

Full Length Research Paper

The relationship between gender and classroom environment in Turkish science classrooms

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The purpose of this study was to explore the relationship of gender between actual and preferred classroom environment and use of technology in the science classroom of Turkish students. Employing stratified random sampling procedures, data were collected from 985 students from schools across twelve different districts in Istanbul, Turkey. The Technology-Rich Outcomes-Focused Learning Environment Inventory (TROFLEI), developed by Aldridge and Fraser (2003), was used in this study. The TROFLEI was translated into Turkish using a multistep process. Independent samples *t*-tests were conducted on each of the scale items to evaluate the relationship between gender and the students' actual and preferred use of technology in the science classroom. Our findings show that differences clearly exist between genders in their actual and preferred perceptions of classroom environment and their use of technology in the science classroom. This knowledge can serve as valuable information as educational reforms continue to evolve and educators seek to reach all students in their classrooms.

Key words: Science classroom, gender, Technology-Rich Outcomes-Focused Learning Environment, TROFLEI, classroom environment, cross-cultural validation.

INTRODUCTION

The purpose of this study was to explore the relationship of gender between actual and preferred classroom environment and use of technology in the science classroom of Turkish students.

The creation of classroom environments in which students engage in meaningful learning depends on psychologically appropriate and supportive classrooms. Research has identified student cohesiveness, self-esteem and confidence, motivation, and sense of belonging as important psychosocial dimension that impact the learning environment (Goh, 2002). In addition, satisfaction, goal, direction, difficulty, competitiveness,

and friction are social-psychological dimensions which have been identified to also influence the learning environment (Heartel et al., 1981).

In efforts to increase the quality of education and reduce societal inequities, Turkey has implemented numerous reforms to its educational system (Aksit, 2007). The reforms have included increasing the length of compulsory education from five to eight years, an integration of contemporary technical and vocational standards into the curriculum, and the integration of information and communication technology and high-speed Internet connections into every school (Ministry of

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National Education, 2005). Furthermore, the new compulsory education bill increases the compulsory education requirement to twelve years, which are divided into three terms, namely elementary school, middle school and high school (Eurydice, 2013). The new compulsory education changes were put into effect in the 2012-2013 school years.

As educational reforms continue and the integration of technology into the classroom becomes standard practice, the need to study the impact and implications of these efforts become increasingly important, yet there is limited data about the learning environments and the integration of technology in the science classrooms in Turkey. Tingöy and Güllüoğlu (2011) found that most people believed that information technologies are crucial to education and that additional training in the use of technology was necessary. Telli et al. (2006) found that Turkish students' perceptions about learning environments in biology were significantly correlated to their attitudes towards biology. Similarly, Dagdelen (2013) reported statistically significant associations between Turkish high school students' perceptions of learning environment and their attitudes towards and achievement in biology. She found that classroom environment measures accounted for 17% of variance in students' attitudes and 18% of variance in students' academic achievements.

Similar trends are found in the science classrooms. There is ample evidence supporting the theory that boys in general are more interested in science and pursue science related careers than girls (Garner, 1998; Kahle and Lakes, 1983; Kelly, 1978; Miller et al., 2006; Weinburgh, 1995). A longitudinal study of factors related to persistence in a science-related career, men and women who had aspirations toward careers science and technology was surveyed beginning in high school. Ten years later, only 36% of the women and 46% of the men had persisted in a science-related career (Farmer et al., 1995).

Therefore, a closer examination of how gender may be a factor in students' actual and preferred use of technology in the science classroom is important as education reform continues to evolve in Turkey. Gender differences may impact the students' use of technology, and ultimately, success in the classroom.

Classroom environment theory

The conceptual foundation of classroom environment theory can be traced to Moos' (1979) work in which he categorized learning environments into three categories: relationship, personal growth, and system maintenance and system change. Relationship assesses the nature and intensity of personal relationships developed between the student, their peers, and their teacher. Personal growth and development focuses on opportunities for student's personal growth and self-

enhancement through involvement with class activities. System maintenance and system change identify the extent to which the learning environment is orderly and innovative, and that the teacher has set clear expectations and maintains control in the classroom. Moos (1991) found that the promotion of the positive effect of these psychosocial dimensions depends on classrooms where supportive relationships with teachers and classmates are formed and where there is an emphasis on participation.

Gender differences and perceptions of technology for learning

Research on gender differences in perception of classroom environment has not produced unequivocal results as some studies reported no difference in the perception of classroom support (DeWit et al., 2010) while others found that girls perceived more encouragement and support in the classroom (Gherasim et al., 2013; Oelsner et al., 2011). Li and Kirkup (2007) investigated the differences in use of the Internet and computers use between Chinese and British students. They found that gender differences were higher in the British group than the Chinese groups with males in both countries expressing more self-confidence in their computer skills than women. In a study of 15-16 year olds, Colley and Comber (2003) found that increased exposure to computers over the last decade had not narrowed the gender gap. They found that boys liked computers more and were more self-confident in their use of computers than girls. In a study of ninth-grade natural science and mathematics students in Yugoslavia, Kadijevich (2000) found that males showed a more positive attitude toward computers than females.

Recent studies of Turkish students have shown that a disparaging gap between genders also exists in the science classroom. An analysis of the Relevance of Science Education (ROSE) survey of 9th grade students showed that girls had a more favorable attitude towards the environment in general, yet boys express higher interests in learning about environmental protection (Cavas et al., 2009). Studies of Turkish students have also shown the presence of a gender gap in students' perceptions of technology for learning. In a study of 9th-12th grade students in Istanbul, Turkey, Kahveci (2010) found that while female students did not have a negative attitude toward using computers for learning, they did lack confidence in using technology compared to male students.

METHODS

Participants

Employing stratified random sampling procedure, data were collected from 985 students from schools across twelve different districts of Istanbul, Turkey. Table 1 describes the sample, which

Table 1. Description of sample.

Gender	<i>n</i>			
	Grade 9	Grade 10	Grade 11	Grade 12
Male	99	163	92	92
Female	91	189	125	134
Total	190	352	217	226

consists of 190 ninth grade students, 352 tenth grade students, 217 eleventh grade students, and 226 twelfth grade students.

Instrument

The Technology-Rich Outcomes-Focused Learning Environment Inventory (TROFLEI), developed by Aldridge and Fraser (2003), was used in this study. The ten-scales of the instrument measure how technologies impact the educational outcomes for individual students through self-reporting of actual classroom experiences and preferred classroom experiences (Clayton, 2007). The TROFLEI includes seven scales of *What Is Happening in This Class* instrument (WIHIC), developed by Fraser et al. (1996), (student cohesiveness, teacher support, involvement, investigation, task orientation, cooperation and equity) and three new scales (differentiation, computer usage and young adult ethos) that include a focus on technology and outcomes of secondary school classrooms (Aldridge and Fraser, 2003; Aldridge et al., 2004). Each scale contains eight items and each item has two methods (actual and preferred), using a 5-point Likert scale (almost never, seldom, sometimes, often, and almost always). Table 2 provides a brief explanation of the scales of the TROFLEI and their relationship to Moos' conceptual framework.

Translation procedure

The TROFLEI was translated into Turkish using a multistep process. In the first step, the Turkish researcher and two colleagues independently translated the instrument from English into Turkish. Three Turkish versions of the TROFLEI were then sent, along with the original English version of the TROFLEI to four other bilingual colleagues and asked whether they agreed with the translation. They indicated for each item whether they agreed with the translation; if they did not, they proposed an alternative in Turkish. Finally, the Turkish researcher and another colleague assessed and discussed the responses and prepared the final version. This process was similar to the translation committee protocol, in which bilingual individuals work independently to translate the original text into the target language and then collaborate to reach a consensus on a final translation (Brislin, 1986).

The Turkish version of the instrument was strengthened by carrying out back-translations as recommended by Brislin (1976). In order to complete the back-translation process, different people, independent of the project, who speak both English and Turkish were asked to translate the target Turkish version back into the source language of English without having the original English version to influence their translation. These translators were not involved with the initial source to target translation.

In the end, three individuals who were in three different regions of the USA working independently were asked to translate the Turkish version of the instrument back into English. Although they were not teachers of children in the target population grade, they were asked to keep in mind the ages of the students who would be participating in order to ensure that the level of complexity of language was

suitable for that age group. As each of the individuals returned their translation, the American researcher combined them all into a single table.

There were no major discrepancies between the different versions, or between the original TROFLEI instrument in English and the version that resulted from the back-translation. The resulting items for both the Turkish translation and the English version of the TROFLEI are shown in Appendix 1.

Cross-cultural validation

The cross-cultural validation of the Turkish version of the TROFLEI was conducted and the TURKISH TROFLEI was found to be reliable (Welch et al., 2012). Cronbach's alpha (α) reliability coefficients were calculated for each scale. The results indicated that all scales have satisfactory internal consistency. The indices for the Turkish actual and preferred scales ranged from 0.820 to 0.920 and 0.842 to 0.931, respectively, and are similar to those reported in previous research using the TROFLEI (Dorman et al., 2006). Table 3 shows the reliability statistics for each version and each scale.

DATA ANALYSIS AND RESULTS

The purpose of this study was to explore the relationship of gender between actual and preferred use of technology in the science classroom of Turkish students. The Turkish version of the TROFLEI administered to 985 students from across twelve different districts of Istanbul, Turkey. Both descriptive and inferential statistics were used to explore the relationship of gender between the actual and preferred use of technology.

Scale score differences

Means and standard deviations were computed for the actual and preferred scales of the TROFLEI. A comparison of the mean scores of the actual and preferred scales is shown in Figure 1. T-tests were used to calculate the statistical significance of the difference. Cohen's *d* (1988) was used to calculate the effect size using the equations below:

$$\text{Cohen's } d = \frac{(M_1 - M_2) / SD_{\text{pooled}}}{SD_{\text{pooled}}} = \sqrt{(SD_1^2 + SD_2^2) / 2}$$

According to Cohen, effect sizes of 0.2 are considered small effects, 0.5 as medium effects, and 0.8 as large effects. Results are shown in Table 4.

The mean scores for the actual scale of the TROFLEI ranged from 3.17 for Computer Usage to 4.12 for Student Cohesiveness, suggesting that students overall perceived technology-supported science classroom as beneficial and that technology usage was commonplace in their classroom environments. For the preferred scales of the TROFLEI, mean scores ranged from 3.87 for Differentiation to 4.58 for Investigation, suggesting that students desire more individualized instruction and activities that engage in high order thinking skills.

Table 2. TROFLEI Scale descriptions.

Scale name	Scale description	Moos' framework
Student Cohesiveness	The extent to which students know, help and are supportive of one another.	R
Teacher Support	The extent to which the teacher helps, befriends trusts and is interested in students.	R
Involvement	The extent to which students have attentive interest, participate in discussions, do additional work and enjoy the class.	R
Investigation	The extent to which skills and processes of inquiry and their use in problem solving and investigation are emphasized.	P
Task Orientation	The extent to which it is important to complete activities planned and to stay on the subject matter.	P
Cooperation	The extent to which students cooperate rather than compete with one another on learning tasks.	P
Equity	The extent to which students are treated equally by the teacher.	S
Differentiation	The extent to which teachers cater for students differently on the basis of ability, rates of learning and interests.	S
Computer Usage	The extent to which students use their computers as a tool to communicate with others and to access information.	S
Young Adult Ethos	The extent to which teachers give students responsibility and treat them as young adults.	P

R: Relationship; P: Personal development; S: System maintenance and system change (Adapted from Dorman and Fraser, 2009, p. 82).

Table 3. Internal consistency reliability and scale statistics.

Scale	α	Actual		Preferred		
		Mean	Variance	α	Mean	Variance
SC	0.820	0.926	0.097	0.849	4.492	0.032
TS	0.920	3.445	0.099	0.931	4.435	0.014
IN	0.869	3.637	0.024	0.886	4.184	0.022
TO	0.866	3.705	0.020	0.910	4.282	0.018
IV	0.863	4.038	0.057	0.919	4.585	0.005
CO	0.892	3.438	0.076	0.910	4.068	0.044
EQ	0.917	4.124	0.026	0.928	4.556	0.006
DI	0.810	3.240	0.182	0.842	3.875	0.167
CU	0.844	3.169	0.526	0.883	3.896	0.157
YA	0.886	4.024	0.051	0.902	4.482	0.008

Note: **SC**: Student Cohesiveness; **TS**: Teacher Support; **IN**: Involvement; **TO**: Task Orientation; **IV**: Investigation; **CO**: Cooperation; **EQ**: Equity; **DI**: Differentiation; **CU**: Computer Usage; **YA**: Young Adult Ethos

The *t*-tests indicated a statistically significant difference ($p < .001$) between actual and preferred scores for all TROFLEI scales. Students strongly desired more teacher support, investigation activities, and computer usages in their classrooms. Cohen's *d* ranges from .44 for Student Cohesiveness to 1.10 for Teacher Support, suggesting medium to large effects and potential areas for improvement (Figure 1).

Gender differences

Differences in students' perceptions of technology-supported science classrooms were explored for each TROFLEI scale, using means and standard deviation along with *t*-tests. The effect size was computed using Cohen's *d*. The results of the difference between actual and preferred scores for the female students are

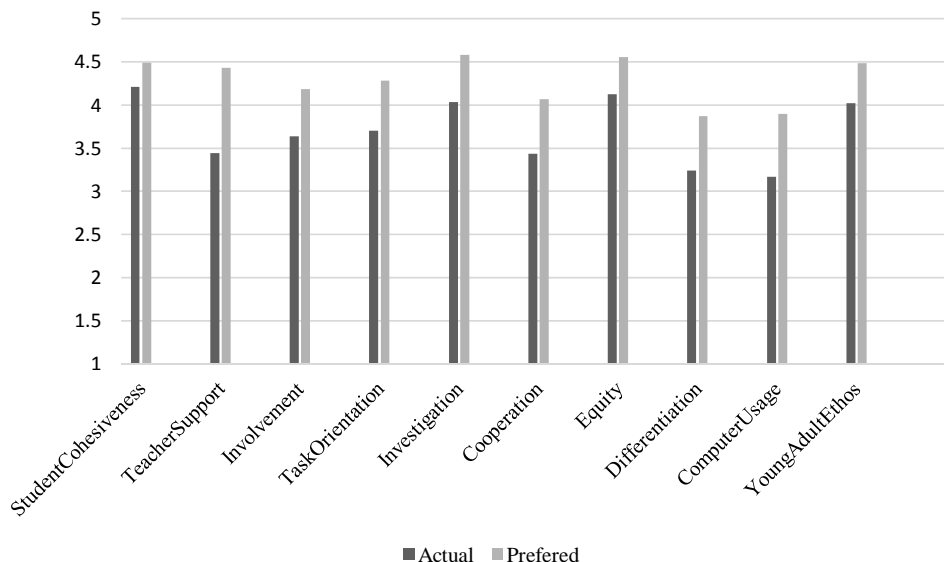


Figure 1. Comparison of actual and preferred means scores.

Table 4. Results of t-test and effect size calculations of the actual and preferred scales.

Scale	Actual		Preferred		t	Effect size d
	M	SD	M	SD		
Student Cohesiveness	4.21	.64	4.49	.63	14.85*	.44
Teacher Support	3.44	.99	4.43	.79	31.38*	1.10
Involvement	3.64	.84	4.18	.81	23.84*	.65
Task Orientation	3.71	.80	4.28	.80	25.21*	.71
Investigation	4.03	.73	4.58	.68	26.22*	.77
Cooperation	3.44	.94	4.07	.92	24.33*	.68
Equity	4.12	.87	4.56	.72	18.29*	.55
Differentiation	3.24	.87	3.87	.92	24.48*	.70
Computer Usage	3.17	.96	3.90	.99	24.34*	.74
Young Adult Ethos	4.02	.82	4.48	.70	19.60*	.61

N = 985; *p < 0.001.

presented in Table 5. The results of the male students are presented in Table 6.

The mean scores for the female students for the actual scale of the TROFLEI ranged from 3.15 for Differentiation to 4.24 for both Student Cohesiveness and Equity, suggesting that the female students overall feel that the classroom is a supportive environment in which students are treated equally by their teachers. For the preferred scales of the TROFLEI, mean scores ranged from 3.11 for Computer Usage to 4.69 for Investigation, suggesting that female students desire computer based activities that engage in high order thinking skills.

The t-tests indicated a statistically significant difference (p < .001) between actual and preferred scores for all TROFLEI scales.

Female students strongly desired more teacher support

and investigation activities. Cohen's d ranges from .55 for Student Cohesiveness to 1.29 for Teacher Support, suggesting medium to large effects and potential areas for improvement.

The mean scores for the male students for the actual scale of the TROFLEI ranged from 3.24 for Computer Usage to 4.18 for both Student Cohesiveness, suggesting that the male students overall feel that the classroom is a supportive environment and they found learning science through the use of technology interesting, lively and informative. For the preferred scales of the TROFLEI, mean scores ranged from 3.87 for both Differentiation and Computer Usage to 4.45 for Investigation, suggesting that male students desire that teachers cater to their individual needs based on ability, rate of learning, and interests, as well as wanting more computer based

Table 5. Difference between actual and preferred scores for female students

Scale	Actual		Preferred		<i>t</i>	Effect sized
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Student Cohesiveness	4.24	.62	4.56	.53	14.29*	.55
Teacher Support	3.46	.94	4.52	.67	26.69*	1.29
Involvement	3.62	.82	4.24	.71	21.32*	.81
Task Orientation	3.71	.74	4.36	.70	23.22*	.90
Investigation	4.08	.66	4.69	.51	24.42*	1.03
Cooperation	3.41	.88	4.14	.81	21.99*	.86
Equity	4.24	.77	4.68	.54	15.65*	.66
Differentiation	3.15	.80	3.88	.88	21.99*	.87
Computer Usage	3.88	.88	3.11	.90	21.24*	.86
Young Adult Ethos	4.07	.75	4.56	.56	17.58*	.74

N = 539; **p* < 0.001.

Table 6. Difference between actual and preferred scores for male students.

Scale	Actual		Preferred		<i>t</i>	Effect sized
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Student Cohesiveness	4.18	.66	4.41	.73	7.36*	.33
Teacher Support	3.43	1.04	4.33	.91	18.01*	.92
Involvement	3.66	.86	4.12	.91	12.70*	.52
Task Orientation	3.70	.86	4.19	.90	13.17*	.57
Investigation	3.99	.81	4.45	.82	13.61*	.56
Cooperation	3.46	1.01	3.98	1.04	12.77*	.84
Equity	3.98	.95	4.41	.87	10.64*	.47
Differentiation	3.35	.94	3.87	.97	12.92*	.54
Computer Usage	3.24	1.01	3.87	1.07	13.38*	.61
Young Adult Ethos	3.96	.89	4.39	.84	10.80*	.49

N = 446; **p* < 0.001.

activities that engage in high order thinking skills.

The *t*-tests indicated a statistically significant difference (*p* < .001) between actual and preferred scores for all TROFLEI scales. Male students strongly desired more teacher support and investigation activities. Cohen's *d* ranges from .33 for Student Cohesiveness to .92 for Teacher Support, suggesting medium to large effects and potential areas for improvement.

Conclusion

The purpose of this study was to explore the relationship of gender between actual and preferred classroom environment and use of technology in the science classroom of Turkish students. Our results show that there are clear differences between all students in their perceptions of technology-supported science classrooms and opportunities for improvement, especially in the areas of differentiation and investigation. Students

expressed desire for teachers to adapt instruction based on individual ability, rate of learning, and interests. In addition, students also desire activities that integrate more problem-solving techniques.

While some gender differences were found, girls expressing a significantly high desire for more computer usage in their science classrooms and boys preferring more differentiation of instruction, all students expressed an increased preference for more integration of more problem-solving techniques and investigations into the science classroom.

Studies have shown that cognitive and affective outcomes are strongly influenced by students' perceptions of the classroom environment (Telli et al., 2007-2008; Wubbels and Brekelmans, 1998; Wubbels et al., 2006). Specifically, in science, the teacher-student relationship has been shown to be one of the most important factors in students' success (Doyle, 1986). Research has also shown strong interpersonal relationships between students and teachers are a prerequisite for engaging

students in learning activities (Brekelmans et al., 2000). Our findings show that differences clearly exist between genders in their actual and preferred perceptions of classroom environment and their use of technology in the science classroom. This knowledge can serve as valuable information as educational reforms continue to evolve and educators seek to reach all students in their classrooms. The integration of technology into all classrooms can be an effective tool to strengthen instruction by providing individualized instruction, immediate feedback and motivation.

Conflict of Interests

The authors have not declared any conflict of interests.

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APPENDICES.

Appendix A. TROFLEI in Turkish and English.

TROFLEI scale	Turkish version	English version
Öğrenciler Arası Uyum Student Cohesiveness	Sınıftaki öğrenciler ile arkadaşlıklar kurarım.	I make friends among students in this class.
	Sınıftaki diğer öğrencileri tanıyorum.	I know other students in this class.
	Sınıftaki öğrencilere arkadaşça davranırım.	I am friendly to members of this class.
	Sınıftaki öğrenciler benim arkadaşlarımdır.	Members of the class are my friends.
	Sınıftaki diğer öğrenciler ile uyumlu çalışırım.	I work well with other class members.
	Sınıfta ders ile ilgili zorluk yaşayan diğer öğrencilere yardımcı olurum.	I help other class members who are having trouble with their work.
	Sınıftaki öğrenciler beni sever.	Students in this class like me.
	Sınıf arkadaşlarımdan yardım alırım.	In this class, I get help from other students.
Öğretmen Desteği Teacher Support	Öğretmen benimle bire bir ilgilenir.	The teacher takes a personal interest in me.
	Öğretmen bana yardımcı olmak için farklı yollar dener.	The teacher goes out of his/her way to help me.
	Öğretmen benim duygularımı dikkate alır.	The teacher considers my feelings.
	Ders ile ilgili sorun yaşadığımda öğretmen bana yardımcı olur.	The teacher helps me when I have trouble with the work.
	Öğretmen benimle iletişim kurmaya çalışır.	The teacher talks with me.
	Öğretmen benim problemlerim ile ilgilenir.	The teacher is interested in my problems.
	Öğretmen derste bana yardımcı olmak için yanıma gelir.	The teacher moves about the class to talk with me.
	Öğretmenin sorduğu sorular konuyu anlamama yardımcı olur.	The teacher's questions help me to understand.
Katılım Involvement	Derste fikirleri tartışırım.	I discuss ideas in class.
	Sınıf tartışmalarında görüşlerimi açıklarım.	I give my opinions during class discussions.
	Öğretmen bana sorular sorar.	The teacher asks me questions.
	Düşünce ve önerilerim sınıf tartışmalarında kullanılır.	My ideas and suggestions are used during classroom discussions.
	Öğretmene sorular sorarım.	I ask the teacher questions.
	Görüş ve düşüncelerimi sınıf arkadaşlarıma açıklarım.	I explain my ideas to other students.
	Sınıf arkadaşlarımla problemlerin nasıl çözümleneceğini benimle tartışırız.	Students discuss with me how to go about solving problems.
	Sorunları nasıl çözdüğümün açıklanması istenir.	I am asked to explain how I solve problems.
Araştırma Task Orientation	Görüşlerimi doğrulamak için araştırmalar yaparım.	I carry out investigations to test my ideas.
	Açıklamaların dayandığı kanıtlar hakkında düşünmem istenir.	I am asked to think about the evidence for statements.
	Tartışmalar sonucu ortaya çıkan soruları cevaplamak için araştırmalar yaparım.	I carry out investigations to answer questions coming from discussions.
	İfadelerin, şekillerin ve grafiklerin anlamlarını açıklayabilirim.	I explain the meaning of statements, diagrams and graphs.
	Aklıma takılan soruların yanıtını bulmak için araştırmalar yaparım.	I carry out investigations to answer questions that puzzle me.
	Öğretmenin sorularını yanıtlamak için araştırmalar yaparım.	I carry out investigations to answer the teacher's questions.
	Soruların yanıtlarını araştırma yaparak bulurum.	I find out answers to questions by doing investigations.

Appendix A. Cont'd

	Problemleri kendi arařtırmalarım ile elde ettiđim bilgileri kullanarak çözerim.	I solve problems by using information obtained from my own investigations.
Görev Bilinci Investigation	Belirli bir çalıřma düzenini yakalamak benim için önemlidir.	Getting a certain amount of work done is important to me.
	Başlarken belirlediđim hedeflere ulařana kadar çalıřırım.	I do as much as I set out to do.
	Bu dersin amaçlarını biliyorum.	I know the goals of this class.
	Bu derse her zaman hazır olarak gelirim.	I am ready to start this class on time.
	Bu derste benden nelerin beklendiđini biliyorum.	I know what I am trying to accomplish in this class.
	Bu dersi dikkatli bir şekilde takip ederim.	I pay attention during this class.
	Bu derste ki konuları ve uygulamaları anlamaya çalıřırım.	I try to understand the work in this class.
	Ne kadar çalıřmam gerektiđini biliyorum.	I know how much work I have to do.
İřbirliđi Cooperation	Ödev yaparken sınıf arkadařlarım ile iřbirliđi yaparım.	I cooperate with other students when doing assignment work.
	Ödevleri yaparken kitap ve kaynaklarımı sınıf arkadařlarımla paylařırım.	I share my books and resources with other students when doing assignments.
	Bu derste yapılan grup çalıřmalarında kim ruhu ortaya çıkar.	When I work in groups in this class, there is teamwork.
	Bu derste sınıf arkadařlarımla birlikte ortak projeler üzerinde çalıřırım.	I work with other students on projects in this class.
	Bu derste sınıf arkadařlarımdan öğrenirim.	I learn from other students in this class.
	Bu derste sınıf arkadařlarımla birlikte çalıřırım.	I work with other students in this class.
	Der saktivitelerinde sınıf arkadařlarım ile iřbirliđi yaparım.	I cooperate with other students on class activities.
	Dersin hedeflerini bařarmak için sınıf arkadařlarım benimle iřbirliđi yaparlar.	Students work with me to achieve class goals.
Sınıf içi Demokrasi ve Eřitlik Equity	Öğretmen benim sorularıma diđer arkadařlarımın sorularına verdiđi kadar önem verir.	The teacher gives as much attention to my questions as to other students' questions.
	Öğretmenden diđer öğrencilerin aldıđı kadar yardım alırım.	I get the same amount of help from the teacher as do other students.
	Bu derste benimde sınıf arkadařlarım kadar söz hakim vardır.	I have the same amount of say in this class as other students.
	Bu derste bana sınıftaki diđer öğrencilere davranıldıđı gibi davranılır.	I am treated the same as other students in this class.
	Öğretmen sınıf arkadařlarıma verdiđi desteđin aynısını bana da verir.	I receive the same encouragement from the teacher as other students do.
	Sınıf tartıřmalarına katkıda bulunmak için bana da sınıf arkadařlarım kadar fırsat verilir.	I get the same opportunity to contribute to class discussions as other students.
	Çalıřmalarım arkadařlarımın çalıřmaları kadar övgü alır.	My work receives as much praise as other students' work
	Soruları yanıtlamak için sınıf arkadařlarımla eřit fırsatım vardır.	I get the same opportunity to answer questions as other students.
Farklılařma Differentiation	Kendime ait bir çalıřma hızım vardır.	I work at my own speed.
	Benden hızlı çalıřan öğrenciler bir sonraki konuya geçerler.	Students who work faster than me move on to the next topic.
	Derste konuları seçme hakim vardır.	I am given a choice of topics.
	Bana verilen görevler sınıf arkadařlarımdan farklıdır.	I am set tasks that are different from other students' tasks.

Appendix A. Cont'd

	Bana yeteneklerime uygun ödevler verilir.	I am given work that suits my ability.
	Benim kullandığım materyaller arkadaşlarımın kullandıklarından farklıdır.	I use different materials from those used by other students.
	Arkadaşlarımdan farklı değerlendirme yöntemleri kullanırım.	I use different assessment methods from other students.
	Arkadaşlarımdan farklı çalışmalarından farklı çalışmalar yaparım.	I do work that is different from other students' work.
Bilgisayar Kullanımı Computer Usage	Ödevlerimi hazırlarken bilgisayar kullanırım.	I use the computer to type my assignments.
	Ödevlerimi öğretmene e-posta ile göndermek için bilgisayar kullanırım.	I use the computer to email assignments to my teacher.
	Öğretmene soru sormak için bilgisayar kullanırım.	I use the computer to ask the teacher questions.
	Ders hakkında bilgi toplamak için bilgisayar kullanırım.	I use the computer to find out information about the course.
	Öğretmen tarafından hazırlanan ders notlarını okumak için bilgisayar kullanırım.	I use the computer to read lesson notes prepared by the teacher.
	Çalışmalarımın nasıl değerlendirileceğini öğrenmek için bilgisayar kullanırım.	I use the computer to find out information about how my work will be assessed.
	Bilgisayarı sınıf arkadaşlarım ile internet üzerinde tartışmalar yapmak için kullanırım.	I use the computer to take part in online discussions with other students.
	İnternette bilgi toplamak için bilgisayar kullanırım.	I use the computer to obtain information from the Internet.
Ergen Kültürü Young Adult Ethos	Bana genç bir yetişkin gibi davranılır.	I am treated like a young adult.
	Bana sorumluluk verilir.	I am given responsibility.
	Benden kendi adıma düşünmem beklenir.	I am expected to think for myself.
	Bana yetişkin gibi davranılır.	I am dealt with as a grown up.
	Güvenilir biri olarak kabul edilirim.	I am regarded as reliable.
	Olgun olduğum düşünülür.	I am considered mature.
	Bana bağımsız olma şansı verilmiştir.	I am given the opportunity to be independent.
	Kendi öğrenme sürecimin sorumluluğunu üstlenmem için teşvik edilirim.	I am encouraged to take control of my own learning.