



Cognitive and Affective Features of Vocational High School Students

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Abstract

Present research aims to shed light on cognitive and affective features of vocational high school ninth graders by following a phenomenological approach. At the end of a data analysis, the following themes emerged: (a) emotions erupt when faced with failure, (b) undiscovered or undeveloped skills of students, (c) social support in the process of learning, (d) failure to concentrate on the exam, (e) teacher competencies from students' views, (f) complementary trainings, (g) favored learning strategy, (h) method and techniques of students, (i) the most popular/unpopular lesson, (j) families' and student's targets, (k) expectations for the future, (l) distinguished family members as students' role models, (m) variables impinging on learning motivation, (n) teacher attitudes.

Keywords

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Introduction

The main objective of education is to assist the children of today via creating a supportive learning environment that allows them to rise as skilled and agreeable adults once they grow up. To be effective, students themselves must also adhere to this objective and they are expected to improve their personal interests via establishing communication (Taylor & MacKenney, 2008). Humans acquire knowledge, skills, attitudes, and values through their interaction with others and these experiences constitute the basis of learning (Özden, 2010). Learning is a complex concept and activity. The majority of teachers and students must be aware of cognitive aspects, such as learning, thinking, and problem-solving in addition to the social and emotional aspects of learning (Hewitt, 2008). Learning is, in essence, based on individual performance, and positive or negative attitudes toward learning are valuable to the success of teaching (Sen, 2013). Learning is not only geared at elevating students' knowledge but it also aims to improve their structure (Chang & Chang, 2012) and skills (Leimbach, 2010). There are two common definitions of learning: (a) learning is a potential change in behavior and (b) learning is a knowledge acquisition or psychologically invisible and intrinsic neurological process (Taylor & MacKenney, 2008).

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Students' learning is generally influenced by their attitudes toward learning and the teaching environment. These factors play crucial roles in students' learning and also affect their academic demands. Positive attitudes create a basis of effective learning. In the event that students hold a positive attitude toward learning, they are much more willing to put their best efforts forward, and they can acquire better learning outcomes. On the other hand, if students hold a negative attitude toward learning, they simply give up or no longer desire to learn. This in effect will impinge upon learning outcomes of students with dissimilar attitudes (Lin & Lin, 2011). A student's attitude toward a particular subject commences with a selective attention process. The limits of any student's learning are partially determined by his or her psychological and sensual readiness to obtain information as well as the student's prerequisite skills (Mil, 1960; Leimbach, 2010). Students' attitudes are closely linked to motivation. Learning is made easier when there is an intimate and positive relationship between student and teacher (Mil, 1960). Students' beliefs about learning and motivation affect their behaviors and these beliefs, in turn, may affect achievement level (Dembo, 2004). Motivation plays a role in the emotions and behaviors too, and if teachers hold expectations of their students, students are more inclined to learn. An effective teacher is the one who can come up with creative strategies to motivate each and every single student (Taylor & MacKenney, 2008). Students may hold motivations in a variety of levels and types (intrinsic-extrinsic). Although intrinsic motivation is vital for high-quality learning and creativity, a student can still perform well with extrinsic motivation. Educators are not required to intrinsically motivate students when encouraging them to learn (Ryan & Deci, 2000). In cases when a student has low motivation and low capacity in the required subject, she or he will be in need of a coach, a direction, and a road-map to follow (Yavuz, 2015). During the years before reaching high school, students will have already experienced a wide range of recurrent failures, damaging their self-esteem, motivation level, and courage. Some students believe that they cannot possibly learn; that, in effect, discourages them from trying hard to overcome a situation that they label as hopeless. In reality, they are not so far away from learning. It is possible that they may have failed to learn in their previous school experiences, but in their struggle they may develop some optimism (Halunan, Hallinan, & Boulter, 1999). Additionally, learning styles are also closely linked to students' study preferences (priorities), class participation, motivation, and student performance (Young, Klemz, & Murphy, 2003).

In Coleman's report of Equality of Educational Opportunities, the effects of family life, school, and teachers on students' achievement were explored. Results listed that family background and socio-economic status are critical factors for a student's achievement and researchers also stated that school and teacher play critical roles in students' level of success (Coleman et al., 1966). Teachers are the influential actors in a student's achievement. Teachers with adequate professional competency can provide positive learning conditions for their students. Teachers are constantly in contact with a variety of student groups. These varieties may surface in the form of different levels and socio-economic structures (Seferoğlu, 2004). The teacher and students are required to take into account classroom environment, relationships and learning approaches. Provided that these factors fail to support a constructive and positive classroom environment, certain things need to be changed. In fact, this responsibility goes beyond the teacher and students alone and encompasses each individual of the school community, including the families (Hewitt, 2008). Presently, the modernization target of European vocational education is learning outcomes, rather than learning processes (Cedefop, 2008). In schools, teachers guide students' learning. When given the opportunity to self-direct, students can guide learning on their own; besides, when students graduate from school they will have to be director of their own learning. To achieve that, it is a must to establish the objectives; continue and monitor the learning progress; identify required learning strategies and overcome learning challenges (Organization for Economic, Cooperation, and Development [OECD], 2004). Leadership style in any school, teachers' competencies, inoculating cultural experiences, personalizing education, and participation of the student, family, and society in educational planning may be integrated to improve students' learning (Taylor & MacKenney, 2008). School leaders also play vital roles in students' learning and other significant outcomes. Leaders may utilize rational, sensual, organizational, and familial methods to improve students' learning (Leithwood, Patten, & Jantzi, 2010). Students spend a vast portion of their

learning time at schools and in the creation of effective environments; school climate plays a vital role. If a student feels alienated from learning environments at school and feels disconnected, it is likely that his or her potential to acquire basic skills and concepts and form effective learning environments will diminish (OECD, 2004).

Relevant literature indicates that there are an extensive number of variables affecting students' learning. Student himself or herself, motivation, family, teacher are just a few of these impinging variables. An extensive body of research studies exist in the literature on learning styles, learning approaches (Beischel, 2013; Musu-Gillette, Barofsky, & List, 2015), learning strategies, self-efficacy (Boström & Lassen, 2006), leadership style (Leithwood et al., 2010), organizational structure of schools (Lam, 2005) and their interrelations with learning. In line with the emergence of the digital age that has transformed methods of teaching and learning, learning styles and strategies continue to be intricate research topics for prospective studies.

The Situation in Turkey

As indicated in 2015, statistics from the Ministry of National Education (MEB) show the number of students receiving secondary education in Turkey is 2.902.954; the number of students receiving vocational and technical secondary education is 2.788.117 (Ministry of National Education [MEB], 2015). Formal vocational and technical education in secondary education level is offered in MEB-affiliated vocational and technical high schools. Provided that they aspire to continue further education in the complementary programs relevant to their high school diplomas, students who have graduated from vocational and technical secondary education institutions are eligible to be placed into vocational colleges (MYO) without taking the student selection exam. Students who do not want to continue MYO education governed by the Turkish Council of Higher Education (YÖK) and Turkish universities are free to take undergraduate placement exams (LYS) organized by the Student Selection and Placement Center (ÖSYM) (Education Reform Initiative [ERG], 2012). A 2014-dated ERG report divulges that in Turkey, students at age 15 who are in the top socio-economic percentage are predominantly placed in science high schools or Anatolian high schools (ERG, 2014). On the other hand, 23% of the students attending vocational high schools are members of the lowest socioeconomic rate with a percentage of 20%. Other noteworthy figures from the report reveal that 56% of the student population with secondary school education goes to general high schools or vocational high schools, and in vocational high schools, performance indicators in the fields of science, mathematics, and reading have the lowest figures compared to all the other program types. According to a 2009 research report, "Academic Resistance in State High Schools in Turkey" from the OECD Program for International Student Assessment (PISA), results point to significant differentiation with respect to program types. Students who continue on to academically-selective high schools that accept students after an exam constitute 19% of the total population of students registered in state high schools. These students perform at an achievement level that averages above the OECD mean mentioned in PISA's 2009 report. However, students in vocational high schools (constituting 43% of the total number of students registered in state high schools), compared to the OECD mean, perform under 0.8 standard deviation points in the fields of science and reading and 1 standard deviation point in the field of mathematics (Dinçer & Oral, 2013).

A comparison between science and Anatolian high schools in Turkey demonstrates that a number of vocational high schools accept students who comparatively receive lower scores from central exams. Additionally, MEB (2013) reports reveal that the highest dropout rate is among 9th graders in vocational high schools. Based on the above-listed reasons vocational high school students comprise a group demanding focus. Hence in present research, the aim is to investigate cognitive and affective skills of ninth grade students in vocational high schools.

Method

This study, aiming to identify cognitive and affective skills with respect to students' views, was conducted via a phenomenological approach. The objective of phenomenological approaches is to define a particular case by exploring the perceptions of research participants about a particular topic. Phenomenology is concerned about a person's experiences from his or her point of view (Lester, 1999).

Study Group

The research was conducted among 20th grade students in Konya Selçuklu Türk Telekom Vocational and Technical Anatolian High School during the 2014-2015 academic year. The research study group was selected via homogenous sampling (analogue) method. This method was used because students in the school had demonstrated an identical score range and academic performance level. The 20 students constituting the study group were an unbiased selected sample. Selecting unbiased samples is highly desired and most appropriate for the authenticity of qualitative research (Yıldırım, 2010). Data relevant to the study group are as shown in the Table below.

Table 1. Descriptive Data on Study Group

Gender	f	Type of graduated school	f
Female	10	State school	20
Male	10	Private school	0
Sum	20	Sum	20
Mother's education	f	Father's education	f
Illiterate	1	Deceased	2
Primary school	8	Primary school	7
Secondary school	6	Secondary school	3
High school	4	High school	6
University	1	University	2
Sum	20	Sum	20

Data Collection

In phenomenological research studies, data collection is basically conducted via extensive interviews (Creswell, 2007). Thus in our research too, data were collected via the interview method. Interviews in qualitative research is the basic of data collection tools and the most powerful methods used to understand others (Punch, 2014). In the collection of data, semi-structured interview forms prepared by the researchers were the utilized tool. Semi-structured interviews integrate both a fixed-choice question format and also a deeper analysis of the subject matter (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, & Demirel, 2014). In this research, in-depth interviews were conducted among the students via an interview form to make the most of students' experiences. According to Berg and Lune (2015) this type of interview involves asking a number of pre-determined questions and referring specific issues. In this interview, 12 open ended questions were inquired toward identifying the variables affecting students' achievement level. Permission has been obtained from the school administrators before interviewing the students. Interviews were conducted face to face in schools with the knowledge of school administrators. Two researchers took part in the interviews to prevent loss of data. While one of the researchers was talking to the students, the other contributed to the process by keeping records of interviews and making observations. Every interview with each student lasted approximately 40 minutes.

Data Analysis

In the analysis of phenomenological data, the first step is to construct the data; next these data (interview transcripts) are analyzed and statements with a "vital sentence" are highlighted. Finally the themes are constructed on the basis of these vital sentences (Creswell, 2007). In present research, too,

these steps were followed throughout the data analysis. The data were analyzed by content analysis. Basically similar data are grouped together on the basis of certain concepts and themes, which are organized and interpreted in a way that the reader can understand. A four-step content analysis technique was used in the analysis of data (Yıldırım & Şimşek, 2013). In the research, firstly the parts forming a meaningful whole in themselves are coded. From these codes, there are some themes that can explain the data at the general level. Once the obtained data has been edited, it is explained as readers can understand. While constructing the data, students' interview forms were coded: males were named (M), females, (F). In the quotations, students were numbered per their gender (F1, F2, F3... M1, M2, M3...) to identify their views.

Validity and Reliability of the Research

When describing the individuals, identifying places and cases is the milestone action for any qualitative research. In qualitative domains, validity must be ensured via descriptions and explanations (Janesick, 2003). In this research, to ensure the validity of results, the researchers attempted to describe the data in detail and explain the ways results were reached. Internal validity is about whether or not research findings match the reality in external world. To strengthen the credibility of results, a set of strategies is employed (Merriam, 2013). Triangulation is a validity method utilized in the integration of diversified and multiple information sources to shape the themes or categories in the research (Creswell & Miller, 2000). In this research too, through the participation of multiple researchers in data collection and analysis processes, researcher diversification was secured. The data collection process was carried out by two researchers. The collected data were examined by all researchers. Three researchers participated in the data analysis process. Upon analyzing the same data, independently obtained findings were compared, and investigators attempted to explain the research method in detail to ensure external validity. Glesne and Peshkin (1992) have argued that the results received in qualitative studies need to be communicated with professionals in qualitative research and feedback must be shared to increase the reliability of research (Yıldırım, 2010). The studies conducted within the context of this research were shared with an academic professional in the field of educational sciences and data were supported with that feedback.

Results

In this part, the themes created after data analysis and one-to-one quotations from interview forms related to these themes are presented.

Emotions Experienced When There Is Failure: Fear, Deficiency, Distress, Despair, Regret, Loss of Self-Confidence, and Disappointment

Students stated that particularly in the 8th grade during the process of transition from primary to secondary education (TEOG) and in the first year of high school, they felt unsuccessful. They experienced emotions of fear, deficiency, distress, despair, regret, loss of self-confidence, and disappointment, which were named most frequently.

(F4): *"I failed last year. My parents are separated and I used to live with Mom. I failed my class. I started to live with Dad. I was regretful; I wished I had not been strung along with my classmates and had studied more."*

(M1): *"I failed in the 8th grade TEOG exam. I felt deficiency and distress. I thought I could have done much better."*

(M6): *"I failed in the 8th grade TEOG exam. I felt terrified. I felt troubled for my family more than myself because I would never want to disappoint my parents."*

(F8): *"I have failed in so many lessons since the 6th grade. I always get low scores in mathematics. I understand during the lesson, but fail in the exam. I feel so bad. I do want to study but I just give up because I am so far behind in the topics."*

Undiscovered, Undeveloped Skills of Students

Students stated that they find themselves skilled in “various branches of sport” at most and in “music, literature, mathematics, electric and computer” next. In the realization of their skills, teachers and parents played role.

(F1): *“I consider myself a skilled person. I have been physically exercising since I was 5. First I took up gymnastics and continued for a long time. Then I took up tae kwondo but left after receiving green belt. I tried basketball and grass hockey, and now I am playing tennis. I realized my sports talent in my family; they also exercise and my grandma encouraged my parents to engage me with a sport.”*

(F5): *“I think I have sports talent in table tennis particularly. I realized my talent first when I was in a match with my physical education teacher in the 8th grade.”*

(M5): *“I am good at football. In 7th grade my physical education teacher selected me for the school team. Then I started to play on the Konyaspor team, but I had to leave the team because I failed my class last year. If I can manage to be successful at school I am planning to play on the team again.”*

(M7): *“I am very good at chess. When I was 6, I discovered my talent on my own, I loved the game. I was honored many times. I was awarded the chess championship in my city, Konya.”*

Social Support during Learning Process: Prominent Sibling Support

Students, particularly during the preparation stage for the transition to secondary education, received the support of certain immediate people. Within that context individuals who played effective roles in students’ achievements are Family members (mother, elder sister, elder brother, and twin), relative (uncle, cousin), friend, and school and private training center teachers.

(F5): *“I was supported by my family, especially my elder brother who helped me in tests. He wanted me to explain him the units as if he did not know anything at all; that helped me really a lot.”*

(F4): *“I was supported by my elder sisters and mom. They wanted me to practice questions; they explained my mistakes in the answers, and they helped me by explaining the units.”*

(F7): *“I was supported by my friends, we studied collaboratively. Mom also supported me a lot. She reminded me all the time that if I wanted to become someone significant I had to work hard and get good grades.”*

(F6): *“I stayed in a dormitory in 8th grade and my dormitory teachers and school teachers supported me a lot. My dorm teachers motivated me to take scholarship exam. I have a sister one year older than me; she also helped me with my lessons.”*

Failure to Concentrate on the Exam: Ignoring the Exam and School

As students’ level of readiness at the start of 8th grade is examined students mostly considered themselves low, poor, insufficient or average in the preparation process for the TEOG exam.

(M2): *“I am not good at all. I hardly attended my lessons.”*

(M5): *“I was bad at first. Then I was motivated and my scores rose.”*

(F3): *“I was an average student. My scores were higher in the 6th and 7th grades but fell in the 8th grade.”*

(M6): *“The system was changed all of a sudden so we were, the whole school, frustrated with the new system. I was worried in mathematics most. I was not prepared at all and as the exam date drew close I was absolutely deeply panicked.”*

(F8): *“I did not care at all about the exam and I could not realize it till last year because I failed last year (9th grade).”*

Teacher Competencies from Students' Views: In between the Black-White Line

Students were interviewed about the quality of their secondary school education and competencies of their teachers. The findings pointed out that all students received education in a state school and considered their overall education sufficient. However a number of students answered it was "insufficient" or "[inter]changeable from one teacher to another one."

(M4): *"It was sufficient. The teacher explained the lesson with practices. There was a workshop in which we practiced our drawing and technology design courses. We brought class materials like rulers. A projector was used in the lessons and it was more fun in that way."*

(M5): *"The education in my school was insufficient. Our teachers were old, they were tired of students, and they were so mean to us. Like our Turkish teacher, she or he was violent for the slightest things; even the way we sat drove him or her mad. The vice principal did beat us so harshly."*

(M2): *"It changed from one teacher to another one. Some were competent, some were not. Students were strolling into class while some teachers were trying to explain the lesson. For example we had a teacher who told us not to smoke but she or he smoked right in front of school building. Then we were thinking 'it was not such a bad thing' since she or he smoked as well."*

(M6): *"I studied in a state secondary school but it was like a private school because it was an old-established one. I had good teachers; they offered us free lessons after class. It was quite an active school with many successful sport teams and guiding teachers."*

(F7): *"It was not a very successful school and my teachers were not so good either. Some were attentive to us, some were not at all."*

Complementary Trainings: Private Training Centers, School Courses, Family Support, Self-Attempt

Students tracked different methods to compensate for their certain deficiencies. Seven students continued in a private training center (one year in the 8th grade). Five students received family help (elder sister, sibling, cousin), four students attended courses opened in their own school, three students studied individually. One student completed the deficiencies in the dormitory.

(F4): *"I attended a private training center for one year to compensate for my deficiencies."*

(M1): *"I tried to compensate for my deficiencies by attending a school course for one semester."*

(F3): *"I did not attend any private training center. I studied on my own to compensate for my deficiencies."*

(M4): *"I stayed in a dorm in the 7th and 8th grade and tried to compensate for my deficiencies. It was just like a private training center."*

(F7): *"I had deficiencies. I was unable to study well but tried to practice the units and take tests. My parents work outside, so I had to look after my siblings at home."*

(F5): *"I had deficiencies, after all I cannot understand everything well. I was not good at mathematics so I went to a private training center. And at home I studied on the computer."*

Learning Strategies, Methods and Techniques Students Employed: Listening and Reviewing

Students reported having to employ various learning strategies while studying and the most frequently employed ones were (a) listening and reviewing followed by (b) reading and writing (note taking), (c) test solving, (d) watching lecture videos, (e) memorizing, (f) narrating to oneself or peers, (g) pre-studying, (h) interactive question & answer, (i) summarizing, and (j) preparing questions. However, four students stated that they did not study for numeric lessons and had no method or techniques.

(M5): *"I believe that I learn best through listening. I pay so much attention to listening."*

(M4): *"In verbal and numeric lessons I repeat my class notes at home."*

(F10): *"I practice verbal lessons because I can understand them, I solve questions. First I cover the answer then I check my answer but as for the numeric lessons, I really do not study much."*

(F7): *"In verbal lessons, first I underline important notes, summarize the topic then I take a test, but in numeric lessons I cannot understand the units so I did not study. I tried to understand the topics by reading lecturing books."*

Mathematics, the Unpopular and Unlearned Lesson and Turkish, the Most Popular Lesson

Students were interviewed about the popular and unpopular lessons and the underlying motives in their choices. They claimed that Turkish and social sciences were their favorite lessons and that mathematics was the least favorite subject. They identified that the teacher played quite an important role in students' attitudes toward the lesson. Another factor impinging upon their attitude was the ability or failure to understand the lesson.

(F2): *"Mathematics was my least favorite lesson. I could not understand it, so I hated it."*

(F3): *"Mathematics was my least favorite lesson. My teacher was ineffective. She or he lectured only for a small group of students ... seated in the front desks. Also she or he was very old and did not come to class regularly."*

(F5): *"I loved Turkish the most. I have always been interested in Turkish lesson because I love reading. I also like lessons about the Turkish Revolution. I am very much into history and Atatürk. Mathematics was my least favorite lesson. I lack fundamental knowledge so I cannot understand the lesson."*

(M6): *"I love Turkish lessons. It does not bore me, and the teacher motivates all of us through jokes during the lesson. I do not like mathematics because I am no good at all."*

Families' and Students' Targets, Expectations for the Future: Having an Esteemed Occupation

Among the targets of families and students the preliminary ones are "having an esteemed occupation in the fields of..." health, sport, electronics and computer. For instance occupations such as emergency medical technician or nursing are among the future dreams and expectations of students. Besides, since some students are talented in different fields of sports some hold expectations in this area and aspire to be a "good physical education teacher" in the future. Some students' expectations for their own future are being accepted to this school or a better one, whereas their families' expectations for them are to be accepted to a better school or to pass their class and graduate.

(F5): *"What matters for my family and me is to have a prospering and productive occupation. It could be in sports."*

(M1): *"My family wants me to have an occupation sufficient for me to feed my own family in the future. I also do not want to have any financial hardships in the future and have a well-paying job."*

(F4): *"I want to be admitted to health vocational high school and become a nurse. So does my family."*

(M6): *"My dad set me a target of 350 score in the central exam. He would buy me a motorcycle. They were a bit disappointed when I could not get 350 score. I also believed I would get that score and I was out of hopes when I failed."*

Distinguished Family Members as Students' Role Models

Students were interviewed about their role models and their characteristics. Among their role models are family members like mom, dad, elder brother, elder sister, uncle, cousin. Also some of the students reported that they aspired to be like their teachers who were their role models. Three students referred to Atatürk, Kenan Sofuoğlu, and others as role models. General characteristics of their models are that they were all successful individuals.

(F2): *“My uncle is my role model. He is successful in almost anything. I feel like he knows everything. That is why I want to be just like him.”*

(F1): *“My mom and elder sister are my models. Their achievement in sports is what allures me most.”*

(M7): *“I wish I could be like my English teacher in the 8th grade. She or he was such an equalitarian person. She or he never made a distinction among students as the good ones and bad ones. Also she or he was pursuing a PhD degree.”*

Variables Impinging on Learning Motivation: Desire to Graduate, Desire to Earn His/Her Own Money, Teacher Attitudes

Students assessed the variables impinging on their level of motivation and listed the effective factors, as such: desire to be a cultivated person, teacher’s lecturing style and behavior, surrounding people and events, understanding the lesson, family’s approach are the factors affecting students’ motivation positively. Failing the class, mathematics course, low scores, failure to understand the lesson, friend’s pressure, and low spirits were listed as the negative factors for motivation.

(M3): *“Surrounding events affect my motivation. Also when I just cannot understand a topic, my motivation gets down.”*

(F3): *“My motivation is affected by the teacher’s humorous lecturing style and jokes.”*

(M6): *“What motivates me is the idea to earn my own money in the future. I want to graduate. I worked in a cafeteria during summer holiday and I learnt how hard it is to earn money.”*

(M10): *“Teachers and their styles are directly effective on my learning motivation. My friends have a negative effect. I lose my concentration quickly.”*

Discussion, Conclusion and Suggestions

In the light of findings obtained from this research examining the variables affecting the achievement and failure of students in vocational high school, it is feasible to assert that students felt they failed particularly during the TEOG process in the 8th grade and in the year they started high school. The emotions they experienced were fear, deficiency, distress, despair, regret, loss of self-confidence, disappointment, etc. As seen in a research by Crossman (2007), students also hold emotions like boredom, fury, shame, skepticism and insecurity. According to Rustin (2003), emotions constitute an invisible dimension of the learning process, interestingly enough. That is because since emotions are basically structured as the counterparts of philosophical tradition, researchers argue that learning can occur only in an emotional state where the best emotions can arise. Findings put forth by Deakin Crick, McCombs, Haddon, Broadfoot, and Tew (2007) reveal that achievement could have been affected by the factors directly related to students as learners themselves.

The findings of present research reveal that students deem themselves skilled in the areas of, particularly, football, volleyball, table tennis, tennis, etc. In addition to sport branches they consider themselves talented in a variety of fields as well. Teachers and families are the agents raising their awareness on personal skills. Horn and Weiss (1991) claimed that the way students assess their skills varies with respect to age. Younger students assess their skills, according to family feedback, whereas older students make a comparison between peers and their own performance. Tannehill and Zakrajsek (1993) suggested that elementary school students are mostly engaged in competitive sports while high school students are more into fitness activities and teachers are also inclined to organize their curriculum accordingly. Indeed, European Athletics Statistics (2015) demonstrated that in foot races among young athletes, a Turkish athlete won the 6th rank in the 400-meter run, and the 1st rank in the 1500-meters and 3rd rank in the 3000 meters also were won by Turkish runners. Considering the finding that students consider themselves skilled enough, schools are supposed to provide the appropriate settings and activities, enabling the students to improve their skills.

Another finding of this research is that students received support from certain individuals, particularly in the preparation process of transition from primary education to secondary education, and sibling support was the most common form of assistance. Within that context, the most influential individuals in students' achievement are designated as: Family (mom, elder sister, elder brother, and twin), relative (uncle and cousin), friend, and school and private training center teachers. In a research conducted by Cutrona, Cole, Colangelo, Assouline, and Russell (1994) on social support and academic achievement, there was a correlation between academic achievement and family support. Yavuz, Gülmez, and Özkartal (2016) in their study attested that science high school students received support from family members, their mothers in particular. This finding points out that a majority of parents of science high school students have high educational levels, whereas parents of students in vocational high school have comparatively lower educational backgrounds, which, in effect, leads these students to ask assistance from their elder sisters or elder brothers. In Karadağ's (2007) research, where students' academic achievement is investigated with respect to social support resources, the study manifested that students with higher academic success receive more positive support from their family, friends, and teachers compared to unsuccessful students, according to student reports. Danielsen, Samdal, Hetland, and Wold (2009) in their study asserted that there were strong correlations among social support resources encompassing family, teachers, and classmates and the satisfaction students receive from school. In addition to this, correlations exist between satisfaction received from school and life satisfaction. Katz, Kaplan, and Gueta (2009) posited that there is a strong and positive correlation between teacher support and self-motivation. Furthermore, peer support and peer education is also listed as assistive resources for students. In regards to this deduction, Holland (2011) asserted that peers had a remarkable effect on the academic activities of their friends and on college education plans and experiences.

In this research students' level of readiness at the onset of 8th grade was examined. Generally speaking, students at the onset of 8th grade while preparing for TEOG considered their level low, poor, insufficient or average. Failure to concentrate on the exam and ignoring the school and exam were some of the common challenges they experienced. In the study of Altun (2009) the listed views of teachers on students' low academic achievement were (a) students unwillingness and lack of motivation, (b) students' failure to internalize school's objectives, and (c) failure of students to set targets for themselves. Cognitive and affective input behaviors could also have been effective in students' level of readiness. Senemoğlu (1988) claims that cognitive input behaviors enhanced learning level in primary and secondary education levels.

In the present research, students were interviewed about the quality of education they received in secondary education and about the competencies of their teachers. All students received education in state schools and they considered their education sufficient on a general scale. However teacher competencies were, according to some students, insufficient or [inter]changeable from one teacher to another one. Yavuz et al. (2016) claimed that since a majority of students in science high school received their secondary education in a private school they considered their education sufficient. They also identified that students' achievement was tracked and there was sufficient level of care and support. Findings of present research manifested that with respect to high school types there were differences in terms of educational quality and teacher competencies. Investigators consider that teacher competencies act as major determinants in students' learning and achievement. DeAngelis and Presley (2011) reported that academic competencies of teachers play a positive role in students' reading levels, whereas it had no such effect in mathematics. Shuls and Trivitt (2015) employed a number of criteria such as certificates, graduate diploma score, experience, post-graduate education, and context area to determine the competency of teachers. Research by Teven (2007) demonstrated that teacher interest and appropriate teacher behaviors play a role in the designation of a popular teacher image in students' minds.

As manifested in the findings of present research, several students implemented different ways to compensate for certain deficiencies. Thirty-five percent of students attended a private training center and 20% attended school courses. The remaining majority either received help from their family or

attempted to fill up their lacks individually. According to the research findings of Yavuz et al. (2016), almost the entire range of science high school students attended a private training center for tutoring by private teachers. Incongruity between the results of these two studies can be ascribed to families' educational background and their socio-economic level. Yavuz's (2009) study, too, identified that the length of receiving private education in a center and mathematics-science (MS) score correlation is one of the barriers to opportunity and access equality in education. That is because the research manifested that increases in household income corresponded to the length of receiving education in a private training center, which, in effect, led to an increase in MS score. This correlation accounts for the low academic success of students from poor families. ERG's (2014) report detected that as the education level of fathers rises, the spending allotted for primary education level correspondingly increases. Fathers holding a bachelor's degree spend three times more for their children's education compared to high school graduates; high school graduates, on the other hand, spend two times more for their children's education compared to secondary school graduates. In addition to all the above listed items, filling up students' deficiencies can be clarified via mastery learning model as well. Bloom argued that to improve the congruity with students' individual learning needs, a variety of learning methods should be implemented and be spread over a longer period of time to ensure that students' learning can be upgraded (Guskey, 2007).

The findings of present research pointed that students used a diversity of learning strategies. Students reported they had used various learning strategies while studying and the most frequently used ones were listening and reviewing followed by reading, writing (note taking), test solving, watching lecture videos, memorizing, narrating to oneself or peers, pre-studying, interactive question & answer, summarizing, preparing questions. However a striking conclusion of this research is that a few students stated that they did not study for numeric lessons at all. Dunn, Beaudry, and Klavas (2002) claimed that each student has his or her own learning style. Individuals can memorize the hardest knowledge to remember through various methods, such as listening, narrating, watching, writing or note-taking, experiencing, reviewing, or integrating them all. Trigwell, Ellis, and Han (2012) demonstrated that there is a correlation between students' emotions toward a lesson and their learning approaches. Rogers's (2013) study identified that a group of students practiced reviewing and homework but avoided doing their homework if they failed to understand the topic. Wang, Peng, Huang, Hou, and Wang (2008) also demonstrated that learning strategies have a direct and positive predictive power on learning outcomes.

The present research revealed that Turkish and social sciences were among the most popular subjects, while mathematics was the least popular one. Students' attitudes toward these lessons were largely shaped by teachers, while the other factors were their ability, or inability, to understand the lesson. Yavuz Mumcu, Mumcu, and Cansız Aktaş (2012) conducted a study to identify the meaning of mathematics for vocational high school students and the underlying causes behind their achievement or failure. Participating students reported the following regarding their emotions about mathematics: "I cannot understand, I cannot solve the problems," "I have worries and fears toward the lesson," "I do not like it and find it unnecessary." Additionally, among the factors students listed as the causes for their failure, teachers' lecturing methods also played a vital role. Avcı, Coşkuntuncel, and İnandı (2011) argued that to popularize mathematics, teachers should raise students' awareness of the contributions of mathematical-thinking in our daily life and take appropriate measures toward this aim. Besides, regardless of the occupation they aspire to, students should be informed that mathematical thinking is essential in all aspects of life and mathematics teaching techniques need to be formed accordingly. The reasons why mathematical thinking is essential for a qualified staff in technical vocations should be instilled correctly to vocational high school students in particular. Dodeen, Abdelfattah, Shumrani, and Hilal (2012) conducted research about the effects of teacher competencies and professional developments of Saudi Arabian and Taiwan teachers on TIMMS mathematics scores of students. They demonstrated a number of noticeable divergences in their study. Accordingly, students of the teachers who attended professional development courses on context, pedagogy, programs, usage of information technologies in mathematics, critical thinking, and assessment received higher scores compared to teachers not attending such trainings.

Another finding of present research indicates that there is congruity between families' and students' expectations. The preliminary targets are having an esteemed occupation in the fields of health, sport, electronics and computers. Some students' and families' expectations are to be accepted to a better school and to pass their class and graduate. According to Özcan (2010) these schools are popular as they enable graduates to have an occupation in a short time or to have an occupation even without passing the university selection exam by being trained specifically for a particular occupation. As manifested in Radcliffe and Bos's (2013) study encompassing 8th grade students, two-thirds aspired to attend a university that offered degrees in nursing, graphic design, or social services that all corresponded to their career targets. Echoing the findings of our research, their study also demonstrated that a number of students reported to have academic strategies, such as studying hard, getting good scores, passing all classes. Hou and Leung (2011) conducted a study to investigate the expectations of Chinese students and families and reported that families expected their children to choose research-oriented or traditional occupations, whereas students expected more appropriate and artistic careers.

In this research study students' role models are primarily family members and teachers. They reported that the reason why they selected such role models was their success and aspiration to be as successful as they in the future. It is claimed that role models play critical roles in the process of socialization. In the study of Bricheno and Thornton (2007), similar results were collected and 31.7% of students selected their role models from family members, while only 2.4% favored their teacher as role model. The most prominent factors in their selection were positive traits, such as integrity, helpfulness, and diligence. In addition, as manifested by researchers in positive psychology, here are the features of students and schools performing high academic achievement: schools in which teachers act as good role models in learning and creativity, and schools in which students are supported and also challenged to fulfill their potentials (Knoop, 2011 as cited in Ergüner Tekinalp & Işık Terzi, 2015).

Another noticeable finding of this research is related to variables affecting students' motivation. This set of variables has both positive and negative effects. The desire to graduate and earn one's own money, teacher attitudes, surrounding events, individuals, friends, and the ability or failure to understand a lesson are the influential factors on learning motivation. Dembo (2004) reported that students' targets, beliefs, emotions, and attitudes affected their motivation and effectively their academic achievement. Drew's (2001) study identified that with respect to students' perceptions individual factors assisting or impeding learning are self-control, motivation and needs, tolerance, and support. Amrai, Motlagh, Zalani, and Parhon (2011) indicated that a positive correlation existed between motivation and motivational components, such as effort, competition and social support with academic achievement. Wang et al. (2008) in their research also reported that learning motivation had a direct and positive predictive power on learning outcomes.

Based on the findings of current research, the below-listed suggestions have been developed:

- ✓ Field specialists and academicians should organize in-service training, conferences and seminars to teachers, families, and students concerning student achievements and factors impinging upon motivation level.
- ✓ Students can learn much faster and easier and provide quick solutions to any problems encountered, provided that they are aware of their individual learning styles. To that end students should be enlightened about the most appropriate learning strategies and styles and implementation methods; appropriate training could be offered.
- ✓ It is feasible to offer parental training to the families of vocational high school students.
- ✓ Appropriate environments should be designed to enable students to express themselves on a variety of issues.
- ✓ It may be useful to conduct similar researches in school on all levels.

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