fathers possess a range of educational qualifications (e.g. Aksu et al., 2010).

With such a demographic profile, it may be unsurprising that these individuals seek the stability and status of a teaching career, which provides a high level of job security as a public servant if an appointment can be obtained. Economic crises in more recent times have caused a loss of trust in the private sector, and people have turned their attention toward more reliable and less risky professions such as teaching in state schools (Kılınç & Mahiroğlu, 2009). This is despite the fact that the possibility of being recruited to teach in state schools is very low, with a large pool of people waiting to become teachers (Doğan & Çoban, 2009), but not being recruited to actual teaching appointments (Kılınç & Mahiroğlu, 2009).

Other influences and considerations specific to Turkey include the national examination system, the job market and sociocultural structure (Kılınç & Mahiroğlu, 2009). The

examination process (World Bank, 2005) dissuades Turkish young people from developing career aspirations at an early age (Aksu et al., 2010; Boz & Boz, 2008; Saban, 2003) and is one of the major barriers in their career development (Erdoğmuş, 2004); 30% of preservice teachers reported they decided to become a teacher only after they had received their EAU scores (Kılınç & Mahiroğlu, 2009). Similarly, Özsoy and colleagues (2010) found that among the preservice teachers they surveyed, more than half reported their EAU scores fell below what was required by the departments in which they had originally hoped to study. Teaching is a university degree into which it is easier to gain entry than some science degrees such as medicine, for example. In this case, teaching becomes a second or 'fallback' choice for entry into university, especially for those electing science-related teaching specialisms who may have failed to achieve the higher entry scores required for their preferred science studies. The SEPPPO is also a very high-stakes examination, especially when there is a large gap between the number of jobs available in state schools for teachers and the number of graduates from teaching programs. Most people who take this examination during their final year of teacher education consequently have their attention directed away from teacher education pedagogy and the teaching practicum in schools (Eraslan, 2007; Gündoğdu, Çimen, & Turan, 2008; Şahin & Arcagök, 2010) at the very time when they need to be concentrating on these matters.

The sociocultural structure in Turkey plays a role in the decision-making processes of people choosing teaching. A study by Kılınç and Mahiroğlu (2009) concluded that parents were crucial to high school graduates' decisions about careers. Although some participants believed that teaching was not high in social status, nonetheless the founder of modern Turkey, Atatürk, had regarded teachers as important in shaping the next generation. Some of this enduring influence can be detected in a study by Aksu and colleagues (2010) who sought to understand the sociocultural values and beliefs of 18,226 preservice teachers. These intending teachers held traditional rather than secular-rational values, although paradoxically they valued progressive educational views more highly; they appeared not to have a fatalistic attitude towards poverty, which they tended to explain in a rational way. These preservice teachers were willing to help socially disadvantaged children by using progressive models of education based on democratic values, while also wanting to instil traditional values and beliefs in the next generation.

Factors influencing teaching choice in Turkey

The Factors Influencing Teaching Choice (FIT-Choice) framework was developed to assess the motivations of teachers to teach (see Richardson & Watt, 2006; Watt & Richardson, 2007). It is grounded in the Eccles et al. expectancy-value theory (Eccles, 2005; Eccles et al., 1983), which has proven valuable for guiding investigation of the question as to why people choose a teaching career. The introduction to this Special Issue provides an extended discussion concerning the development, structure and validation of the FIT-Choice framework. In brief, different classes of intrinsic, 'altruistic'/social utility and personal utility values are assessed in relation to the choice of a teaching career. Social utility values include four components: shape future of children/adolescents, enhance social equity, make social contribution and work with children/adolescents; personal utility values include three components: job security, time for family and job transferability. Four additional motivations measured by the FIT-Choice scale include perceived teaching ability, prior teaching and learning experiences, social influences and teaching as a 'fallback' career. As well, perceptions of task demand (expertise, high demand), task return (social status, salary), experiences of social dissuasion, and satisfaction with the choice of teaching as a career

are assessed. In total, 12 motivation factors and six perception factors about the profession are measured. In the Australian setting where the scale was initially developed and validated (Watt & Richardson, 2007), the highest rated motivations were Intrinsic value, Ability, Social utility values, and Prior teaching and learning (T&L); these were followed by Personal utility values and Social influences, and lastly, Fallback career. Task demand factors were rated high, Task return low, Social dissuasion moderately, and overall Satisfaction levels were very high.

Extrinsic, intrinsic and altruistic motivations have been identified as influencing teaching career choice in Turkey in differing combinations, in studies utilising various frameworks and approaches. In some studies, altruistic reasons such as the desire to make a social contribution, enhance social equity, shape the future of children and contribute to the development of the country have been found to be compelling (Eren & Tezel, 2010; Özsoy et al., 2010; Saban, 2003; Şahin, 2010). In other studies, reasons such as enjoying working with children and adolescents (Kılınç & Mahiroğlu, 2009), the subject to be taught (Boz & Boz, 2008; Yamaner & Kartal, 2001) and liking teaching (Aksu et al., 2010) were identified as the most influential. Influential extrinsic motivations have also included job security, a light workload, a steady income, time for family duties and long holidays (Kılınç & Mahiroğlu, 2009; Saban, 2003; Şahin, 2010). The FIT-Choice framework provides a unified and integrated approach by which to compare competing motivations against each other, as well as in comparison to identified teaching motivations in other cultural settings.

In the Turkish context, Eren and Tezel (2010) have previously implemented the FIT-Choice scale to examine motivations and perceptions among a sample of 423 preservice English teachers, revealing some interesting contrasts with the earlier Australian validation sample. For intending English teachers in Turkey, the altruistic-type social utility values were most influential (i.e. Shape future of children/adolescents, Enhance social equity, Make social contribution), followed by Perceived teaching ability, Intrinsic value and Prior T&L. Next were the 'personal utility' values (Job security, Time for family, Job transferability) and Work with children/adolescents. Social influences were moderate, and negative Fallback career motivations were rated very low. As well, Task demand factors were rated highly, along with Social status, but not Salary. Despite this, and moderate experiences of Social dissuasion, the prospective English teachers reported Satisfaction with the choice of a teaching career was high. The scale was also demonstrated to show high construct validity and reliability, according to fit indices yielded by confirmatory factor analyses and measures of internal consistency. Whether we could demonstrate similarly good performance of the FIT-Choice scale among a more diverse teacher education sample encompassing the range of preservice teacher types and specialisms, and whether influential motivations and perceptions would differ for different teaching specialisms among a larger sample, is therefore of interest.

The FIT-Choice framework in Turkey

Our study set out to, first, test and validate the FIT-Choice scale in the Turkish context; and second, to examine the motivations of preservice teachers according to the subjects they were preparing to teach. While there have been several studies investigating why people want to become teachers, there have been fewer comparing the influence of subject specificity and the notion that teaching specialism is particularly central to the formation of teacher identity (Horn, 2005). This may be especially true in the Turkish context, where scientific fields occupy particularly high prestige. Some exceptions have been studies which

examined motivations for choosing to teach information and communication technologies (Hammond, 2002), science (Wang, 2004), English (Ellis, 2003; Manuel & Brindley, 2005), physics (Stewart & Perrin, 1989) and mathematics (Andrews & Hatch, 2002), although those studies involved different methodologies and made no comparisons with other subject specialisms.

Studies using the FIT-Choice scale have begun to be conducted in different country contexts, including those in this Special Issue. We thought Turkey an ideal context in which to examine how the scale would function in a non-Western context, because Turkey has a surplus of teacher education graduates and is a socially and culturally quite different context. We wondered why people would continue to choose teaching as a career when the prospects of employment as a teacher are comparatively low. We also sought to deliberately contrast the motivations and perceptions of preservice science-related candidates with others, in a context where this distinction is highly explicit, and anticipated that teaching may have been more likely to be a fallback career for those candidates given the higher entry scores to scientific university degrees. Recently, in Turkey, Eren and Tezel (2010) independently translated the FIT-Choice scale and surveyed a sample of first-, second-, third- and final-year primary and secondary preservice English language teachers. This was the only prior study we could locate which adopted the FIT-Choice framework in Turkish culture and explicitly tested for construct validity using factor analytic procedures. Although Topkaya and Uztosun (2012) recently used an adapted version of the FIT-Choice scale also with preservice English teachers in Turkey, they did not check whether constructs were valid using these approaches. We sought to more closely replicate the FIT-Choice design with a large sample of only first-year students encompassing the range of teaching specialisms from three teacher education programs in Turkey.

Method

Participants

Participants were undertaking first-year preservice teacher education at three Turkish universities in 2008. The universities of Gazi and Hacettepe are located in Ankara, the capital city of some 4 million people, and Gazi University has the largest number of enrolled students in a faculty of education. Gazi University was selected for the comprehensiveness of the teaching specialisms it offered and because it has educated many teachers to meet Turkey's needs since its establishment in 1926. Because we did not wish to restrict our study to a single university, others from the region were added: Hacettepe University was added to increase the number of participants from secondary teaching departments, and Ahi Evran University to enhance the representativeness of the sample. Ahi Evran University is in Kirsehir, a small city of 100,000 people. Relative to both Hacettepe and Gazi universities, the entry scores for the teaching departments at Ahi Evran University were lower.

We distributed a total of 2040 questionnaires to all first-year preservice teachers in the teaching departments at the sample universities who were present in classes at the time of survey distribution; 1591 were returned representing a 77.9% response rate. Fourteen questionnaires were excluded due to high levels of missing data, therefore 1577 preservice teachers (524 [33.3%] men and 1051 [66.7%] women) constituted the final sample: 1146 (72.7%) from Gazi University, 69 (4.4%) from Hacettepe and 362 (23%) from Ahi Evran. Table 1 shows the breakdown for participants across teaching programs and school levels.

Participants ranged in age from 17.5 to 61.4 years ($M = 19.9$, $SD = 25.8$). Only 14 (0.9%) participants were married; of these, seven had one child and four had two

Table 1. Distribution of participants across teaching programs and school levels.

Teaching Programs	Level	*N*	%
Early childhood	E	55	3.5
Primary school	P1	121	7.7
Social sciences	P2	141	8.9
Turkish language	P2	163	10.2
Science and technology	P2	190	12.0
Biology	S	75	4.8
Physics	S	51	3.2
Chemistry	S	43	2.7
Mathematics	S	59	3.7
History	S	60	3.8
Philosophy and related fields	S	52	3.3
Turkish language and literature	S	54	3.4
Geography	S	32	2.0
Arabic language	S	22	1.1
Teaching children with visual disabilities	SE	50	3.2
Teaching children with cognitive disabilities	SE	37	2.3
French language	P2 + S	33	2.1
German language	P2 + S	36	2.3
English language	P2 + S	122	7.7
Music	P2 + S	12	0.8
Painting	P2 + S	37	2.3
IT	P2 + S	64	4.1
Psychological services	P1 + P2 + S	68	4.3
Total		1577	100

E: Early Childhood, P1: Primary School Part 1 (Grades 1–5), P2: Primary School Part 2 (Grades 6–8), S: Secondary School (Grades 9–12), SE: Special Education.

children. The mean household size was 4.3 people ($SD = 1.7$). Annual household income was selected by participants from nine bands in increments of 15,000 Turkish liras (0–15,000 TL to 120,001+ TL); 982 of 1577 respondents (65.2%) selected 0–15,000 TL, 406 (27%) selected 15,001–30,000 TL, 82 (5.4%) 30,001–45,000 TL, 21 (1.4%) 45,001–60,000 and 14 (1.2%) selected 60,000+ TL (1 US dollar is currently equal to 1.88 TL).

Participants' fathers possessed higher qualifications than their mothers; 8 (0.5%) of fathers were 'uneducated', 529 (26.4%) graduated from primary part 1, 279 (17.8%) primary part 2, 390 (19.5%) from secondary school, 353 (17.6%) from university, 6 (0.4%) had a Master's degree and 4 (0.2%) a PhD. For mothers, 74 (4.7%) were 'uneducated', 916 (58.4%) had graduated from primary part 1, 194 (12.4%) from primary part 2, 268 (17.1%) from secondary school, 115 (7.3%) from university and 2 (0.1%) had a Master's degree.

Regarding parents' professions, the most frequently occurring occupations for fathers were: 370 (23.4%) retired, 275 (17.4%) self-employed (tradesman, mechanic, carpenter, etc.), 216 (13.6%) labourers, 200 (12.6%) government officials, 141 (8.9%) farmers, 94 (5.9%) teachers, 55 (3.4%) drivers, 36 unemployed (2.2%), 34 (2.1%) policemen, 23 (1.4%) technicians, 18 (1.1%) engineers, 16 (1%) imams, 12 (0.7%) principals and 87 (5.5%) pursued a range of other professions. Of the mothers, 1358 (86.1%) were housewives, 61 (3.8%) retired, 45 (2.8%) teachers, 16 (1.0%) nurses, 14 (0.8%) labourers, 6 (0.3%) self-employed, 5 (0.3%) farmers and 72 (4.5%) a range of other occupations.

Materials

The FIT-Choice scale (Watt & Richardson, 2007) was translated into Turkish by the manuscript's bilingual first author, and then back-translated into English by a bilingual third party. Discrepancies were negotiated among the authors, and refined Turkish translations developed and similarly back-translated into English, until all authors were fully satisfied with their equivalence. For some items which appeared to have low relevance for the Turkish context (i.e. Job transferability items B8 and B22 concerning travelling and recognition of one's teaching qualification elsewhere), we sought advice from additional Turkish people, and developed different items to tap those constructs (see replacement items B50 and B32 respectively). Because five items tapped time for family, in the interests of length, only three were administered (i.e. original items B16 and B29 were excluded). The final translated items are presented in the Appendix.

Procedure

Questionnaires were administered in the spring semester of the 2008–2009 academic year. We first wrote letters to the administration offices of sample universities to seek permission. The ethics councils of the universities scrutinised the questionnaires and provided permission. With the help of the administration offices of the universities, we then determined a lecturer contact in each program. Before the administration of the questionnaires, our Turkish author met with these lecturers to inform them about the aims of the study, possible questions to be raised by participants, as well as the administration procedure. Before administering the questionnaires to the participants, the lecturers stressed that participation was voluntary, guaranteed that participants' personal information would be treated confidentially and that all data would be used solely for research purposes. Almost all of the lecturers distributed the questionnaires in their regular classrooms and allowed time for the clarification of participant queries and for volunteers to complete the questionnaires, which took approximately 20 minutes. Lecturers in the teaching programs of music, Arabic language and geography preferred to distribute the questionnaires and collect them one week later; for this reason, response rates were rather lower in those programs.

Analyses

Confirmatory factor analyses (CFAs) were initially performed, because the data were collected using a strongly theorised and previously empirically validated scale. Two maximum likelihood CFAs assessed model fit for 12 motivations factors and 6 perceptions factors respectively. In each CFA, items were assigned to load only on their respective factors, error variances were estimated, no error covariances specified and latent correlations were freely estimated. Because the FIT-Choice scale had been translated into Turkish and used in this different cultural setting from the Australian context in which it was initially validated, close attention was paid to the incremental fit indices, particularly the modification indices. Diagnostic information was examined in order to refine the scale for the Turkish context, and Cronbach's alpha measured internal consistency for the final subscales. Multivariate analyses of variance (MANOVAs) compared motivations and perceptions for science versus non-science teaching programs, also including gender in analyses. Timing of the decision to teach for science versus non-science was compared using the Mann-Whitney U-test, and Spearman correlations explored associations with teaching motivations and perceptions.

Results

Scale validation

Motivation factors

The CFA for the 12 motivations yielded acceptable global fit indices: Normal theory weighted least squares chi-square = 3198.654, *df* = 528, RMSEA = .062, NFI = .963, NNFI/TLI = .962, CFI = .969, SRMR = .088. Table 2 presents factor loadings, measurement errors and Cronbach alpha measures of internal consistency from the CFA; Table 3 shows latent correlations among motivation factors. Although overall the model fit appeared adequate, we identified unacceptably high standardised residuals, as high as 21; 23 of the standardised residuals exceeded 10 in size. In addition, 21 of the modification indices for items to factors were higher than 100, indicating problematic cross-loading items.

As a conservative test of the underlying factor structure (Gorsuch, 1983), exploratory factor analysis was consequently employed, using image extraction and varimax rotation. To begin, the previously theorised and validated 12 factors were specified, which produced four factors on which no items had their highest loading. Based on inspection of the scree plot, and the associated eight eigenvalues which exceeded unity, an eight-factor structure was next specified. This solution produced several cross-loading items, which were sequentially deleted and the analysis rerun, until a satisfactory solution was achieved omitting six items (B14 from Job security, B43 from Ability, B45 from Job transferability, B53 from Shape future of children/adolescents, B31 from Make social contribution and B39 from Prior T&L experiences). This solution produced eight factors: Ability, Job transferability, Work with children/adolescents, Prior teaching and learning experiences, Social influences, a combined Intrinsic value/Fallback career factor, a combined Shape future of children/adolescents/Make social contribution/Enhance social equity factor (all tapping the higher order Social utility values factor) and a combined Job security/Time for family factor (both tapping the higher order Personal utility values factor). To determine whether combined factors could be further separated into their theorised components, subsequent factor analyses explored the three combined factor sets. In each case, component factors could be distinguished. A final CFA which omitted the identified problematic six items improved the global measures of model fit: normal theory weighted least squares chi-square = 1198.237, *df* = 339, RMSEA = .044, NFI = .979, NNFI/TLI = .980, CFI = .979, SRMR = .040. As well, incremental fit indices were substantially improved, with no standardised residuals exceeding 9 in magnitude. Although the Cronbach alpha for Fallback career was rather low, we retained the factor for reasons of comparability with other studies based on the FIT-Choice scale, while acknowledging this limitation. Further, a nested higher order CFA which located the four social utility value component factors within the theorised higher order factor, and the original two personal utility value factors (Time for family, Job security) within another, exhibited acceptable fit in line with the FIT-Choice framework, normal theory weighted least squares chi-square = 613.402, *df* = 84, RMSEA = .066, NFI = .976, NNFI/TLI = .974, CFI = .979, SRMR = .062.

Perception factors

The CFA for the six perception factors yielded acceptable global fit indices: normal theory weighted least squares chi-square = 639.435, *df* = 155, RMSEA = .046, NFI = .969, NNFI/TLI = .971, CFI = .977, SRMR = .037. An eight-factor image extraction and varimax rotation exploratory factor analysis also reproduced all perceptions factors as

Table 2. Motivations for teaching: factor loadings (LX) and measurement errors (TD) (completely standardised solution for full item set) and Cronbach alpha reliabilities.

	Subscale α	Item	LX	TD
Ability	.82	B5	.71	.49
		B19	.66	.56
		B43[a]	.90	.19
Intrinsic career value	.87	B1	.83	.32
		B7	.80	.37
		B12	.88	.23
Fallback career	.57	B11	.42	.82
		B35	.52	.73
		B48	.83	.32
Job security	.78	B14[a]	.60	.64
		B27	.78	.39
		B38	.86	.26
Time for family	.80	B2	.65	.58
		B4	.82	.33
		B18	.79	.37
Job transferability	.63	B32new	.79	.38
		B45[a]	.31	.91
		B50new	.83	.31
Shape future of children/adolescents	.82	B9	.78	.40
		B23	.78	.40
		B53[a]	.78	.39
Enhance social equity	.78	B36	.81	.34
		B49	.79	.38
		B54	.67	.56
Make social contribution	.78	B6	.73	.47
		B20	.76	.43
		B31[a]	.75	.44
Work with children/adolescents	.93	B13	.90	.20
		B26	.91	.18
		B37	.90	.19
Prior T&L experiences	.73	B17	.91	.17
		B30	.93	.14
		B39[a]	.30	.91
Social influences	.77	B3	.72	.49
		B24	.62	.62
		B40	.92	.15

[a]Cross-loading items deleted in subsequent analyses.

theorised. Factor loadings and measurement errors from the CFA together with Cronbach alpha measures of internal consistency are shown in Table 4, and latent correlations among perceptions factors in Table 5. The only problematic issue was the low $\alpha = .59$ for Social dissuasion, improved to $\alpha = .61$ by deleting item D4, a decision further supported by its very high measurement error.

What motivates teaching career choice in Turkey?

Highest rated motivations for teaching in our Turkish sample were Social utility values (Make social contribution, Shape future of children/adolescents, Enhance social equity), followed by Job security, Work with children/adolescents, and Prior teaching and learning experiences. Intrinsic career value and Ability, the highest rated motivations in the initial

Table 3. Correlations among latent motivation factors.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Ability	–											
2. Intrinsic career value	**.75**	–										
3. Job security	**.42**	**.41**	–									
4. Time for family	**.13**	−.01	**.64**	–								
5. Job transferability	**.13**	.01	**.21**	**.11**	–							
6. Enhance social equity	**.63**	**.61**	**.49**	**.11**	**.27**	–						
7. Shape future of children/adolescents	**.63**	**.67**	**.45**	**.07**	**.17**	**.92**	–					
8. Make social contribution	**.66**	**.68**	**.49**	**.07**	**.21**	**.87**	**.94**	–				
9. Work with children/adolescents	**.63**	**.77**	**.46**	**.08**	**.12**	**.68**	**.70**	**.68**	–			
10. Prior teaching and learning experiences	**.33**	**.36**	**.23**	.04	**.19**	**.37**	**.36**	**.43**	**.36**	–		
11. Social influences	**.53**	**.35**	**.43**	**.26**	**.18**	**.35**	**.36**	**.39**	**.36**	**.25**	–	
12. Fallback career	**−.46**	**−.73**	**−.08**	**.22**	**.16**	**−.27**	**−.36**	**−.37**	**−.48**	**−.22**	**−.07**	–

Note. Bolded numbers denote $p < .05$.

Table 4. Perceptions about teaching: factor loadings (LX) and measurement errors (TD) (completely standardised solution for full item set) and Cronbach alpha reliabilities.

	Subscale α	Item	LX	TD
High demand	.74	C2	.61	.63
		C7	.68	.54
		C11	.85	.27
Expert career	.74	C10	.80	.37
		C14	.78	.39
		C15	.52	.73
Social status	.85	C4	.68	.54
		C5	.61	.63
		C8	.77	.41
		C9	.72	.48
		C12	.72	.49
		C13	.71	.50
Salary	.73	C1	.76	.42
		C3	.75	.43
Social dissuasion	.59	D2	.54	.71
		D4[a]	.38	.86
		D6	.80	.36
Satisfaction with choice	.89	D1	.76	.43
		D3	.94	.12
		D5	.90	.20

[a]Item deleted in subsequent analyses to enhance subscale reliability.

Australian validation study, came next. Time for family was the remaining motivation rated above the scale midpoint; Job transferability and Social influences were next, and Fallback career last (see Table 6).

To compare teaching motivations for science-related subject specialisms in contrast to other preservice teachers, we classified teaching programs into two groups. The science group ($n = 481$ [292 women, 189 men]) included teaching departments of science and technology, biology, physics, chemistry, mathematics and information technology (IT). The remaining teaching departments (history, geography, painting, etc.) were included in

Table 5. Correlations among latent perceptions about teaching factors.

	1.	2.	3.	4.	5.	6.
1. High demand	–					
2. Expert career	**.64**	–				
3. Social status	**.25**	**.42**	–			
4. Salary	**.09**	**.17**	**.60**	–		
5. Social dissuasion	−.02	−.04	**−.13**	**−.13**	–	
6. Satisfaction with choice	**.25**	**.39**	**.47**	**.34**	**−.25**	–

Note. Numbers in bold denote $p < .05$.

Table 6. Descriptive statistics and final Cronbach alpha reliabilities for Turkish FIT-Choice factors (listed from highest to lowest rated).

	M	*SD*	α[a]
Motivations			
Make social contribution	6.16	1.10	.75
Shape future of children/adolescents	6.06	1.17	.76
Enhance social equity	5.57	1.23	.78
Job security	5.32	1.53	.81
Work with children/adolescents	5.31	1.56	.93
Prior teaching and learning experiences	5.27	1.79	.91
Intrinsic career value	5.08	1.59	.87
Ability	4.98	1.32	.78
Time for family	4.56	1.67	.80
Job transferability	3.91	1.91	.79
Social influences	3.85	1.69	.77
Fallback career	3.07	1.57	.57
Perceptions			
High demand	5.31	1.31	.74
Expert career	5.24	1.22	.74
Satisfaction with choice	5.16	1.52	.89
Social status	4.18	1.27	.85
Social dissuasion	3.99	1.70	.61
Salary	3.24	1.44	.73

[a]Final subscale alphas following deletion of the six items.

the non-science group ($n = 1094$ [759 women, 335 men]). Two 2 X 2 between-subjects MANOVAs were performed for each of the 12 motivation factors and six perception factors. Independent variables were teaching program (science and non-science), gender (male and female), and the interaction between gender and teaching program.

For the motivations MANOVA, there were multivariate effects of teaching program (Pillai's Trace = .08, F (12, 1358) = 9.80, $p < .001$, partial $\eta^2 = .08$), gender (Pillai's Trace = .03, F (12, 1358) = 3.32, $p < .001$, partial $\eta^2 = .03$), a multivariate interaction (Pillai's Trace = .02, F (12, 1358) = 2.46, $p = .004$, partial $\eta^2 = .02$) and many univariate effects as displayed in Table 7. Teaching program had significant effects on all dependent variables except the motivation for Job transferability ($p = .33$), and an apparent difference on Time for family did not remain significant following Bonferroni correction ($p = .04$, which exceeded the critical value .004). Science-related preservice teachers rated Fallback career more highly than those in non-science specialisms; in every other instance, the science group reported significantly lower motivations. In terms of gender differences,

Table 7. Comparative descriptive and inferential statistics for motivations and perceptions by program and gender.

Motivations	Perceived ability	Intrinsic value	Job security	Job transfer	Time for family	Shape future	Social contribution	Social equity	Work with children/ adolescents	Prior teaching and learning	Social influence	Fallback career
Teacher program												
Non-science	5.09 (1.28)	5.37 (1.47)	5.51 (1.48)	3.89 (1.94)	4.67 (1.65)	6.18 (1.08)	6.27 (1.04)	5.69 (1.22)	5.56 (1.47)	5.37 (1.78)	3.96 (1.74)	2.83 (1.55)
Science	4.75 (1.35)	4.40 (1.63)	4.98 (1.55)	4.00 (1.86)	4.44 (1.65)	5.81 (1.26)	5.96 (1.15)	5.35 (1.23)	4.77 (1.60)	5.11 (1.79)	3.60 (1.57)	3.63 (1.54)
F (1, 1369)	12.78	87.84	27.11	0.95	4.39	26.05	1.72	20.44	62.36	9.16	11.88	53.30
partial $\eta 2$	0.01	0.06	0.02	0.00	0.00	0.02	0.01	0.02	0.04	0.01	0.01	0.04
p-value	0.00	0.00	0.00	0.33	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gender												
Male	4.85 (1.40)	4.75 (1.55)	5.23 (1.55)	3.82 (1.83)	4.44 (1.64)	5.92 (1.29)	6.07 (1.17)	5.38 (1.32)	5.10 (1.56)	5.29 (1.81)	3.69 (1.61)	3.37 (1.60)
Female	5.05 (1.27)	5.23 (1.58)	5.40 (1.50)	3.97 (1.95)	4.67 (1.65)	6.14 (1.08)	6.22 (1.04)	5.69 (1.23)	5.42 (1.54)	5.29 (1.78)	3.93 (1.73)	2.94 (1.57)
F (1, 1369)	2.42	12.72	0.98	2.02	4.67	6.66	2.16	16.31	5.73	0.32	4.63	8.94
partial $\eta 2$	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01
p-value	0.12	0.00	0.32	0.16	0.03	0.01	0.14	0.00	0.02	0.58	0.03	0.00

Table 7. (Continued).

Perceptions	Expertise	Difficulty	Social status	Salary	Social dissuasion	Satisfaction with choice
Teacher program						
Non-science	5.29 (1.21)	5.39 (1.31)	4.26 (1.27)	3.32 (1.46)	3.83 (1.75)	5.41 (1.43)
Science	5.16 (1.24)	5.11 (1.32)	4.01 (1.23)	3.08 (1.35)	4.35 (1.54)	4.56 (1.58)
F (1, 1470)	1.10	7.82	11.42	7.09	20.73	74.07
partial $\eta 2$	0.00	0.01	0.01	0.01	0.01	0.05
p-value	0.30	0.01	0.00	0.01	0.00	0.00
Gender						
Male	5.01 (1.25)	4.89 (1.39)	4.27 (1.25)	3.34 (1.47)	4.30 (1.65)	4.80 (1.56)
Female	5.36 (1.20)	5.51 (1.23)	4.14 (1.27)	3.20 (1.41)	3.83 (1.71)	5.33 (1.49)
F (1, 1470)	18.84	58.37	5.03	5.45	15.57	19.95
partial $\eta 2$	0.01	0.04	0.00	0.00	0.01	0.01
p-value	0.00	0.00	0.03	0.02	0.00	0.00

men rated Fallback career more highly, whereas women had significantly higher motivations for Intrinsic value and Enhance social equity ($p < .004$); there were no significant univariate interactions of gender with teaching program.

For perceptions (see Table 7), there were multivariate effects of teaching program (Pillai's Trace = .06, F (6, 1465) = 15.25, $p < .001$, partial $\eta^2 = .06$) and gender (Pillai's Trace = .08, F (6, 1465) = 19.82, $p < .001$, partial $\eta^2 = .08$), but no significant multivariate interaction (Pillai's Trace = .01, F (6, 1465) = 1.81, $p = .09$, partial $\eta^2 = .01$). Following Bonferroni correction, teaching program had significant effects on all dependent variables except Expert career ($p = .30$). Science-related preservice teachers reported significantly lower perceptions of teaching as High demand, Social status, Salary, and were also lower on Satisfaction with choice of teaching as a career. In contrast, they reported significantly higher experiences of Social dissuasion.

Gender effects remained significant ($p < .008$) for all perceptions except Social status and Salary, which women and men regarded similarly. Women perceived teaching as significantly higher in demand and expertise, and had experienced less social dissuasion. They were more satisfied with their choice of a teaching career compared with men, although this difference was complicated by a significant interaction effect of gender and program, F (1, 1470) = 8.87, $p = .003$, partial $\eta^2 = .01$. Women and men undertaking science-related teacher education had similar (and lower) levels of satisfaction with the choice of teaching as a career, F (1, 471) = .51, $p = .48$, $M = 4.61$ and $SD = 1.58$ for women, $M = 4.51$ and $SD = 1.54$ for men. In contrast, among non-science fields of teacher education, women reported significantly higher satisfaction than men, F (1, 1081) = 44.00, $p < .001$, $M = 5.60$ and $SD = 1.35$ for women, $M = 4.99$ and $SD = 1.52$ for men.

Timing of the decision to teach

Most participants had decided to teach while they were in high school (40.73%), followed by 30.69% who had decided to teach more recently following their EAU score, and 28.57% earlier during their primary schooling. There was a significant difference in the timing of the decision to teach for preservice teachers in science versus non-science fields indicated by the Mann Whitney U-test ($p < .001$). Most of those specialising in science-related fields had decided to teach only after their EAU score (48.10%, compared with only 23.06% in non-science specialisms), 34.60% during high school (compared with 43.43% of those in non-science), and only 17.30% during primary school (compared with 33.52% in non-science).

Timing of the decision to teach correlated significantly with all motivations and perceptions (Spearman correlations, $p < .001$ except $p = .04$ with Job transferability). Deciding to teach a longer time ago appeared to be more adaptive, relating positively to the motivations of Intrinsic career value ($\rho = .61$), Work with children/adolescents ($\rho = .38$), Shape future of children/adolescents ($\rho = .27$), Make social contribution ($\rho = .27$), Enhance social equity ($\rho = .24$), Prior T&L ($\rho = .20$), Ability ($\rho = .19$), Social influences ($\rho = .15$) and Job security ($\rho = .10$); but, weakly and negatively to the Personal utility motivations of Time for family ($\rho = -.09$) and Job transferability ($\rho = -.05$), and negatively to Fallback career ($\rho = -.50$). It also related positively to perceptions of teaching as High demand ($\rho = .17$), Expert career ($\rho = .15$), Social status ($\rho = .20$), Salary ($\rho = .12$) and Satisfaction with choice ($\rho = .55$); and, negatively with experiences of Social dissuasion ($\rho = -.24$).

Discussion

Our twofold overarching aims in this study were first, to examine the performance of the Turkish FIT-Choice scale among a large sample of beginning preservice teachers encompassing the diversity of teaching specialisms; and second, to interpret influential motivations and perceptions in the Turkish context, particularly for candidates undertaking science-related specialisms in comparison to other teacher candidates.

The Turkish FIT-Choice scale

As in the previous Turkish study (Eren & Tezel, 2010), the Turkish FIT-Choice scale demonstrated acceptable construct validity in our broader sample; this was further enhanced by the deletion of six items. Subscale reliabilities were also acceptable, with the borderline exception of the two negative factors: fallback career and social dissuasion. Intriguingly, the earlier Turkish study (Eren & Tezel, 2010) using an independent translation achieved highly acceptable reliability coefficients for all subscales, suggesting that different translations or samples could be the explanation. Our findings concerning these factors, especially fallback career, should be therefore interpreted with some caution.

Teaching motivations in Turkey

In contrast to the Australian context where the FIT-Choice scale was developed (Richardson & Watt, 2006; Watt & Richardson, 2007), perceived teaching ability and intrinsic value motivations were not among the most influential in our study in the Turkish context. The expectancy-value theory on which the FIT-Choice scale is founded emphasises the centrality of these two factors to individuals' choice making; it was developed in the North American context, arguably rather similar to Australia and unlike Turkey. In contexts such as North America and Australia it may be more possible to prioritise one's career choices as optimally fitting one's skills and interests, in contrast to economically developing countries where issues such as equity and security are less able to be taken for granted and may need to be deliberately pursued.

In our Turkish sample, we found that altruistic 'social utility values' were paramount to the choice of a teaching career, closely followed by the motivation for a secure job. Social utility values may stem from the more collectivist culture of Turkish society, which gives greater importance to group goals rather than individual aims and interests (Özbilgin, Küskü, & Erdoğmuş, 2005). In addition, job security is a compelling motivator emphasised by many participants, especially those from lower socioeconomic status backgrounds. It is likely that parents who are not able to provide a high standard of living for their families would encourage their children to choose careers such as teaching that provide a high level of job security.

Similar to the Australian validation study, prior positive teaching and learning experiences were highly influential, also suggesting the importance of good teacher role models; other personal utility motivations (time for family and job transferability) were rated moderately, followed by social influences of others encouraging the decision to become a teacher. Although rated last in both settings, fallback career was still more influential in the Turkish context compared with the Australian study, by almost a full point on the 7-point scales. This finding is consistent with the high school graduation system and EAU scores determining university placement, which, as discussed earlier, have been found to deter high school graduates from seriously considering their career choice until they receive their final scores.

Science teaching motivations

Turkey has ambitious plans for technological advancement that include the development of two new nuclear plants, as well as the capacity to produce its own aeroplanes, cars and ships. It is aiming at a trajectory of economic development that will by 2023 (the 100th anniversary of modern Turkey) see it join the 10 most developed countries around the world. To secure these results, the current Turkish government provides specific support for research and development studies in science-based disciplines, resulting in professions in different sectors such as IT, engineering and health attracting higher popularity than non-science professions. Students who follow science programs during their secondary school education mostly prefer these prestigious science-based jobs, while science teaching is regarded as a last resort.

Looking at the results of the present study, there were statistically significant differences between teaching science and non-science programs in all of the motivations and beliefs about teaching, except for job transferability, time for family and expert career. Participants who chose teaching and were enrolled in the non-science departments had higher scores in all of the motivations and beliefs about teaching, except for the negative factors of fallback career and social dissuasion, on which science-related preservice teachers scored more highly. Participants in the teaching science group were also less satisfied with their choice, and more of this group had only chosen teaching following their EAU score, supporting our hypothesis that teaching was likely a fallback option for those who did not achieve sufficient scores to gain entry to the more prestigious scientific university degrees leading to professions that provide higher material gains and social status.

The participants in our teaching science group were less intrinsically motivated, and reported that significant others in their environment had tried to dissuade them from teaching due to other 'better' job possibilities. In a complementary manner, participants in the teaching science group were less motivated by job security than their counterparts in the non-science group. On the one hand, Turkey desires to foster growing economic development based in the sciences and new technologies; on the other hand, science teachers appear less invested in teaching science to the next generations. With negative consequences for persistence and planned engagement of teachers who are less satisfied with their career choice of teaching (Watt & Richardson, 2007), we can say that Turkey needs to make teaching science far more attractive if the main idea is to equip and inspire the future workforce in science-based sectors.

Gender differences

Gender roles in Turkish society are likely to explain the differences between men's and women's teaching motivations. A well-known phrase 'Teaching is a female job' is common in Turkish society. The socialisation of females as carers, nurturers and mothers may explain why they especially chose social equity dimensions (Kılınç & Aydın, in press). They may seek to fight against social disadvantage perhaps because they are aware of the inequalities some females continue to encounter in the Turkish context (Tatlı, Özbilgin, & Küskü, 2008). Even though there are many legal articles that strongly guarantee equal rights for women in Turkey's secular democracy, some women encounter obstacles in a practical sense. For instance, in 2005 one in three high school-aged girls did not attend school compared to only about one in ten boys in Turkey (World Bank, 2005). In our study, women were more satisfied with their choice of a teaching career than men, less likely to choose it as a fallback career, and reported less experience of social dissuasion, perhaps

because they were more intrinsically motivated and might consider that they are enacting a role which society expects and values. They also regarded teaching as a more expert career and higher in task demand, perhaps because they observed their teachers with a different lens and appreciated how hard it was to teach and manage the class.

Conclusion and outlook

The FIT-Choice scale functioned sufficiently well in our diverse Turkish preservice teacher sample, although further fine-tuning particularly of the fallback career construct is warranted. Use of a standard scale across different sociocultural settings allows the opportunity to discover how different salient cultural dimensions may impact motivations and perceptions, and opens the possibility for cross-cultural comparisons. Social utility values and the desire for job security were the primary motivational drivers for choosing teaching as a career in our study, interpretable within the Turkish cultural context. Science-related teacher education candidates were less positively motivated than other teacher candidates, and more had chosen to teach following their EAU scores, with the implication that they would really have preferred a scientific career given the opportunity to choose it.

Because different cultures display unique structures, policy refinements will need to be context specific. Thus, a policy developed using empirical findings from the Turkish context will be more successful than programs or policies transferred from other countries and settings. Turkey is rapidly developing economically; there is a huge young population and scholars agree that Turkish qualified graduates may be able to find jobs in work sectors of Europe and neighbouring countries. Therefore, the teachers who will educate this workforce are of high importance. However, due to financial problems Turkey cannot invest enough money to enhance the quality of teacher education and employ all the teacher graduates in the profession. The present study displays the possible consequences of this dilemma and thus has the potential to inform better policies regarding teacher training in Turkey and similar contexts.

The motivations to choose teaching as a career are multidimensional and complex with recruitment into teacher education and then the teaching profession being highly sensitive to sociocultural, economic and policy factors. Turkey, unlike member countries of the OECD, is not experiencing acute shortages of science and mathematics teachers but it is facing other serious challenges. With a very young population profile, and government policies designed to fuel Turkey's economic development, it is likely that there will be a need to improve the quality of the teaching workforce charged with the job of introducing the sciences to children and adolescents. Promises of a technological revolution and rapid economic development will seem hollow if children and adolescents are dissuaded from scientific/mathematical career fields by teachers who chose teaching as a fallback career when they were not able to get into their preferred degree program. Filling the available teaching positions each year is only one part of the equation, maintaining an effective, committed, enthusiastic and interested workforce of STEM (science, technology, engineering and mathematics) teachers is equally challenging. While we might wait to see how these beginning teachers' initial motivations play out over time after they enter the profession, it would seem important that Turkey take account of the types of motivational profiles being attracted into teacher education and then into teaching positions. Teacher enthusiasm and interest in the sciences may be critical if Turkey is to effectively educate a new generation of scientifically literate and competitive young people.

Limitations and future perspectives

As with all scientific research, the present study has limitations. In the original questionnaire developed for an Australian context where teachers are known to geographically relocate within Australia and overseas, the FIT-Choice scale had included the construct called job transferability, concerning whether beginning teachers were motivated partly by opportunities to travel and work, especially overseas. These items were altered for the Turkish context where there are fewer opportunities to work as a teacher outside Turkey and the appointment of teachers is highly centralised and controlled by government. Contrasts concerning this construct are therefore not directly comparable using the Turkish version of the scale.

Second, although we selected faculties of education from three universities in middle Anatolia, and were able to recruit a large sample of participants ($N = 1577$), these universities do not necessarily represent preservice teachers across Turkey and further work is needed to include more diverse settings and samples. In addition, lower than expected return rates from some specialist departments occurred as a result of administrative challenges in locating participants in the different universities, meaning that greater caution is required in inferring conclusions for participants from those specialisms.

Despite these limitations, the present study makes a significant contribution to the teacher motivation literature and provides new insights for future research. Longitudinal studies that begin by determining career motivations and perceptions of teaching and investigate the relationships between teacher engagement and efficacy with future student achievement are necessary and compelling. In addition, cross-cultural studies in which the same scale is used to investigate teacher motivations and perceptions provide a foundation upon which to develop informed recruitment and retention policies across different countries.

Finally, many countries, both developed and developing, experience a shared challenge in attracting school students to STEM career fields, including teaching physics, chemistry and mathematics. Governments can find themselves on the horns of a dilemma when they invest in research and development for science-based areas to increase economic development. Such policies can fuel interest among secondary school students for science-based occupations and the promise of material gains, yet, as we found in the present study, a consequence can be that science teaching becomes a fallback option for those who do not succeed in securing a more lucrative and prestigious science-based position. Turkey's promised technological and economic development depends on increasing the quality of STEM graduates from high schools and having highly motivated and skilled teachers to teach them. This remains a dilemma for Turkey as it continues to foster interest in STEM fields at the same time as seeking to secure high-quality STEM teaching in secondary schools.

Note

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Appendix 1. The Turkish FIT-Choice scale.

Factor	Original version Item Stem: 'I chose to become a teacher because. . .'	Back-translated English version (used) Item Stem: 'I chose to become a teacher because. . .'	Turkish version (used) Item Stem: 'Öğretmen olmayı seçtim, çünkü. . .'
Ability	B5 I have the qualities of a good teacher	B5 I have the characteristics a good teacher has	B5 İyi bir öğretmenin sahip olduğu niteliklere sahibim.
	B19 I have good teaching skills	B19 I have powerful teaching abilities	B19 Güçlü öğretme yetilerine sahibim.
	B43[a] Teaching is a career suited to my abilities	B43 Teaching is a profession suited to my abilities	B43 Öğretmenlik, yeteneklerime uygun bir meslektir.
Intrinsic career value	B1 I am interested in teaching	B1 I am interested in teaching	B1 Öğretmenlikle ilgileniyorum.
	B7 I've always wanted to be a teacher	B7 I have always wanted to be a teacher	B7 Her zaman öğretmen olmayı istedim.
	B12 I like teaching	B12 I like teaching	B12 Öğretmenliği seviyorum
Fallback career	B11 I was unsure of what career I wanted	B11 I was not quite sure about the profession I wanted to have	B11 Hangi kariyeri istediğimden emin değildim.
	B35 I was not accepted into my first-choice career.	B35 I could not enrol in the department that I desired most	B35 En çok istediğim bölümü kazanamadım.
	B48 I chose teaching as a last-resort career	B48 I chose to be a teacher as a last resort	B48 Öğretmenliği son çare olarak seçtim.
Job security	B14[a] Teaching will offer a steady career path	B14 Teaching shall provide me a steady career path	B14 Öğretmenlik sürekliliği olan bir kariyer sağlayacaktır.
	B27 Teaching will provide a reliable income	B27 Teaching shall enable me to have a reliable salary	B27 Öğretmenlik maaşımın sürekli ve düzenli olmasını sağlayacak.
	B38 Teaching will be a secure job	B38 Teaching shall provide me a sustainable profession	B38 Öğretmenlik sürekliliği olan bir işe sahip olmamı sağlayacak.
Time for family	B2 Part-time teaching could allow more family time	B2 I can have much more time for my family by working part-time	B2 Yarım gün çalışmak aileme daha fazla zaman ayırmamı sağlayacaktır.
	B4 As a teacher I will have lengthy holidays	B4 As a teacher, I shall have longer holidays	B4 Bir öğretmen olarak uzun tatillerim olacak.
	B18 As a teacher I will have a short working day	B18 As a teacher, I shall have less working hours in a day	B18 Bir öğretmen olarak gün içindeki çalışma sürem kısa olacak.

(*Continued*)

Appendix 1. (Continued).

Factor	Original version Item Stem: 'I chose to become a teacher because. . .'	Back-translated English version (used) Item Stem: 'I chose to become a teacher because. . .'	Turkish version (used) Item Stem: 'Öğretmen olmayı seçtim, çünkü. . .'
Job transferability	B8[b] Teaching will be a useful job for me to have when travelling	[b] B32 Teachers may have the opportunity to work internationally	[b] B32 Bir öğretmen olarak farklı ülkelerde çalışabilirim.
	B22 A teaching qualification is recognised everywhere	B50 A teaching certification may enable me to work in European countries	B50 Öğretmenlik diploması Avrupa ülkelerinde öğretmen olarak çalışmamı sağlayabilir.
	B45[a] A teaching job will allow me to choose where I wish to live	B45 A teaching job may allow me to choose where I wish to live	B45 Öğretmenlik, yaşamayı istediğim yeri seçmemi sağlayabilir.
Shape future of children/ adolescents	B9 Teaching will allow me to shape child /adolescent values	B9 Teaching shall enable me to shape children and youth	B9 Öğretmenlik bana çocuk ve gençleri şekillendirme fırsatı verecektir.
	B23 Teaching will allow me to influence the next generation	B23 Teaching will enable me to influence the next generation	B23 Öğretmenlik gelecek nesli etkilememi sağlayacak.
	B53[a] Teaching will allow me to have an impact on children/adolescents	B53 Teaching shall make me have an effect on children and youth	B53 Öğretmenlik çocuk ve gençler üzerinde bir etkimin olmasını sağlayacak.
Enhance social equity	B36 Teaching will allow me to raise the ambitions of under-privileged youth	B36 Teaching shall enable me to increase the will to succeed of students who do not have opportunities	B36 Öğretmenlik, imkanı olmayan öğrencilerin başarma azimlerini arttırmama olanak sağlayacak.
	B49 Teaching will allow me to benefit the socially disadvantaged	B49 Teaching shall offer me the opportunity for helping children or youth who stand in need of social assistance	B49 Öğretmenlik sosyal yönden yardıma ihtiyacı olan çocuklara veya gençlere yardım etme fırsatı sağlayacak.
	B54 Teaching will allow me to work against social disadvantage	B54 Teaching shall enable me to fight against social disadvantage	B54 Öğretmenlik sosyal yönden dezavantajlılığa karşı mücadele etmemi sağlayacak.
Make social contribution	B6 Teaching allows me to provide a service to society	B6 Teaching shall enable me to serve the society	B6 Öğretmenlik topluma hizmet etmemi sağlayacaktır.
	B20 Teachers make a worthwhile social contribution	B20 Teachers make esteemed contributions to society	B20 Öğretmenler topluma değerli katkılarda bulunur.

(*Continued*)

Appendix 1. (Continued).

Factor	Original version Item Stem: 'I chose to become a teacher because. . .'	Back-translated English version (used) Item Stem: 'I chose to become a teacher because. . .'	Turkish version (used) Item Stem: 'Öğretmen olmayı seçtim, çünkü. . .'
	B31[a] Teaching enables me to 'give back' to society	B31 Teaching shall offer me the opportunity of giving things I took from society back	B31 Öğretmenlik toplumdan aldıklarımı geri verme imkanı yaratacak.
Work with children/adolescents	B13 I want a job that involves working with children/adolescents	B13 I would like to have a profession that involves working with children or youth	B13 Çocuk veya gençlerle çalışmayı içeren bir iş istiyorum.
	B26 I want to work in a child/adolescent-centred environment	B26 I would like to work in an environment where there are children or youth	B26 Çocuk veya gençlerin bulunduğu bir ortamda çalışmak istiyorum.
	B37 I like working with children/adolescents	B37 I like working with children and youth	B37 Çocuk ve gençlerle çalışmayı seviyorum.
Prior teaching and learning experiences	B17 I have had inspirational teachers	B17 I had inspiring teachers	B17 İlham verici öğretmenlerim vardı.
	B30 I have had good teachers as role-models	B30 I had good teachers whom I took as a model	B30 Model olarak aldığım iyi öğretmenlerim vardı.
	B39[a] I have had positive learning experiences	B39 I have wholesome experience in learning	B39 Öğrenme konusunda iyi deneyimlere sahibim.
Social influences	B3 My friends think I should become a teacher	B3 My friends think that I should be a teacher	B3 Arkadaşlarım öğretmen olmam gerektiğini düşünüyor.
	B24 My family think I should become a teacher	B24 My family thinks that I should be a teacher	B24 Ailem öğretmen olmam gerektiğini düşünüyor.
	B40 People I've worked with think I should become a teacher	B40 Ones I have worked with think that I should be a teacher	B40 Birlikte çalıştığım insanlar öğretmen olmamın gerekli olduğunu düşünüyor.
Expert career	C10 Do you think teaching requires high levels of expert knowledge?	C10 Do you think that teaching is a profession which requires high level of expert knowledge?	C10 Öğretmenliğin yüksek oranda uzmanlık bilgisi gerektirdiğine inanıyor musunuz?
	C14 Do you think teachers need high levels of technical knowledge?	C14 Do you think that teachers need highly technical knowledge?	C14 Öğretmenliğin yüksek oranda teknik bilgi gerektirdiğine inanıyor musunuz?

(*Continued*)

Appendix 1. (Continued).

Factor	Original version Item Stem: 'I chose to become a teacher because. . .'	Back-translated English version (used) Item Stem: 'I chose to become a teacher because. . .'	Turkish version (used) Item Stem: 'Öğretmen olmayı seçtim, çünkü. . .'
	C15 Do you think that teachers need highly specialised knowledge?	C15 Do you think that teachers need highly specialised knowledge?	C15 Öğretmenlerin özelleşme gerektiren bilgilere ihtiyacı olduğunu düşünüyor musunuz?
High demand	C2 Do you think teachers have a heavy workload?	C2 Do you think that teachers have a heavy work load?	C2 Öğretmenlerin ağır bir iş yükünün olduğunu düşünüyor musunuz?
	C7 Do you think teaching is emotionally demanding?	C7 Do you think that teaching is difficult emotionally?	C7 Öğretmenliğin duygusal açıdan zor bir meslek olduğunu düşünüyor musunuz?
	C11 Do you think teaching is hard work?	C11 Do you think that teaching is a hard profession?	C11 Öğretmenliğin zor bir iş olduğunu düşünüyor musunuz?
Social status	C4 Do you believe teachers are perceived as professionals?	C4 Do you think that teachers are regarded as specialists?	C4 Öğretmenlerin birer uzman olarak algılandıklarını düşünüyor musunuz?
	C8 Do you believe teaching is perceived as a high-status occupation?	C8 Do you think that teaching is regarded as a profession of a high status?	C8 Öğretmenliğin yüksek statülü bir meslek olarak algılandığını düşünüyor musunuz?
	C12 Do you believe teaching is a well-respected career?	C12 Do you think that teaching is a widely esteemed profession?	C12 Öğretmenliğin çok fazla saygı duyulan bir meslek olduğunu düşünüyor musunuz?
	C5 Do you think teachers have high morale?	C5 Do you think that teachers have high work satisfaction?	C5 Öğretmenlerin yüksek oranda bir iş memnuniyetine sahip olduklarını düşünüyor musunuz?
	C9 Do you think teachers feel valued by society?	C9 Do you think teachers believe that society esteems them?	C9 Öğretmenlerin, toplumun onlara değer verdiğine inandıklarını düşünüyor musunuz?
	C13 Do you think teachers feel their occupation has high social status?	C13 Do you think that teachers believe their profession to have a high social status?	C13 Öğretmenlerin kendi mesleklerinin yüksek bir sosyal statüde olduğuna inandıklarını düşünüyor musunuz?

(*Continued*)

Appendix 1. (Continued).

Factor	Original version Item Stem: 'I chose to become a teacher because. . .'	Back-translated English version (used) Item Stem: 'I chose to become a teacher because. . .'	Turkish version (used) Item Stem: 'Öğretmen olmayı seçtim, çünkü. . .'
Salary	C1 Do you think teaching is well paid?	C1 Do you think that teachers make a good wage?	C1 Öğretmenliğin iyi kazandırdığını düşünüyor musunuz?
	C3 Do you think teachers earn a good salary?	C3 Do you think that teachers earn a good salary?	C3 Öğretmenlerin iyi bir maaş aldığını düşünüyor musunuz?
Social dissuasion	D2 Were you encouraged to pursue careers other than teaching?	D2 Did people advise you to choose another profession except for teaching?	D2 Öğretmenlik dışında başka bir mesleği seçmen önerildi mi?
	D4[a] Did others tell you teaching was not a good career choice?	D4 Did others tell that teaching was not a good career choice?	D4 Etrafındakiler öğretmenliğin iyi bir kariyer seçimi olmadığını söylediler mi?
	D6 Did others influence you to consider careers other than teaching?	D6 Did others affect you on choosing other professions except for teaching?	D6 Diğerleri öğretmenlik dışında başka meslekleri seçmen konusunda seni etkiledi mi?
Satisfaction with choice	D1 How carefully have you thought about becoming a teacher?	D1 How carefully did you think about being a teacher?	D1 Öğretmen olma konusunda ne kadar dikkatli düşündün?
	D3 How satisfied are you with your choice of becoming a teacher?	D3 How much are you satisfied with choosing teaching?	D3 Öğretmenliği seçmen seni ne kadar tatmin etti?
	D5 How happy are you with your decision to become a teacher?	D5 How much are you happy with your decision of being a teacher?	D5 Öğretmen olma kararından ne kadar mutlusun?

[a] Omitted from final analyses due to cross-loading items and to enhance subscale reliabilities.
[b] Modified items for the Turkish context: B32: Because the MNE determines to which city the teacher would be appointed, beginning teachers do not have the choice regarding where to teach. B50: A certificate from a Turkish university would not be valid in many other countries although the Bologna policy makes it likely they could teach in other EU countries.