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THE RELATIONSHIP AMONG TEACHERS' INSTRUCTIONAL BEHAVIORS,  
STUDENT MOTIVATION AND STUDENT ENGAGEMENT:  
AN OBSERVATIONAL STUDY

A MASTER'S THESIS

BY

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THE PROGRAM OF CURRICULUM AND INSTRUCTION  
İHSAN DOĞRAMACI BILKENT UNIVERSITY  
ANKARA

MAY 2017

2017



The Relationship Among Teachers' Instructional Behaviors, Student  
Motivation and Student Engagement: An Observational Study

The Graduate School of Education  
of  
İhsan Doğramacı Bilkent University

by  
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In Partial Fulfilment of the Requirements for the Degree of Master of Arts

in  
Curriculum and Instruction

İhsan Doğramacı Bilkent University  
Ankara

May 2017

İHSAN DOĞRAMACI BILKENT UNIVERSITY  
GRADUATE SCHOOL OF EDUCATION

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Student Engagement: An Observational Study

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May 2017

I certify that I have read this thesis and have found that it is fully adequate, in scope  
and in quality, as a thesis for the degree of Master of Arts in Curriculum and  
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## ABSTRACT

### THE RELATIONSHIP AMONG TEACHERS' INSTRUCTIONAL BEHAVIORS, STUDENT MOTIVATION AND STUDENT ENGAGEMENT: AN OBSERVATIONAL STUDY

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May 2017

This study investigated the relationship among teachers' need supportive instructional behaviors (i.e., autonomy support and provision of structure), student motivation (achievement goals and autonomous or controlling underlying reasons) and engagement. The investigation included the assessment of all these three aspects in a specific class session. Teachers' need supportive instructional behaviors were assessed by both external observers and students' self-reports. Student motivation and engagement were assessed by students' self-reports. The participants ( $N = 310$ ) were from a public Anatolian high school in Ankara, Turkey. The observations were carried out by two observers in 10 different classes.

Regression analyses showed that autonomy support and provision of structure were positive predictors of mastery-approach (MAp) goals and autonomous reasons underlying these goals whereas performance-approach (PAp) goals and underlying reasons were not found to be related to teachers' need supportive teaching. MAp

goals were predictors of all four aspects of student engagement (behavioral, emotional, agentic, cognitive) and overall engagement, while autonomous reasons underlying MAp goals were positive predictors of emotional and cognitive engagement as well as of the overall engagement. PAp goals were predictors only for behavioral and cognitive engagement, while their underlying reasons did not predict engagement. A positive relation between need supportive teaching and student engagement (all aspects, excluding agentic engagement) was found. Furthermore, bootstrap analyses showed that MAp goals and autonomous reasons underlying MAp goals acted as a mediating mechanism between need supportive teaching and student engagement.

Finally, the results revealed some degree of difference in students' and observers' perception of need supportive teaching; the majority of the students overestimated their teachers' autonomy support and provision of structure. However, as the MANOVA indicated, students in high need supportive classrooms (according to the observers' grouping) reported higher perception of autonomy support, provision of structure, MAp goals and their autonomous underlying reasons and engagement compared to students in average and low need supportive classrooms. Teachers' autonomy support and provision of structure revealed important instructional approaches for students' quality of motivation and engagement.

Key words: autonomy support, provision of structure, mastery-approach goals, performance-approach goals, autonomous reasons, controlling reasons, student engagement

## ÖZET

### ÖĞRETMENLERİN EĞİTSEL DAVRANIŞLARI, ÖĞRENCİ MOTİVASYONU VE KATILIMI ARASINDAKİ İLİŞKİ: GÖZLEMSEL BİR ÇALIŞMA

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Tez Yöneticisi: Yrd. Doç. Dr. Aikaterini Michou

Mayıs 2017

Bu çalışma, belirli bir ders saati içerisindeki öğretmenlerin ihtiyaç destekleyen eğitsel davranışları (özerklik desteği ve düzenli öğretim), öğrenci motivasyonu (başarı hedefleri ve bunların altında yatan sebepler) ve öğrenci katılımı arasındaki ilişkiyi araştırmaktadır. Öğretmenlerin ihtiyaç destekleyen eğitsel davranışları hem öğrenciler tarafından tamamlanan anketler hem de harici gözlemciler tarafından yapılan ders sırası gözlemler ışığında değerlendirilmiştir. Öğrenci motivasyonu ve katılımı ise öğrenci anketleriyle değerlendirilmiştir. Araştırmaya Ankara, Türkiye’de bulunan bir Anadolu lisesinden 310 öğrenci katılmıştır. Ders gözlemleri iki gözlemci tarafından 10 farklı sınıfta gerçekleştirilmiştir.

Regresyon analizleri sonucunda özerklik desteği ve düzenli öğretim ile öğrencilerin uzmanlık hedefleri (UH) ve bu hedeflerin altında yatan özerk sebepler arasında pozitif ilişki bulunmuştur. Performans hedefleri (PH) ve bu hedeflerin altında yatan özerk sebepler ile öğretmenlerin ihtiyaç destekleyen davranışları arasında bir ilişki

bulunamamıştır. UH ile öğrenci katılımının tüm boyutları (davranışsal, bilişsel, duygusal, aracı) ve genel katılım; UH altında yatan özerk sebepler ile ise duygusal, bilişsel ve genel katılım arasında pozitif bir ilişki bulunmuştur. PH ile yalnızca davranışsal ve bilişsel katılım arasında pozitif ilişki bulunurken PH altında yatan sebepler hiçbir katılım boyutuyla ilişki göstermemiştir. Bunların yanı sıra, öğretmenleri ihtiyaç destekleyen eğitimi ile öğrenci katılımı (aracı katılım hariç tüm boyular) arasında pozitif bir ilişki bulunmuştur. Bootstap analizi sonucu UH ve bu hedeflerin altında yatan özerk sebeplerin, ihtiyaç destekleyici eğitim ve öğrenci katılımı arasında bağdaştırıcı etkisi gözlemlenmiştir.

Son olarak, sonuçlar gözlemciler ve öğrencilerin ihtiyaç destekleyen davranış algısında farklılıklar gösterdi; öğrencilerin çoğunluğu öğretmenlerinin özerklik desteği ve düzenli eğitimine gözlemcilerden yüksek değerlendirmiştir. Ancak MANOVA sonuçları gösterdiği üzere, ihtiyaç desteği yüksek olan sınıflardaki (gözlemci değerlendirmesine göre) öğrenciler, ihtiyaç desteği ortalama ve düşük olan sınıflardaki öğrencilerden daha fazla özerklik desteği ve düzenli eğitim aldıklarını, daha fazla ustalık hedefi belirleyip bu hedefleri özerk sebepler için edindiklerini belirtmişlerdir. Bu çalışmada, öğretmenlerin özerklik desteği ve sağladığı düzenli eğitim, öğrenci motivasyonu ve katılımı adına önemli eğitsel yaklaşımlar ortaya çıkarmıştır.

Anahtar kelimeler: özerklik desteği, düzenli eğitim, ustalık hedefleri, performans hedefleri, özerk sebepler, kontrolcü sebepler, öğrenci katılımı

## **ACKNOWLEDGEMENTS**

First of all, I would like to extend my deepest gratitude to Asst. Prof. Dr. Aikaterini Michou. She supported me not only academically, but also psychologically. She has always been there when I needed her, and I am sure she will be by my side whenever I need her in the future.

I also would like to thank Asst. Prof. Dr. Jennie Farber Lane and Asst. Prof. Dr. Athanasios Mouratidis for accepting to be in my thesis committee and helping me improve my thesis.

I want to thank my best friends here in MA CITE program, Nazmiye Gür and Tansu Özakman. Together, these two girls created the perfect friendship one can ever need. We cried, we laughed, we studied hard; we were stronger together. Friendship never ends!

I also would like to thank my beloved one, Ufuk Aslan. We have spend the last two years in two different cities, and he was the most supportive person I have ever had in my life. Thank you, for being so patient and understanding.

Last but not least, I am very grateful to my beautiful family, my mother Filiz Bulut, my father Güven Bulut, and my sister Zeynep Bulut (or as known as: Yerelması) for their unconditional love, support and patience. Without them being my side, it would not have been possible to for me to overcome the obstacles I had in my life.

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# **CHAPTER 1: INTRODUCTION**

## **Introduction**

Instructional behaviors differ from one teacher to another; some teachers have a more controlling, teacher-centered approach while others take students' perspectives, provide options and give feedback. These behaviors are determiners of a teacher's style and the quality of the environment created in a class.

Like different instructional behaviors teachers adopt, students also have different aims while engaging in tasks and activities. Some students aim to learn as much as possible, whereas others may aim to perform better than others. The students who want to learn as much as possible may adopt this goal because learning is an integral part of their life or because they will gain social approval. Likewise, students who want to perform better than others may endorse this goal because of the rewards that teacher/parents provide or the pleasure of competing with others. Thus, there may be various reasons underlying the endorsement of students' goals while they engage in tasks during lessons. The endorsed goals and the underlying reasons determine the quality of students' motivation.

To explore whether students always benefit from teachers' instructional behaviors, this study focused on the relationship between the instructional behaviors that teachers adopt (namely autonomy support and provision of structure) and the quality of student motivation and engagement.

## **Background**

### **Psychological needs: Satisfying them in class**

According to Self-Determination Theory (SDT; Ryan & Deci, 2000), humans have three basic innate psychological needs that should be satisfied to maintain optimal functioning and personal growth: need for competence, need for autonomy and need for relatedness. A number of studies have shown that students display adaptive patterns of behavior, affect and cognition when these psychological needs are simultaneously satisfied. Likewise, as these needs are very important, people usually lean towards the situations satisfying these needs and try to avoid the ones thwarting these needs (Deci & Vansteenkiste, 2004).

Relatedness, as being one of the three needs, refers to feeling cared for and connected to others in the social environment. Usually, the satisfaction of this need encompasses a mutual process that involves being able to feel connected, caring for others and being able to matter in others' lives. In a classroom context, teachers can facilitate relatedness by taking interest in the students' activities, genuinely listening to them, providing acceptance, warmth and caring, and devoting time and resources to them during the lessons (Cox & Williams, 2008; Ryan & Deci, 2000; Skinner & Belmont, 1993)

The need for autonomy is probably the most central of all psychological needs.

Autonomy refers to self-endorsed behaviors – a sense of volition and initiative while engaging with an activity. Autonomy is supported best in a classroom when teachers provide choices, avoid extrinsic rewards or threats of punishment, avoid competition among students, provide opportunities that students can participate in decision

making process, rely on non-controlling language, acknowledge students' perspective and feelings, and accept expressions of negative affect (Reeve, 2006).

Finally, the need for competence refers to the feeling that one is competent enough to interact effectively with the environment. Teachers can support students' competence by providing a structural educational environment through which they express clear and ideally challenging expectations, providing a rationale for the activities done in and outside of the classroom, providing rules, explaining consequences, and providing informational feedback and scaffolding (Sierens, Vansteenkiste, Goossens, Soenens, & Dochy, 2009). Need supportive classes in terms of competence typify structured classes (Skinner & Belmont, 1993); alternatively, provision of structure within the classroom context represent classrooms settings that facilitate student motivation and engagement (Skinner et al., 2008). Research has shown that autonomy support and provision of structure are equally important and when teachers provide both, students are more engaged in the lessons (Jang, Reeve, & Deci, 2010).

### **Quality of student motivation**

The achievement goals (what students strive for) and the underlying reasons of pursuing these goals (why) have been considered as two important aspects of quality of student motivation (Vansteenkiste, Lens, Elliot, Soenens, & Mouratidis, 2014).

This is a new approach in achievement motivation that claims that a better description of student motivation can be achieved if "what" students strive for and "why" they do so are explored.

Achievement goals have been described as the purpose behind the actions individuals take. Initially, they were divided into two major categories: *mastery goals* and *performance goals* (Dweck, 1996). This description was referred as the dichotomous achievement goal model. According to this model, mastery goals are related to learning as much as possible, trying to understand, developing new skills and mastering the subject in a classroom context. Performance goals, however, are related to showing that one can perform better than others, so what is important is not to get the best out of a lesson, but to perform the best in the classroom (Ames, 1992).

Later in the 1990s, Elliot and colleagues proposed that the dichotomous model needed further expansion via approach and avoidance components (Elliot & Church, 1997; Elliot & Harackiewicz, 1996). Approach component suggests an orientation in one's behaviors towards achieving positive consequences or circumstances, while avoidance orients one's behaviors towards avoiding negative outcomes or circumstances (Elliot, 1999). Both performance and mastery goals, then, were subdivided into two categories forming a 2x2 model: *mastery-approach goals* (MAp), *mastery-avoidance goals* (MAv), *performance-approach goals* (PAp), and *performance-avoidance goals* (PAv) (Elliot & McGregor, 2001).

Elliot (2005) suggested that the reasons underlying achievement goals should be regarded as a separate concept from the goals. With respect to SDT, the achievement goals can be endorsed for either (1) autonomous reasons or (2) controlling reasons (Vansteenkiste, Smeets, et al., 2010). Autonomous reasons suggest one's own will to participate in an activity or pursue a goal whereas controlling reasons indicate an

obligation or compelling from an external party to pursue a goal (Vansteenkiste, Mouratidis, & Lens, 2010).

Specifically, according to SDT (Ryan & Deci, 2000), the autonomous reasons for participating in an activity or endorsing a goal can be differentiated into by identified, integrated or intrinsic reasons. The *identified reasons* refer to personal values and gains even if the task is not enjoyable or interesting. For instance, some students may want to study hard in math classes, because it will help them to do better in the university entrance exam. The *integrated reasons* refer to deeply-internalized reasons to achieve a goal, it has to do with the assimilation of the reasons with the self. *Intrinsic reasons* refer to doing an activity or completing a task voluntarily because it is enjoyable and/or interesting.

In a similar vein, the controlling reasons are further differentiated into external and introjected reasons. *External reasons* refer to doing an activity or completing a task for the sake of a prize or to avoid punishments. *Introjected reasons* indicate a self-imposed pressure or ego validation. For example, if someone feels only proud when they finish a task, or hands the homework on time not to feel guilty, it means that this person is urged by introjected reasons to achieve a goal.

### **Student engagement**

Engagement, in most general terms, can be described as students' active involvement in a learning activity; in other words, their interactions with teachers, peers, goals and the environment (Christenson, Reschly, & Wylie, 2012). It is mostly positively associated with students' desired academic, social and emotional learning outcomes as engagement involves students' effortful participation. The intensity and duration

of student engagement may vary depending on different effects (Fredricks, Blumenfeld, & Paris, 2004; Reeve & Lee, 2014; Skinner, Kindermann, & Furrer, 2009).

Engagement is regarded as a multidimensional construct; however, these dimensions are highly intercorrelated with each other (Veiga, Reeve, Wentzel, & Robu, 2014). Initially, this construct was thought to have three distinct aspects of behavior, emotion and cognition. According to this three-dimensional construct, *behavioral engagement* refers to the degree of effortful student involvement including behaviors such as attention, persistence, and effort (Fredricks et al., 2004; E. a. Skinner et al., 2009); *emotional engagement* mostly refers to the presence of a positive emotion – such as interest, enthusiasm and happiness – while involved in a task. It can also refer to negative emotions such as anxiety, boredom and sadness (Reeve & Lee, 2014; Veiga et al., 2014); and *cognitive engagement* is related to students' self-regulation and strategies that they develop to learn more than required. Students who are cognitively engaged are able to manage their control of the task (Fredricks et al., 2004).

However, Reeve and Tseng (2011) suggested that agency should be the fourth aspect of student engagement, saying that students do not only react to learning activities as they are given to them, but they also contribute to these activities and modify them into personal, interesting activities. Therefore, to be able to depict a more accurate picture of engagement, Reeve and Tseng coined *agentic engagement* as the fourth aspect. It refers to students' intentional involvement and contribution to the task or learning activity by asking questions, expressing feelings and preferences,

challenging the level of the task, communicating the teacher, seeking for assistance and feedback and so on.

Student engagement has been the subject of many studies and it is one of the key factors that helps to understand student motivation. As past research has shown, there is a meaningful relationship between student motivation and engagement (Appleton, Christenson, & Furlong, 2008; Walker, Greene, & Mansell, 2006).

### **Problem**

In every learning activity or task in which a student is engaged, they have some goals. It can be to outperform others in the classroom, or learn as much as possible, or not to be worse than others. The achievement goals that students adopt may vary, and even though some students have the same goals, the reasons underlying these goals may not be the same. These “what” and “why” aspects of student motivation may differ depending on various factors, such as teachers’ need supportive/controlling teaching or the need supportive/controlling environment of the classroom.

As the “what” aspect of student motivation, achievement goals have been subject to many studies that have investigated the relation of classroom environment to the endorsement of specific achievement goals by students. However, these studies have focused more on the classroom goals structures; that is, the classroom or teacher’s emphasis on particular achievement goals, and their relation to achievement goals (Greene, Miller, Crowson, Duke, & Akey, 2004; Meece, Anderman, & Anderman, 2006).

Despite these studies, the relation of teachers' autonomy support and provision of structure to achievement goals has not been extensively investigated. It is probably because these aspects are described by two distinctive theories; autonomy support and provision of structure are mostly described by the SDT whereas achievement goals are explained by *Achievement Goal Theory*. It seems, however, that a well-structured educational environment can also be beneficial for the adoption of achievement goals. Moreover, as autonomy support, among others, concerns the acknowledgment of students' needs, it can be related to achievement goals regarding learning and self-improvement rather than to normative goals, which are related to outperforming others.

From the SDT perspective, there are many studies that have investigated the relation of students' need satisfaction to their autonomous and controlled motivation (Black & Deci, 2000; De Meyer et al., 2014; Meyer, Soenens, Aelterman, Bourdeaudhuij, & Haerens, 2015; Taylor & Ntoumanis, 2007). There are also many studies that have investigated the relation of autonomy support and provision of structure to engagement (Jang et al., 2010; Reeve & Lee, 2014; Walker et al., 2006). However oddly enough, there is no study that investigates if and how students' autonomous and controlled motivation are the explanatory mediating mechanism through which need supportive teaching is related to engagement.

As both the adoption of achievement goals and the autonomous and controlling reasons underlying their adoption are recently considered important aspects of students' achievement motivation, it seemed necessary to investigate to what extent a need supportive learning environment is related to both aspects of student motivation

(i.e., the “what” and the “why”) and whether such kind of an environment is related to student engagement via student motivation.

### **Purpose**

The present study mainly focuses on teachers’ need supportive teaching (i.e., autonomy support and provision of structure), student motivation (i.e., achievement goals students endorse and reasons underlying these goals), and student engagement. Of all aspects of need supportive teaching, only autonomy support and provision of structure were investigated, as according to Reeve and his colleagues (Reeve, Ryan, & Deci, 2007), instructional behaviors related to autonomy support and provision of structure also create a caring atmosphere for the students that fulfill their need for *relatedness*. Regarding students’ motivation, only mastery-approach and performance-approach goals and their autonomous and controlling underlying reasons were considered. Finally, as it concerns students’ engagement, four aspects were assessed, that is behavioral, emotional, cognitive and agentic.

The purpose of the present study was to investigate to what extent student motivation functions as a mediating mechanism that relates teachers’ need supportive teaching to students’ engagement. For this reason, during a specific class session, the relationship between (1) teachers’ need supportive teaching and student motivation, (2) student motivation and engagement and (3) need supportive teaching and student engagement were investigated.

Moreover, in the present study, teachers’ need supportive teaching was assessed by both students and trained observers during the specific lesson. This way, it was

possible to investigate the extent to which students and external observers similarly perceived need supportive teaching, and, more importantly, whether instructional behaviors assessed by external observers predict any differences in students' motivation and engagement.

### **Research questions**

This study is going to address the following questions:

1. During a specific session, what is the relationship among need supportive instructional behaviors, student motivation and student engagement?
  - a. Do perceived autonomy support and provision of structure predict students' endorsed achievement goals and underlying autonomous and controlling reasons?
  - b. Do endorsed achievement goals and underlying reasons predict student engagement?
  - c. Do perceived autonomy support and provision of structure predict student engagement?
  - d. Do achievement goals and autonomous and controlling reasons underlying achievement goals mediate the relationship between perceived autonomy support, provision of structure and student engagement?
2. To what extent do students and the observers similarly perceive teachers' autonomy support and provision of structure?
3. During a specific lesson do need supportive instructional behaviors assessed by observers predict differences in students' motivation and engagement?

## **Significance**

The study provided important insights into the relation of two aspects of teachers' instructional behaviors (i.e., autonomy support and provision of structure) to achievement goals that students endorse, which has not been extensively investigated before. Also, there has been no study conducted to identify the relation of autonomy support and provision of structure to underlying reasons of achievement goals. Moreover, as these aspects were assessed by two different resources – students and two external observers – the study revealed objective and reliable results.

This study also investigated students' autonomous and controlling motivation as an explanatory mediating mechanism through which need supportive teaching was related to engagement. Although these three aspects have been investigated in different research studies, this investigation brought new insights into the mediating role of motivation into the literature.

This research will be a springboard for the literature in Turkey too, helping us to better depict the current situation in Turkey's high schools as to whether teachers' need supportive teaching is related to students' motivation, and whether these aspects predict students' engagement. The results provided specific guidelines for teachers about effective ways to facilitate student motivation and engagement, and may contribute to their understanding of need supportive teaching and motivating style.

## **Definition of key terms**

**Achievement goals:** Achievement goals can be defined as the purpose behind the actions individuals take or engaging in an activity (Dweck, 1996; Elliot &

Harackiewicz, 1996). There are four achievement goals, (1) mastery-approach, (2) mastery-avoidance, (3) performance-approach and (4) performance-avoidance (Elliot & McGregor, 2001).

**Autonomous and controlling reasons underlying achievement goals:**

Autonomous reasons underlying achievement goals refer to endorsing a goal as a result of one's own will or personally important reasons; controlling reasons underlying achievement goals, on the other hand, indicate the endorsement of a goal as a result of an external or internal psychological pressure (Vansteenkiste, Mouratidis & Lens, 2010).

**Autonomy Support:** Teachers' autonomy support consists of approaches such as taking student perspective, giving importance to their thoughts, emotions and behaviors, and supporting their capacity of achievement and motivational development (Reeve, 2009).

**Provision of Structure:** Teachers provide structure when they state clear goals, rules and expectations before the activities or lessons, when they offer guidance and scaffolding during the lessons, and when they provide feedback after the lessons (Reeve, 2006).

**Student Engagement:** A student's active involvement in a learning activity, his/her interactions with the teacher, peers, goals and the environment (Fredricks et al., 2004)

## **CHAPTER 2: REVIEW OF RELATED LITERATURE**

### **Introduction**

This study explored the relationship between teachers' instructional behaviors (autonomy support and provision of structure) and student motivation (what achievement goals they set and why they pursue these goals) in the light of Self-Determination Theory and Achievement Goal Theory. Along with these investigations, the relation of these variables with student engagement was also explored. The main purpose of this chapter is to provide the reader with the necessary background information about past research regarding the research questions. In the first subsection of this chapter, the relationship between two aspects of teachers' instructional behaviors, autonomy support and provision of structure, and students' achievement goals are reviewed. Then, the underlying reasons behind setting these goals and their relation to autonomy support and provision of structure are summarized. In the third and fourth subsections, the literature regarding the relation of student engagement to student motivation and teachers' instructional behaviors are presented. Lastly, as this study is an observational study, past research regarding observational studies assessing teachers' autonomy support and provision of structure is reported.

### **Achievement goals students adopt and their relationship with autonomy support and provision of structure**

Achievement goals have been the subject of many studies over the past three decades. Two types of achievement goals that students adopt in an academic environment have been defined by researchers as *mastery goals* and *performance*

*goals*. While students who pursue mastery goals focus on improving their learning and they engage in activities so as to understand and learn more, students who adopt performance goals are more keen on showing their abilities and want to show they can accomplish better than their peers (Ames, 1992; Elliot, 1999).

The goals that students set and pursue are related to various factors including teachers' instructional behaviors. Research on this relation mostly focuses on the links between the achievement goals provided by the teacher through his or her instructional behaviors and students' endorsed achievement goals. Very few studies have investigated the relations of students' achievement goals to other aspects of teaching behavior such as autonomy support and provision of structure. However, in these few studies reviewed below, it has been shown that autonomy support and provision of structure do relate to students' achievement goals.

Cho, Weinstein and Wicker (2011) conducted a study with junior and senior college students to examine the roles of autonomy support and competence in relation to achievement goal orientations. The findings suggest that autonomy support plays an important role, strengthen the probability of adoption of a mastery goal and maximize positive functions of mastery goals whereas there is no effect of autonomy on pursuing a performance goal. Therefore, the study concludes when mastery goals are accompanied by autonomy support, students tend to show positive outcomes, such as high academic achievement. Likewise, a study conducted by Akram, Sultan and Ijaz (2014) with college students draws parallels with the previous study. The results showed that there is a strong correlation between autonomy support and mastery goals.

To investigate when mastery goals are more adaptive, Benita, Roth and Deci (2014) conducted two complementary studies. In both studies the researchers examined the effect of autonomy support on mastery goals and outcomes. The participants of the first study were college students; they were randomly divided into three groups – autonomy supportive, autonomy suppressive and neutral – and asked to complete handwriting tasks. The results revealed that students whose goals were supported with autonomy displayed higher levels of interest and, less pressure and sense of choice than others who received autonomy suppressive and neutral instructions. The second study was conducted in a middle school context. The students completed questionnaires as to whether their environment, (i.e., homeroom teacher's class), relates to their sense of choice, interest, joy and engagement. Positive and significant correlations were found for mastery goals. To that end, the results of both studies indicated that mastery goals can be adopted under each circumstance – autonomy supportive, autonomy suppressive and neutral – but higher levels of sense of choice and interest were found to be existent under autonomy supportive situations. Consequently, autonomy support serves as a moderator of mastery goals and as a result, students show more positive psychological outcomes.

In a very similar study, Madjar, Nave and Hen (2013) investigated the relationship between teachers' psychological control and students' goals. Middle school students completed surveys to assess their perception of teachers' autonomy support and autonomy suppression and their own goal orientations. The findings revealed that when teachers' behaviors were more autonomy supportive, students tended to adopt mastery goals, and thwart performance goals.

Past research presents a relatively vague picture in terms of performance goals. Performance goals lead students to success as well, but the probability of enhancing deep level understanding and learning is lower than mastery goals do. Most of the studies discussed above agreed upon the fact that mastery goals are predicted by autonomy support, whereas performance goals are negatively correlated with autonomy. However, the results of a study from Norway depict a slightly different picture. Diseth and Samdal (2014) concluded that both achievement goals – mastery and performance – were positively correlated with autonomy support. Despite being weak, the correlation provides significant findings for future investigations.

Another factor that is related with specific goal orientations is provision of structure and it plays an important role in students' intrinsic activities, academic achievement and engagement. When teachers rationalize activities, communicate expectations and rules, monitor students' progress, and provide help, students feel more competent; this means that in addition to autonomy support, structure is related to students' competence and positive outcomes. The more students are subject to well-structured teaching and learning environments, the more they develop effective learning strategies and goals. Such environments help students know what they need to do, and as a result they know how to achieve the goals they set (Mouratidis, Vansteenkiste, Michou, & Lens, 2012).

### **Autonomous and controlled motivation and their relations to autonomy support and provision of structure**

SDT suggests that satisfying students' basic psychological needs affects their type of motivation (Ryan & Deci, 2000). Autonomy support and provision of structure, in

this sense, are major factors having impact on student motivation. As past research has shown, the absence of autonomy support does not necessarily mean the presence of a controlling teaching style. (Bartholomew, Ntoumanis, Ryan, Bosch, et al., 2011). However, findings of past studies show that there is a positive relationship between autonomy supportive teaching and autonomous motivations while there is also a positive relationship between controlling teaching and controlled motivation.

A number of studies from the literature answer the question whether autonomy supportive and controlling teaching styles are related to students' motivational orientations. In their experimental study, De Naeghel, et al. (2016) examined whether changing teachers' instructional behaviors towards a more autonomy supportive and structured style would affect students' autonomous motivation at least in short term. The students showed a significant progress from pretest to posttest regarding their autonomous reading motivation. Particularly, gender differences revealed an important fact: boys responded to their teachers' autonomy supportive and structured teaching style more than girls, which was a novel finding for the literature.

Another study conducted by Vansteenkiste, et al. (2012) investigated the effect of autonomy support and structure on student motivation suggesting that when students perceive their teachers as providing low autonomy support and structure, they reported that they experience low levels of both autonomous and controlled motivation. When autonomy supportive and structured teaching behaviors were absent, students reported less autonomous motivation; on the other hand, when they were provided with high autonomy support and structure, they displayed higher autonomous motivation. Taylor and Ntoumanis (2007) found very similar results in

their study; findings of their study revealed that the level of the autonomy support and structure provided by the teacher are positively related to students' level of autonomous motivation.

To investigate the effects of motivation on students' perceptions of the instructors' overall behaviors, Black and Deci (2000) examined college students during a chemistry course. The researchers assumed that if student participated in the lessons with autonomous motivation, their perception of teachers' need supportive teaching and positive outcomes would be higher. As presumed, perceived autonomy support and autonomous motivation were found to be positively related; the more students were autonomously motivated, the higher they perceived the teacher autonomy supportive and the less they thought of dropping the course.

From the opposite point, a study conducted by De Meyer and his colleagues (2014) indicated that students experiencing more controlling teaching behaviors reported more controlled motivation. Haerens, et al. (2015) found out when students perceived their teachers as more controlling, they feel their needs less satisfied and students who reported high levels of need frustration perceived the lesson as a total waste of time and they felt under pressure to actively participate in the lesson. All in all, the results indicate that perceived controlling behaviors of teachers are mostly, either directly or indirectly, related to controlled motivation and amotivation.

Recently, autonomous and controlled motivation has been considered as the motivational background of the endorsement of achievement goals. Students can endorse an achievement goal for either an autonomous or a controlling reason (Vansteenkiste, et al., 2014). However, there is no study conducted to identify the

relation of autonomy supportive and structured teaching on underlying reasons of students' achievement goals. As these reasons, *autonomous reasons* and *controlling reasons*, are totally in line with the autonomous and controlled motivation defined by SDT, it is expected to find a correlation between underlying reasons of achievement goals and teachers' instructional behaviors – autonomy support and provision of structure.

### **Students' engagement and its relation to autonomy support and provision of structure**

In most general terms, engagement refers to students' involvement in a learning activity or task (Christenson et al., 2012; Fredricks et al., 2004). Literature has been investigating and describing the factors that affect student engagement, among which teachers' instructional behaviors play an important role (Skinner et al., 2008).

Different studies have suggested that when teachers are more autonomy supportive and provide a structured learning environment, students become more engaged in the task and manage their behaviors (Assor, Kaplan, & Roth, 2002; Skinner & Belmont, 1993).

In this respect, Assor, et al., (2002) investigated the relation of autonomy enhancing and suppressing teacher behaviors to student engagement. Their study included different degrees of autonomy enhancing and suppression behaviors such as providing choice, allowing criticism, fostering relevance, suppressing criticism, forcing meaningless activities and so on. The results of student questionnaires suggested that there is a positive relation of autonomy supportive teacher behaviors

(specifically, providing choice and fostering relevance) to students' behavioral and cognitive engagement.

Jang, Reeve, and Deci (2010) conducted a study to investigate whether two aspects of teachers' instructional behaviors, autonomy support and provision of structure, are positively related to student behavioral engagement. The results of the study revealed that both aspects of teachers' instructional behaviors were positively and strongly correlated with each other. In-class observations showed that students' collective behavioral engagement was related to both aspects of teachers' instructional behaviors; the results of students' self-reported engagement indicated autonomy support was a predictor of their engagement. In their study, Hospel and Galand (2016) investigated the specific, additive and combined effects of teachers' autonomy support and provision of structure on students' engagement (i.e., behavioral, emotional and cognitive engagement). The findings indicated that provision of structure was associated with behavioral engagement, while both autonomy support and provision of structure were related to emotional engagement. Specifically, autonomy support and provision of structure were positively related to students' positive emotions during lessons and negatively related to negative emotions.

From an opposite point of view, a study was conducted to see the relation of controlling teaching behaviors to student engagement (De Meyer et al., 2014). Controlling teaching behaviors are said to be related to students' feeling, thinking and/or behaving in a specific way, which, then, predicts opposite outcomes of autonomy supportive teaching (Soenens, Sierens, Vansteenkiste, Dochy, &

Goossens, 2012). According to the study, students who perceived their teacher as more controlling felt more pressure to engage in the lesson, which resulted in low rates of engagement.

All these studies suggest that there is a positive (and most of the time strong) relation between teachers' instructional behaviors (i.e., autonomy support and provision of structure) and student engagement.

### **Students' engagement and its relation to their achievement goals and autonomous or controlled motivation**

The results of many studies relate mastery-approach goals to positive outcomes, high level of self-efficacy, persistence, effort and deep processing in cognitive engagement (Ames, 1992; Elliot & Dweck, 1988; Huang, 2012; Middleton & Midgley, 1997). However, there has been an ongoing debate regarding the relation of performance-approach goals to student outcomes such as engagement. Performance-approach goals have been associated with some positive outcomes in some studies (Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Wolters, 2004), while other studies have found negative effects or no correlation between performance approach goals and positive outcomes (Elliot & McGregor, 1999; Midgley, Kaplan, & Middleton, 2001).

Greene and Miller (1996) tested a causal model to examine whether students' achievement goals were related to cognitive engagement and achievement. They based their model on previous studies (Meece, Blumenfeld, & Hoyle, 1988; Nolen, 1988; Nolen & Haladyna, 1990) with findings that showed that learning/mastery

goals were related to deep strategic learning and cognitive engagement, while performance goals led to shallow processing and lower level of cognitive engagement. The findings of Greene and Miller's study were parallel to the findings of the previous research; mastery goals were positively correlated with meaningful cognitive engagement and performance goals resulted in shallow processing. Likewise, Elliot, McGregor and Gable (1999) examined the achievement goals as predictors of cognitive and motivational study strategies, and investigated these strategies as a mediating mechanism between achievement goals and students' exam performances. The participants filled in two questionnaires respectively, two weeks and a week before their mid-term exam. The results of both questionnaires and students' exam scores were consistent with previous research; mastery-approach goals were positively related to deep processing, persistence, effort and performance-approach goals were associated with surface level processing and effort.

More recent studies conducted in Western and Asian contexts (Martin & Elliot, 2016; Yu & Martin, 2014) investigating the relation of achievement goals to student engagement, motivation and other academic outcomes showed that mastery goals are predictors of student motivation (self-efficacy, learning focus) and engagement, whereas performance goals have little association with student motivation and engagement; rather they suggest lower self-efficacy and higher failure avoidance. A study conducted in Turkey (Tas, 2016) also investigated the relation of four types of engagement (i.e., behavioral, emotional, cognitive and agentic) to student motivation and learning environments. Participants, middle school students, completed a questionnaire and the results showed that students who pursued high levels of mastery goals were more emotionally, behaviorally and cognitively engaged whereas

students pursuing performance-approach goals indicated high levels of agentic, cognitive and emotional engagement.

Motivational orientations along with achievement goals and reasons underlying the goals seem to lead students towards different outcomes. Autonomous motivation, for instance, is found to facilitate students with higher active engagement and positive outcomes (Aelterman et al., 2012; Gillet, Lafrenière, Huyghebaert, & Fouquereau, 2015), whereas controlled motivation is usually linked with negative outcomes such as boredom, and feeling under pressure to participate in lesson (Ntoumanis, 2001).

More specifically, Walker, Greene and Mansell (2006) investigated the effects of identification with academics, intrinsic/extrinsic motivation and self-efficacy as predictors of cognitive engagement. Participants completed four consecutive questionnaires consisting of the abovementioned variables. Autonomous motivation was found to contribute to predicting meaningful cognitive engagement.

Another study conducted by Aelterman and her colleagues (Aelterman et al., 2012) examined the association among autonomous motivation, controlled motivation, amotivation, moderate to vigorous physical activity and engagement of PE students. While being videotaped, participants were distributed accelerometers, and after the class they filled out a set of questionnaires. The videotapes were later rated by the researchers. Average autonomously motivated classes were found to be positively related to collective engagement, and as a result, they were more physically active, enthusiastic and dedicated. However, students with average controlled motivation

displayed lowered engagement; that is, they might do the required task but without dedication or enthusiasm.

De Meyer, et al. (2015) conducted a study explore whether the effects of teachers' instructional behaviors depend on students' motivational orientations. After completing a questionnaire on motivation, two groups of students, control and experimental group, watched videos of either an autonomy supportive or controlling condition. In both conditions, autonomously motivated students reported that they were highly engaged in lessons, whereas controlled motivated and amotivated students reported more need frustration. In the light of these findings, the researchers concluded that whether teachers adopt autonomous or controlling teaching style, students' own orientation and level of motivation determine their level of engagement and quality of outcomes during classes.

Recent studies have also examined reasons underlying achievement goals and put forward that autonomous and controlling reasons underlying achievement goals play an important role in predicting engagement and academic outcomes (Gaudreau, 2012; Vansteenkiste et al., 2014). The results of past studies indicated that autonomous reasons underlying achievement goals are related to many desirable outcomes, such as use of self-regulation strategies, better learning, performance, persistence, well-being and engagement. Alternatively, controlling reasons underlying achievement goals are not found to be related to these outcomes or sometimes they have been found to be related to undesirable outcomes such as ill-being, anxiety, boredom (Vansteenkiste, Niemiec, & Soenens, 2010).

In their extensive article, Vansteenkiste and his colleagues (2014) overviewed the literature regarding achievement goals, autonomous and controlling reasons underlying achievement goals and academic outcomes. They drew some conclusions from past research regarding the relation of reasons underlying achievement goals to student outcomes. According to the researchers, reasons underlying achievement goals mattered above and beyond achievement goals to predict student outcomes; autonomous and controlling reasons underlying predict various academic outcomes such as engagement, moral functioning, self-regulated learning in different achievement areas (i.e., school, work) (Gaudreau, 2012; Gillet, Lafrenière, Vallerand, Huart, & Fouquereau, 2014; Michou, Vansteenkiste, Mouratidis, & Lens, 2014). More specifically, the results of Gaudreau's study (2012) revealed that MAP goals were positively related to academic satisfaction and performance, but only when the goals were endorsed for autonomous reasons; likewise, performance goals were also associated with high performance but only when endorsed for autonomous reasons.

Another article from Gillet, Lafrenière, Hughebaert and Fouquereau (2015) examined the relation of achievement goals, and autonomous and controlling reasons underlying these goals to educational and work outcomes such as positive affect, satisfaction, anxiety and engagement. For this purpose, they obtained data from three different samples, two of which consisted of undergraduate students of psychology and the other consisted of workers recruited via Amazon.com's Mechanical Turk online survey program. The participants completed a questionnaire assessing their achievement goals, reasons for endorsing these goals, satisfaction, positive affect and engagement. Obtained results suggested that in both contexts, work and school,

autonomous reasons underlying mastery goals predicted higher levels of engagement, satisfaction and positive affect, whereas controlling reasons predicted higher levels of negative affect and anxiety. Also, the results revealed that performance goals were related to higher levels of satisfaction when students endorse these goals for autonomous reasons.

### **Observational studies: The perceptions of students and external observers**

Observational studies have some advantages over the ones conducted in laboratories. Most importantly, they serve as complementary studies; *ecological validity* of the studies increases by implementing an observational study. It is easier to see, for example, which need supportive behaviors are dominant throughout the lesson, or when they are salient – at the beginning, or at the end of a session. The lessons are depicted in a clearer way than the teachers' own reporting on their instructional behaviors. Therefore, observations may help teachers to see the difference between their own perceptions and an objective report revealing their actual behaviors (Haerens, Aelterman, Berghe, et al., 2013).

Observational studies complement studies that mostly rely on teachers' self-reports or students' assessments, with another factor: the observer. Sometimes the trained observers attend the observations themselves, sometimes the sessions that are to be observed are videotaped and assessed by trained raters. It is possible to use rating sheets to assess teachers' instructional behaviors and obtain a quantitative data. It is also possible to observe the classes without rating sheets but still taking the necessary measurements into consideration and obtain qualitative data. Most of the time, in these studies, one of the aims of the study is to reveal the similarities and/or

differences between how teachers perceive their need supportive teaching behaviors (or how students perceive teachers' instructional behaviors) and what observers see and report.

There are many observational studies conducted regarding the relationship between PE teachers' behaviors and student motivation (Berghe et al., 2013; De Meyer et al., 2014; Haerens, Aelterman, Berghe, et al., 2013). While the researchers tried to find a certain relationship, they also checked to what extent observed behaviors are in line with perceived behaviors. Haerens et al. (2013), for instance, sought to observe the relation between observed and perceived need supportive teaching and the results suggested that observed need supportive behaviors – especially autonomy support and relatedness – were also perceived in a similar way by the students. The study also showed that there was a relation between perceived structure and observed relatedness; when the observers reported that teachers adopt more dynamic and warm teaching environment and style, students reported that they perceived more structure. The results of a similar observational study, in which Meyer et al. (2014) searched for the relationship between controlling teaching behaviors and student motivation, showed that the times during which raters reported teachers as engaged in controlling behaviors, students also reported that they perceived more controlling teaching, felt pressured to participate in the lesson and leaned towards controlled motivation.

In observational studies, teachers' self-reports also serve as important measurement tools that help to obtain more objective results. In their study, Berghe et al. (2013) answered the question whether teachers' motivational orientations matter while adopting a teaching style. PE teachers were sent questionnaires before the

observations took place. The analyses of data obtained from teachers' self-reports and observations showed that there was a negative correlation between controlled motivation and need supportive teaching. That is, the more the teachers were controlled motivation oriented, the less they were observed to engage in need-supporting teaching activities, which in return provided an environment in which observers frequently reported need thwarting teaching behaviors.

Student outcomes such as engagement and achievement are regarded as the final output of teaching and there are numerous reasons having impact on these outcomes. In their study Jang, Reeve and Deci (2010) explained the importance of autonomy support and structure on engagement. It was found that the more observers reported teachers as providing high autonomy support and structure, the more the students and the observers reported collective and individual engagement.

Another example of an observational study that provided qualitative data was carried out by Anderman, Andrzejewski and Allen (2011). Students were asked to identify their teachers' instructional behaviors and practices, and in the following year four teachers who were regarded as the most need supportive teachers by the students were directly documented and handwritten notes were taken by the observers.

Findings of the observations were mostly consistent with student reports: instructional behaviors such as supporting understanding, building and maintaining rapport and managing the classroom were found to be common for all the teachers (p. 993).

## **The present research**

The studies reviewed in this chapter provide significant findings as to instructional behaviors of teachers, “what” and “why” aspects of student motivation, and student engagement. Although these studies provide promising results, there has not been a study that investigates the relation of two aspects of teachers’ instructional behaviors – autonomy support and provision of structure – to reasons underlying achievement goals. Therefore, these past studies have been used as a springboard for the present study.

The present observational and survey study aimed to further examine the correlations among two aspects of instructional behaviors, student motivation and engagement, by conducting in-class observations and student questionnaires. In addition, the similarity between the perceptions of the observers and the students about teachers’ autonomy support and provision was investigated. For these investigations and in the light of the literature reviewed above, the following hypotheses were constructed:

**Hypothesis 1:** It was expected that autonomy support and provision of structure would positively predict MAp goals that students endorse (Benita et al., 2014; Cho et al., 2011; Madjar et al., 2013).

**Hypothesis 2:** Although literature draws a relatively vague picture regarding the relation of PAp goals to teachers’ need supportive behaviors, the results of the past studies have mostly shown negative or no correlation (Akram et al., 2014; Cho et al., 2011). Therefore, it was hypothesized that performance goals would be either

negatively predicted or not predicted by autonomy support and provision of structure.

**Hypothesis 3:** The relation of autonomy support and provision of structure to underlying reasons of achievement goals has not been investigated before. However, autonomy support and provision of structure are often positively associated with autonomous motivation and negatively with controlled motivation (Black & Deci, 2000; De Naeghel et al., 2016). As autonomous and controlling reasons, are parallel to the autonomous and controlled motivation defined by SDT, it was expected to find a positive correlation between teachers' need supportive instructional behaviors and autonomous underlying reasons of achievement goals as well as a negative correlation between teachers' need supportive instructional behaviors and controlling underlying reasons of achievement goals.

**Hypothesis 4:** It was expected that autonomy support and provision of structure would predict overall engagement and four aspects of engagement (behavioral, emotional, cognitive and agentic) (Hospel & Galand, 2016; Jang et al., 2010).

**Hypothesis 5:** MAp goals were expected to be positively and strongly correlated with all aspects of student engagement, whereas performance goals were expected to show a positive but not very strong correlation to student engagement (Martin & Elliot, 2016; Yu & Martin, 2014).

**Hypothesis 6:** MAp goals and autonomous reasons underlying MAp goals have often predicted student engagement positively (Gaudreau, 2012; Gillet et al., 2015). Parallel to these findings, it was expected to find a positive correlation between

autonomous reasons underlying MAp goals and student engagement. Reasons underlying PAp goals and controlling reasons underlying MAp goals were expected to be negatively or not related to student engagement.

**Hypothesis 7:** In the light of the literature, it was expected to find that achievement goals and reasons underlying achievement goals would mediate the relationship between need supportive teaching and student engagement.

**Hypothesis 8:** As past research has suggested, it was expected students' and observers' perceptions of need supportive teaching would not differ substantially (De Meyer et al., 2014; Haerens, Aelterman, Van den Berghe, et al., 2013).

**Hypothesis 9:** As autonomy support and provision of structure were expected to be related to students' motivation and engagement (Benita, et al., 2014; Cho, et al., 2011; Hospel & Galand, 2016; Jang, et al., 2010; Madjar, et al., 2013), it was also expected that students in high classes (in terms of autonomy support and provision of structure assessed by observers) would display a better quality of motivation (higher MAp goals and autonomous reasons underlying MAp goals) and higher engagement compared to students in low classes (in terms of autonomy support and provision of structure).

## CHAPTER 3: METHOD

### Introduction

The aim of this study was to explain the relationship between two aspects of instructional behaviors of teachers – autonomy support and provision of structure – and two aspects of student motivation – what students are striving for and why. This study also investigated if these factors are related to students' engagement during a specific lesson.

Also, the similarities and differences among students' and external observers' perceptions of need supportive teaching and engagement were investigated.

Therefore, a correlational cross-sectional study that used observations and surveys as a data collection method was developed.

### Research design

#### Correlational research

Correlational research seeks to find a degree of relationship between two or possibly more variables by using a correlation coefficient ( $r$ ) without the intention of influencing or manipulating them. If there is a correlation between the two variables, it means that there is a certain amount of association between the scores of the variables. This can either be **positive**, when high scores of one variable are associated with high scores of another variable or low scores of one variable are associated with low scores of another variable; or it can be **negative** when high scores on one variable associated with low scores of the other or vice versa (Fraenkel & Wallen, 2008).

### **Cross-sectional design**

A cross-sectional design aims to determine the frequencies of specific attributes of a population. In this type of study, data is collected at a specific time from a predetermined sample and, based on the information gathered, data can be classified as maintaining or not maintaining the desired attributes (Olsen & St. George, 2004).

A correlational study with a cross-sectional design was conducted to investigate the relationship between perceived instructional behaviors and students' motivation and engagement during a specific class hour. Only the relationship was investigated; therefore, no cause and effect relationship was sought. Specifically, students reported their achievement goals and autonomous and controlling reasons behind these goals as well as their engagement right after a class session, while they also assessed teacher's autonomy support and provision of structure. Likewise, teachers reported their perception of student engagement during that specific lesson.

### **Context**

This study was conducted in a public high school from Ankara, Turkey. The sample for the study was from ninth, tenth and eleventh grades, mostly from English but also Turkish Language and Literature and Science classes. The school follows the national curriculum (MoNE) and all the courses mentioned above are main courses that participants need to take according to their grade level. The classes were mixed ability classes; therefore, participants' level of achievement in those lessons differed on a broad scale.

The school has a relatively high success rate regarding the enrollment score to be accepted. Thus, all the students participated in the study were high achievers of high school entrance exam and their general success rate was high. The socio-economic status of the students ranged broadly as this is a public school welcoming every successful student across the country.

### **Participants**

In this study, 310 students from 10 different classes from a public school in Ankara, Turkey participated in this study. The students were from four classes of grade 9 ( $N = 139$ ; 44.8%), four classes of grade 10 ( $N = 118$ ; 38.1%) and two classes of grade 11 ( $N = 53$ ; 17.1%). Of the participants, 159 (51.5%) were female and 150 (48.5%) were male; one (0.3%) participant did not report his/her gender. The mean age of the students was  $M_{age} = 14.7$  ( $SD = 0.85$ ) years. All the participants were informed about the scope and the purpose of the study. They participated voluntarily and completed the questionnaires anonymously. None of the participants refused to participate in the study.

### **Instrumentation**

For the present study, tools were prepared for the three different informants. Questionnaires were administered to students, while two observers performed in-class observations providing a complementary data for the study. Instruments were used from other studies that have been carried out across the world and provided reliable and valid survey questionnaires. Instruments were translated from English to Turkish by the native Turkish speaking observers, then shared among different researchers and back translated to see if there were any problems or disagreements

about the translations. Observation scales were not translated into Turkish as the observers were fluent in English.

### **Student questionnaires**

#### *Perceived teacher's autonomy support*

The observation sheet constructed by Cheon, Reeve, Yu and Jang (2014) was adapted to form a survey to assess student's perception about autonomy support (see Appendix A, page 93). This way, the same construct was assessed by students as the observers did. Students responded to a 5-point Likert-type scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (5). More specifically, seven items were constructed for perceived autonomy support ( $\alpha = .81$ ). Among them, two assess students' inner motivation (e.g., "Provides interesting learning activities"), one assesses delivered rationales behind the activities by the teacher (e.g., "Explained the value/necessity of the activities"), two assess perceived informational language that teacher used (e.g., "Provided opportunities to students to express their preferences/opinion"), two assess patience shown by the teacher (e.g., "Allowed students to work at their own way").

#### *Perceived teacher's provision of structure*

Another questionnaire was formed to assess students' perception of structure by using the same aspects of structure included in Jang, Reeve and Deci's (2010) observation sheet (see Appendix A, page 93). Students responded to a 5-point Likert-type scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (5). For this questionnaire, six items were developed ( $\alpha = .79$ ) and subscales included two items assessing perceived teacher expectations (e.g., "Made it clear what the students had

to do in the activities”), two items assessing scaffolding provided by the teacher (e.g., “Gave hints, tips, strategies, reminders for the activities to facilitate students’ engagement”) and two items assessing feedback given to students (e.g., “Told students what they need to do to improve”).

### *Situational motivation*

*Achievement goals.* The Achievement Goal Questionnaire developed by Elliot and Murayama (2008) was used to assess students’ *Mastery-Approach Goals (MAp)* (two items; e.g., “During the very last class hour, my aim was to completely master the material presented”;  $\alpha = .78$ ), and *Performance-Approach Goals (PAp)* (two items; e.g., “During the very last class hour, my goal was to perform better than the other students”;  $\alpha = .76$ ) during the specific observed class hour (see Appendix A, pp. 94-95).

*Reasons underlying achievement goals.* To be able to identify why students pursued each of four achievement goals, after each item of the achievement goals, a set of reasons were provided. The items that assessed the reasons underlying the endorsement of the achievement goals were taken by the validated questionnaires of Levesque et al. (2007) and Pelletier, Rocchi, Vallerand, Deci, and Ryan (2013) (see Appendix A, pp. 94-95). The set of items under the two MAp goals included (1) identified reasons (four items; e.g., “Because learning as much as possible is always an integral part of my life.”); (2) introjected reasons (two items; e.g., “Because I would have felt guilty or ashamed of myself if I had not learnt as much as possible”); and (3) external reasons (two items; e.g., “Because I felt pressure from my teacher to learn as much as possible”). Similar to previous research (see Michou, et al., 2014), a

composite score for the *autonomous reasons* underlying MAp goals was computed by averaging the four identified-reason items ( $\alpha = .80$ ). A composite score for the *controlling reasons* underlying MAp goals was also computed by averaging the two external-reason and two introjected-reason items ( $\alpha = .69$ ). The set of items under the two PAp goals similarly included (1) identified reasons (four items; e.g., “Because I believed it was the best thing to do”); (2) introjected reasons (two items; e.g., “Because I would have felt bad about myself if had not performed better than the others”); and (3) external reasons (two items; e.g., “Because the teacher would reward me if I do well compared to the other students.”). Like the computations in MAp goals, an *autonomous* ( $\alpha = .81$ ) and *controlling* ( $\alpha = .72$ ) *reasons* composite score for the reasons underlying PAp goals was computed by averaging the corresponding items.

*Students’ engagement.* Four aspects of student engagement were assessed through a validated Engagement Questionnaire (Reeve & Tseng, 2011) consisted of seven items ( $\alpha = .87$ ) (see Appendix A, page 94). Of these seven items, two assess behavioral engagement (e.g., “I worked very hard”;  $\alpha = .78$ ), two assess emotional engagement (e.g., “I enjoyed today’s class”;  $\alpha = .87$ ), two assess agentic engagement (e.g., “I express my preferences, opinions or questions”;  $\alpha = .78$ ) and one assesses cognitive engagement (e.g., “I tried to learn as much as I could”). For each measure, the same 5 point Likert-type scale that ranged from *Strongly Disagree* (1) to *Strongly Agree* (5) was used.

## **Observation rating sheets**

Before the study, two observers were trained to use the observation tool to rate teachers' autonomy supportive and structured teaching. The observers learned about the principles of Self-determination Theory (SDT; Ryan & Deci, 2000) on which need supportive teaching is based. They studied the corresponding literature and the concepts were clarified. The training process involved extensive discussions of the instructional behaviors that constitute autonomy support and provision of structure as well as to the evaluation of these behaviors as well as how to use the rating sheets. The observers practiced assessing teacher's autonomy support and provision of structure in real classes to achieve high levels of agreement in their evaluation.

### *Observed autonomy supportive teaching*

The rating sheet used to assess teachers' autonomy supportive teaching (Cheon, Reeve, Yu & Jang, 2014) included four instructional behaviors (see Appendix C, page 99): (1) vitalizes inner motivational resources during instruction (e.g., "Provides interesting learning activities"; interrater reliability  $\rho = .85$ ), (2) provides explanatory rationales (e.g., "Identifies the value, importance, benefit, use, utility of a request"; interrater reliability  $\rho = .95$ ), (3) uses non-pressuring, informational language (e.g., "Provides choices, provides options"; interrater reliability  $\rho = .96$ ), (4) displays patience (e.g., "Allows students to work at their own pace, in their own way"; interrater reliability  $\rho = .73$ ). For the rating, 7-point Likert -type scale was used ranging from *Never, Not at All* (1) to *Frequently, Always* (7).

### *Observed structure*

The rating sheet assessing teacher-provided structure (Jang et al., 2010) consisted of three instructional behaviors (see Appendix C, page 100): (1) clear expectations (e.g., “What to do is clear”; interrater reliability  $\rho = .88$ ), (2) helpful guidance, scaffolding (e.g., “Provides help, assistance, guidance”; interrater reliability  $\rho = .96$ ), and (3) constructive feedback (e.g., “Tell students what they are doing well”; interrater reliability  $\rho = .92$ ). To rate the teachers’ behaviors, 7-point Likert-type scale was used ranging from *Never, Not at All* (1) to *Frequently, Always* (7).

### **Method of data collection**

As a part of a broader study, necessary documents were submitted to the Turkish Ministry of Education and the permission for the present study was obtained in June, 2015 (see Appendix D, page 101). After learning how to translate and apply the survey and observation instruments, observers contacted the school principals of the approved schools by Ministry of Education. According to their willingness to participate in the study, one of those schools was elected. The observers and the principals set a schedule from randomly chosen classes from grades 9, 10 and 11. Specifically, English, Turkish Language and Literature, Biology and Chemistry classes were selected for the observations. Also, the class teachers were informed about and consented to participate in the study. The students of those teachers who consented to participate were visited by the observers prior to the observation procedure and were informed about the purpose and the procedure of the study. The students were also informed that their participation is voluntarily and they can refuse participation if they wish. None of students refused.

The observations lasted for about a month and each class was observed two or three times during this process; however, only one observation for each class was reported by the observers and the teachers did not know which of the hours was to be reported. This approach was followed so as to avoid Hawthorne effect (teachers' unintentionally changing their behaviors simply because they are observed). The sessions lasted 40 minutes and the observation rating sheets were used to assess teachers' autonomy support and provision of structure, and students' engagement.

Immediately after the reported observed session, students were asked to complete the questionnaire assessing their situational motivation (what achievement goals endorsed in that specific session and what were the reasons underlying the achievement goal endorsement), their perceptions of teacher's autonomy support and provision of structure as well as their engagement. Students were instructed to not write their names on the questionnaires and to read the instructions on the questionnaire sheet carefully. They were assured that all the information they gave would be kept confidential. The data collection took place in September, around the beginning of the first academic semester.

### **Method of data analysis**

The quantitative data obtained by questionnaires and observations were analyzed using SPSS (Statistical Package for the Social Sciences v. 24). In the preliminary analysis, descriptive statistics for each variable and bivariate correlations among them were explored. Also, a MANOVA was conducted to check whether there were any gender differences. The main analysis included regression analyses to see the relationship among autonomy support, provision of structure, students' motivation

and engagement. Also, a bootstrap analysis was conducted to see the mediator value of achievement goals and reasons between need supportive teaching and student engagement. Finally, the similarities and the differences between students' and observers' perception of need supportive teaching were investigated through MANOVA.

## CHAPTER 4: RESULTS

### Introduction

This study aimed to explain the relationship between two aspects of instructional behaviors of teachers – autonomy support and provision of structure – and two aspects of student motivation – *what* goals students endorse and *why* they endorse these goals; and thus, to see if these factors are related to students' engagement during a specific lesson. The study also aimed to investigate the similarities and differences among students' and external observers' perceptions of need supportive teaching. Descriptive statistics of the measured variables and the bivariate correlations among these variables were presented below in the preliminary analysis of the study. Also, MANOVA was conducted to report gender differences in the studied variables.

The main analysis first examined (1) whether perceived autonomy support and provision of structure predicted students' achievement goals and underlying reasons with six one-step regression analyses; (2) whether students' achievement goals and underlying reasons predicted students' overall and specific engagement with five two-step hierarchical regressions; (3) whether perceived autonomy support and provision of structure predicted students' overall and specific engagement with five one-step regression analyses (see Figure 1). After the regression analyses, bootstrap analyses were conducted to investigate whether achievement goals and underlying reasons can be the psychological mechanisms that mediate the relationship between need supportive teaching and student engagement.

The main analysis also examined the differences in perceptions of observers and students regarding need supportive teaching during a specific lesson. After the similarities and differences were investigated, a MANOVA was conducted to see whether need supportive teaching assessed by observers predicted any differences in student motivation and engagement.

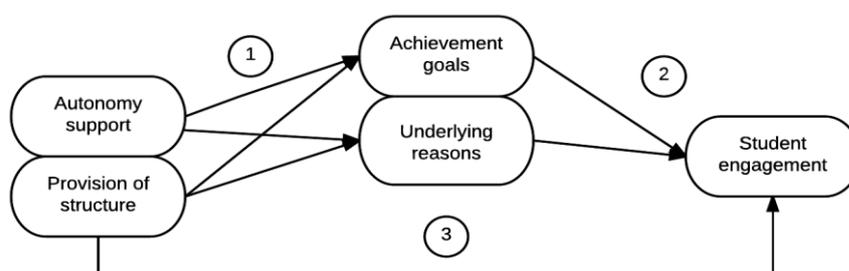


Figure 1. The steps followed in the main analysis

### Preliminary analysis

Descriptive statistics of the variables in the study are presented in Table 1.

Table 1  
Descriptive statistics of studied variables

	<i>N</i>	<i>M</i>	<i>SD</i>
<b><u>Perceived need supportive teaching</u></b>			
1. Autonomy	281	3.50	.78
2. Structure	281	3.51	.81
<b><u>Endorsed achievement goals</u></b>			
3. Mastery-approach	266	4.04	.96
4. Performance-approach	267	3.56	1.12
<b><u>Reasons underlying endorsed achievement goals</u></b>			
5. MAp Autonomous	280	3.89	.86
6. MAp Controlling	280	2.65	.93
7. PAp Autonomous	280	3.38	1.03
8. PAp Controlling	280	2.54	.92
<b><u>Engagement</u></b>			
9. Behavioral engagement	279	3.57	1.05
10. Emotional engagement	279	3.43	1.29
11. Agentic engagement	279	3.11	1.24
12. Cognitive engagement	279	4.02	1.02

*Note.* *N* = Number of participants for corresponding variable; *M* = Mean; *SD* = Standard Deviation; MAp = Mastery-approach goals; PAp = Performance-approach goals

Bivariate correlations among studied variables are presented in Table 2. Regarding perceived need supportive teaching, autonomy support and provision of structure were strongly and positively intercorrelated ( $r = .73, p < .01$ ). Perceived autonomy support was also positively correlated with mastery-approach (MAp) goals that students endorse ( $r = .39, p < .01$ ) and autonomous ( $r = .35, p < .01$ ) and controlling ( $r = .18, p < .01$ ) reasons of endorsed mastery-approach goals. Four aspects of engagement – behavioral engagement ( $r = .41, p < .01$ ), emotional engagement ( $r = .56, p < .01$ ), agentic engagement ( $r = .33, p < .01$ ) and cognitive engagement ( $r = .34, p < .01$ ) were also positively associated with perceived autonomy support.

Provision of structure was positively correlated with MAp ( $r = .41, p < .01$ ) and with performance-approach (PAp;  $r = .14, p < .05$ ) goals that students endorse, and with the autonomous reasons underlying MAp goals ( $r = .38, p < .01$ ). Also, provision of structure was positively correlated with four aspects of engagement; behavioral engagement ( $r = .43, p < .01$ ), emotional engagement ( $r = .51, p < .01$ ), agentic engagement ( $r = .36, p < .01$ ) and cognitive engagement ( $r = .36, p < .01$ ).

Regarding endorsed goals by students, MAp goals were positively correlated with PAp goals ( $r = .44, p < .01$ ). There was also a positive correlation among MAp goals and autonomous reasons underlying MAp goals ( $r = .75, p < .01$ ), controlling reasons underlying MAp goals ( $r = .22, p < .01$ ) and autonomous reasons underlying PAp goals ( $r = .44, p < .01$ ). Finally, students' endorsed MAp goals were positively intercorrelated with behavioral engagement ( $r = .68, p < .01$ ), emotional engagement ( $r = .55, p < .01$ ), agentic engagement ( $r = .50, p < .01$ ), cognitive engagement ( $r = .64, p < .01$ ).

PAP goals were positively associated with both autonomous ( $r = .40, p < .01$ ) and controlling reasons ( $r = .34, p < .01$ ) underlying MAp goals as well as autonomous ( $r = .80, p < .01$ ) and controlling reasons ( $r = .50, p < .01$ ) underlying PAP goals. Four aspects of engagement were also positively intercorrelated with PAP goals as behavioral engagement ( $r = .33, p < .05$ ), emotional engagement ( $r = .28, p < .01$ ), agentic engagement ( $r = .33, p < .01$ ) and cognitive engagement ( $r = .33, p < .01$ ).

As for the reasons underlying endorsed achievement goals, MAp autonomous reasons were positively correlated with controlling reasons underlying MAp goals ( $r = .34, p < .01$ ) as well as autonomous ( $r = .47, p < .01$ ) and controlling ( $r = .13, p < .05$ ) reasons underlying PAP goals. MAp autonomous reasons were also positively interrelated with behavioral engagement ( $r = .55, p < .05$ ), emotional engagement ( $r = .51, p < .01$ ), agentic engagement ( $r = .35, p < .01$ ) and cognitive engagement ( $r = .56, p < .01$ ). Controlling reasons underlying MAp goals were positively correlated with autonomous ( $r = .46, p < .01$ ) and controlling ( $r = .73, p < .01$ ) reasons underlying PAP goals. Four aspects of engagement were also positively correlated with MAp controlling reasons as behavioral engagement ( $r = .18, p < .01$ ), emotional engagement ( $r = .17, p < .01$ ), agentic engagement ( $r = .23, p < .01$ ) and cognitive engagement ( $r = .12, p < .05$ ).

Regarding autonomous reasons underlying PAP goals, there was a positive correlation with PAP controlling reasons ( $r = .62, p < .01$ ). Four aspects of student engagement were also positively intercorrelated ( $r = .26$  to  $.34, p < .01$ ) with autonomous reasons underlying PAP goals. Controlling reasons underlying PAP goals were only correlated with agentic engagement ( $r = .23, p < .01$ ).

As for the student engagement, all four aspects of engagement were positively intercorrelated with each other ( $r = .46$  to  $.72$ ,  $p < .01$ ).

Gender was positively correlated with MAp goals ( $r = .18$ ,  $p < .01$ ) and autonomous reasons underlying MAp goals ( $r = .25$ ,  $p < .01$ ) as well as cognitive engagement of students ( $r = .12$ ,  $p < .05$ ).

Table 2  
Bivariate correlations of studied variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b><u>Background variable</u></b>														
1. Gender	-													
<b><u>Perceived need supportive teaching</u></b>														
2. Autonomy support	.06	-												
3. Provision of structure	.11	.73**	-											
<b><u>Endorsed achievement goals</u></b>														
4. Mastery-approach	.18**	.39**	.41**	-										
5. Performance-approach	.06	.08	.14*	.44**	-									
<b><u>Reasons underlying endorsed achievement goals</u></b>														
6. MAp Autonomous	.25**	.35**	.38**	.75**	.40**	-								
7. MAp Controlling	.07	.18**	.10	.22**	.34**	.34**	-							
8. PAp Autonomous	.02	.04	.09	.44**	.80**	.47**	.46**	-						
9. PAp Controlling	.39	-.01	-.02	.10	.50**	.13*	.73**	.62**	-					
<b><u>Engagement</u></b>														
10. Behavioral engagement	.10	.41**	.43**	.68**	.33*	.55*	.18**	.29**	.04	-				
11. Emotional engagement	.02	.56**	.51**	.55**	.28**	.51**	.17**	.26**	.10	.61**	-			
12. Agentic engagement	.03	.33**	.36**	.50**	.33**	.35**	.23**	.34**	.23**	.56**	.46**	-		
13. Cognitive engagement	.12*	.34**	.36**	.64**	.33**	.56**	.12*	.27**	.01	.70**	.58**	.52**	-	
14. Overall engagement	.07	.52**	.52**	.70**	.38**	.58**	.22**	.36**	.14*	.86**	.83**	.80**	.78**	-

Note. \* $p < .05$ . \*\* $p < .01$ . MAp = Mastery-approach, PAp = Performance-approach  
Gender was dummy-coded (0 = male, 1 = female)

A multivariate analysis of variance (MANOVA) showed significant gender differences in the sample (Wilk's  $\Lambda = .892$ ,  $F [13, 248] = 2.309$ ,  $p < .01$ , multivariate  $\eta^2 = .10$ ). A follow-up analysis of variance (ANOVA) with Bonferroni correction showed that females scored higher than males in endorsed mastery-approach goals  $F (1, 260) = 10.328$ ,  $p < .01$ ,  $\eta^2 = .04$  ( $M_{female} = 4.23$ ,  $SD = 0.80$  vs.  $M_{male} = 3.85$ ,  $SD = 1.07$ ), autonomous reasons underlying mastery-approach goals  $F (1, 260) = 18.001$ ,  $p < .01$ ,  $\eta^2 = .06$  ( $M_{female} = 4.12$ ,  $SD = 0.78$  vs.  $M_{male} = 3.67$ ,  $SD = 0.92$ ), and behavioral engagement  $F (1, 260) = 4.308$ ,  $p < .05$ ,  $\eta^2 = .02$  ( $M_{female} = 3.72$ ,  $SD = 1.01$  vs.  $M_{male} = 3.45$ ,  $SD = 1.06$ ) whereas males scored higher than females in cognitive engagement  $F (1, 260) = 4.687$ ,  $p < .05$ ,  $\eta^2 = .02$  ( $M_{female} = 4.17$ ,  $SD = 0.84$  vs.  $M_{male} = 3.90$ ,  $SD = 1.17$ ). Because of the abovementioned gender differences, gender was included as a covariate in the subsequent analyses.

### **Main analysis**

There are three conditions that should be checked in order to investigate to what extent students' achievement goals and reasons underlying these goals mediate the relationship between teachers' autonomy support, provision of structure and student engagement: (1) whether perceived autonomy support and provision of structure predict students' endorsed goals and underlying reasons, (2) whether endorsed goals and underlying reasons predict student engagement and (3) whether perceived autonomy support and provision of structure predict student engagement. Therefore, regression models to test these conditions were conducted and are presented in the following three sections.

**Do perceived autonomy support and provision of structure predict students' endorsed achievement goals and underlying reasons?**

After checking the bivariate correlations (shown in Table 2), six regression models were tested in total. As for the mastery-approach (MAp) goals and underlying reasons, three one-step regression models were tested: one for MAp goals, one for autonomous reasons underlying MAp goals, and one for controlling reasons underlying MAp goals. In all the models, the dependent variables were regressed on gender, perceived autonomy support and provision of structure.

All the models were statistically significant: MAp goals ( $F [3, 264] = 24.40; p < .01$  adjusted  $R^2 = .21$ ), autonomous reasons underlying MAp goals ( $F [3, 278] = 23.58; p < .01$  adjusted  $R^2 = .20$ ), and controlling reasons underlying MAp goals ( $F [3, 278] = 3.75; p < .05$  adjusted  $R^2 = .03$ ). The results are shown in Table 3.

Table 3  
Regression models for endorsed MAp goals and underlying reasons

Predictors	MAp goals and underlying reasons								
	MAp goals			MAp autonomous			MAp controlling		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
1. Gender	0.29	(0.10)	.15**	0.37	(0.09)	.21**	0.12	(0.11)	.06
2. Autonomy	0.25	(0.09)	.20*	0.17	(0.09)	.15*	0.26	(0.10)	.22*
3. Structure	0.32	(0.09)	.26**	0.26	(0.08)	.25**	-0.07	(0.10)	-.06

*Note.* \*  $p < .05$ ; \*\*  $p < .01$ . Gender was dummy-coded (0 = males; 1 = females).

Table 3 suggests that perceived autonomy support and provision of structure are positive predictors of MAp goals and autonomous reasons underlying MAp goals, meaning that when teachers nurture students' inner motivation, use informational

language, set clear expectations and give feedback to them, students endorse MAp goals and autonomous reasons for them. The table also indicates that gender is a positive predictor; female students are more likely to set MAp goals and adopt autonomous reasons than male students. Contrary to expected results, controlling reasons underlying MAp goals were also predicted by autonomy support which means that when the student perceives the teacher as taking his/her perspective, the students could endorse the goal to learn as much as possible, so as to please his teacher or to feel accepted by the teacher.

Regarding the performance-approach (PAP) goals and underlying reasons, three one-step regression models were tested: one for PAP goals, one for autonomous reasons underlying PAP goals, and one for controlling reasons underlying PAP goals. No statistically significance was found in the regression models, which means that autonomously supporting and structured environment is not related to the goals students set to perform better than others and think that this is necessary as the teacher would reward or punish them. Also, no gender differences were found.

### **Do endorsed goals and underlying reasons predict student engagement?**

To be able to identify the relationship between students' endorsed goals, reasons underlying these goals and their engagement during a specific lesson, five hierarchical, two-step regression models were tested: one for overall engagement, one for behavioral engagement, one for emotional engagement, one for agentic engagement, and one for cognitive engagement. In all regression models, dependent variables were regressed on gender, MAp goals and PAP goals in step one, autonomous and controlling reasons underlying MAp and PAP goals in step two.

The models for overall engagement were statistically significant both in step one ( $F [3, 261] = 84.19; p < .01$  adjusted  $R^2 = .49$ ) and in step two ( $F [7, 261] = 38.08; p < .01$  adjusted  $R^2 = .50$ ). The results are shown in Table 4.

Table 4  
Hierarchical regression models for overall engagement

Predictors	Overall Engagement					
	Step 1			Step 2		
	B	SE	$\beta$	B	SE	$\beta$
1. Gender	-0.08	(0.08)	-.04	-0.13	(0.09)	-.07
2. MAp goals	0.66	(0.05)	.66**	0.53	(0.07)	.53**
3. PAp goals	0.08	(0.04)	.10*	0.12	(0.06)	.13
4. MAp autonomous	-	-	-	0.21	(0.08)	.19*
5. MAp controlling	-	-	-	0.04	(0.07)	.04
6. PAp autonomous	-	-	-	-0.08	(0.08)	-.09
7. PAp controlling	-	-	-	0.00	(0.08)	.00
<i>F</i> change (4, 254)						2.25

Note. \*  $p < .05$ ; \*\*  $p < .01$ . Gender was dummy-coded (0 = males; 1 = females)

MAp and PAp goals were positive predictors of overall engagement in step one. However, when reasons underlying MAp and PAp goals entered, PAp goals lost its value as a predictor of students' overall engagement, and autonomous reasons underlying MAp goals appeared to be a positive predictor of student engagement in step two, meaning that when students aim to learn as much as possible in that specific lesson because learning is very important to them, or just to improve themselves, they become engaged in the lesson.

The model for behavioral engagement was statistically significant both in step one ( $F [3, 261] = 71.60; p < .01$  adjusted  $R^2 = .45$ ) and in step two ( $F [7, 261] = 33.41; p < .01$  adjusted  $R^2 = .46$ ). The results are shown in Table 5.

Table 5  
Hierarchical regression models for behavioral engagement

Predictors	Behavioral Engagement					
	Step 1			Step 2		
	B	SE	$\beta$	B	SE	$\beta$
1. Gender	-0.01	(0.10)	-.00	-0.03	(0.10)	-.02
2. MAp goals	0.71	(0.05)	.65**	0.58	(0.07)	.53**
3. PAp goals	0.04	(0.05)	.05	0.16	(0.07)	.17*
4. MAp autonomous	-	-	-	0.15	(0.09)	.13
5. MAp controlling	-	-	-	0.15	(0.08)	.13
6. PAp autonomous	-	-	-	-0.10	(0.09)	-.10
7. PAp controlling	-	-	-	-0.20	(0.09)	-.17*
<i>F</i> change (4, 254)						3.05*

*Note.* \*  $p < .05$ ; \*\*  $p < .01$ . Gender was dummy-coded (0 = males; 1 = females)

In step one, MAp goals were a positive predictor of behavioral engagement. When reasons underlying MAp and PAp goal entered, MAp and PAp goals became positive predictors of behavioral engagement, meaning that when either students aim to master in that lesson or perform better than others, they pay attention to the lesson. On the other hand, controlling reasons underlying PAp goals were negative predictors of behavioral engagement in step two, which indicates that when students adopt a goal to outperform others for the sake of a reward or because of a punishment, they report less behavioral engagement in a specific lesson.

The model for emotional engagement was statistically significant both in step one ( $F [3, 261] = 38.36$ ;  $p < .01$  adjusted  $R^2 = .30$ ) and in step two ( $F [7, 261] = 19.33$ ;  $p < .01$  adjusted  $R^2 = .33$ ). The results are as in Table 6.

Table 6  
Hierarchical regression models for emotional engagement

Predictors	Emotional Engagement					
	Step 1			Step 2		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
1. Gender	-0.16	(0.13)	-.06	-0.27	(0.14)	-.10
2. MAp goals	0.72	(0.08)	.54**	0.46	(0.11)	.34**
3. PAp goals	0.06	(0.06)	.05	0.09	(0.10)	.08
4. MAp autonomous	-	-	-	0.49	(0.13)	.33**
5. MAp controlling	-	-	-	-0.08	(0.11)	-.06
6. PAp autonomous	-	-	-	-0.15	(0.13)	-.13
7. PAp controlling	-	-	-	0.15	(0.13)	.10
<i>F</i> change (4, 254)						3.82**

Note. \*  $p < .05$ ; \*\*  $p < .01$ . Gender was dummy-coded (0 = males; 1 = females)

MAp goals were a positive predictor of emotional engagement in step one. When reasons underlying MAp and PAp goal entered, along with MAp goals, autonomous reasons underlying MAp goals became positive predictors of behavioral engagement, meaning that when students aim to master in that lesson because learning is an integral part of their life, or in order to improve themselves, they enjoy the lesson and feel interested in.

The model for agentic engagement was statistically significant both in step one ( $F [3, 261] = 30.41$ ;  $p < .01$  adjusted  $R^2 = .25$ ) and in step two ( $F [7, 261] = 13.90$ ;  $p < .01$  adjusted  $R^2 = .26$ ). The results are shown in Table 7.

Table 7  
Hierarchical regression models for agentic engagement

Predictors	Agentic Engagement					
	Step 1			Step 2		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
1. Gender	-0.14	(0.13)	-.06	-0.15	(0.14)	-.06
2. MAp goals	0.56	(0.08)	.44**	0.61	(0.11)	.47**
3. PAp goals	0.16	(0.06)	.14*	0.08	(0.10)	.08
4. MAp autonomous	-	-	-	-0.06	(0.13)	-.04
5. MAp controlling	-	-	-	0.09	(0.11)	.07
6. PAp autonomous	-	-	-	0.01	(0.13)	.01
7. PAp controlling	-	-	-	0.11	(0.13)	.08
<i>F</i> change (4, 254)						1.37

Note. \*  $p < .05$ ; \*\*  $p < .01$ . Gender was dummy-coded (0 = males; 1 = females)

In step one, both MAp and PAp goals were positive predictors of agentic engagement. When reasons underlying MAp and PAp goal entered, along with PAp goals lost its value as a predictor and only MAp goals became a positive predictor of agentic engagement. That means that when students try to learn as much as possible in that lesson, they ask questions and express their preferences during the lesson.

The model for cognitive engagement was statistically significant both in step one ( $F [3, 261] = 56.54$   $p < .01$  adjusted  $R^2 = .39$ ) and in step two ( $F [7, 261] = 27.71$ ;  $p < .01$  adjusted  $R^2 = .423$ ). The results are shown in Table 8.

Table 8  
Hierarchical regression models for cognitive engagement

Predictors	Cognitive Engagement					
	Step 1			Step 2		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
1. Gender	0.02	(0.10)	.01	-0.03	(0.10)	-.01
2. MAp goals	0.63	(0.06)	.60**	0.43	(0.08)	.41**
3. PAp goals	0.06	(0.05)	.06	0.16	(0.08)	.17*
4. MAp autonomous	-	-	-	0.31	(0.09)	.27**
5. MAp controlling	-	-	-	-0.01	(0.08)	-.01
6. PAp autonomous	-	-	-	-0.10	(0.09)	-.11
7. PAp controlling	-	-	-	-0.10	(0.10)	-.09
<i>F</i> change (4, 254)						4.07**

*Note.* \*  $p < .05$ ; \*\*  $p < .01$ . Gender was dummy-coded (0 = males; 1 = females)

In step one, only MAp goals were a positive predictor of cognitive engagement.

When reasons underlying MAp and PAp goal entered in step two, along with MAp goals, PAp goals and autonomous reasons underlying MAp goals became positive predictors of cognitive engagement. That means that the students try to learn as much as they can whether they want to perform better than others or they aim to master in that lesson as learning is very important to them.

Regarding the results above, it is important to note that, though being not statistically significant, in the second step of regression analyses, autonomous reasons underlying PAp goals were negatively correlated to overall, behavioral, emotional and cognitive engagement, whereas PAp goals were positively correlated. Likewise, autonomous reasons underlying MAp goals were negatively correlated to agentic engagement, while MAp goals were positively and significantly predicted agentic engagement. The reasons for the negative correlations were investigated through multicollinearity analyses. The results revealed that this negative relation derived from the highly

correlated independent variables (i.e., PAp goals and autonomous reasons are highly correlated with each other, and MAp goals are highly correlated with autonomous reasons underlying MAp goals). Therefore, it seems better to approach these results with caution in future research.

### **Do perceived autonomy support and provision of structure predict student engagement?**

In order to investigate the relationship of students' perceived need supportive teaching with their engagement, five one-step regression models were tested: one for engagement in general, one for behavioral engagement, one for emotional engagement, one for agentic engagement, and one for cognitive engagement. In all the models, the dependent variable was regressed on gender, perceived autonomy support and provision of structure.

All the models were statistically significant as being engagement ( $F [3, 277] = 43.03$ ;  $p < .01$  adjusted  $R^2 = .31$ ), behavioral engagement ( $F [3, 277] = 25.81$ ;  $p < .01$  adjusted  $R^2 = .21$ ), emotional engagement ( $F [3, 277] = 47.86$ ;  $p < .01$  adjusted  $R^2 = .34$ ), agentic engagement ( $F [3, 277] = 25.59$ ;  $p < .01$  adjusted  $R^2 = .14$ ), and cognitive engagement ( $F [3, 277] = 16.46$ ;  $p < .01$  adjusted  $R^2 = .14$ ). The results are shown in Table 9.

As can be seen in Table 9, both perceived autonomy support and provision of structure are positive predictors of overall engagement, behavioral engagement, emotional engagement and cognitive engagement. This means that when autonomously supported and provided with a structured instruction, students pay attention, try to learn as much as possible and enjoy the lessons. As for agentic

engagement, only provision of structure is a positive predictor, which suggests that when teachers provide scaffolding, feedback and express their expectations clearly, then students feel free to ask questions and express their feelings. Gender was not a predictor in any of the models for engagement.

Table 9  
Regression models for four aspects of engagement

Predictors	Engagement														
	Overall Engagement			Behavioral Engagement			Emotional Engagement			Agentic Engagement			Cognitive Engagement		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
1. Gender	0.03	(0.10)	.02	0.11	(0.11)	.05	-0.07	(0.12)	-.03	-0.02	(0.14)	-.00	0.17	(0.11)	.08
2. Autonomy	0.40	(0.90)	.31**	0.31	(0.10)	.23**	0.70	(0.12)	.41**	0.24	(0.13)	.15	0.22	(0.10)	.16*
3. Structure	0.34	(0.09)	.30**	0.33	(0.10)	.26**	0.34	(0.11)	.21**	0.40	(0.12)	.25**	0.30	(0.10)	.23**

*Note.* \*  $p < .05$ ; \*\*  $p < .01$ . Gender was dummy-coded (0 = males; 1 = females)

**Do MAp goals and autonomous reasons underlying MAp goals mediate the relationship among perceived autonomy support, provision of structure and student engagement?**

Indirect effects of autonomy support and provision of structure on engagement through PAp goals and autonomous and controlling reasons underlying PAp goals were not included in the analysis. This was because these types of goals and their underlying reasons were not found to be related to any aspect of need supportive teaching in previous analyses.

Given that perceived autonomy support was only related to students' MAp goals and autonomous reasons underlying MAp goals, which in turn was positively related to student engagement, it was examined whether autonomy support was indirectly related to student engagement through MAp goals and autonomous reasons underlying MAp goals. A bootstrap analysis which included 1000 replications was conducted for each aspect of engagement and overall engagement. When MAp goals were entered as a mediator, the results showed positive indirect effects of autonomy support on overall engagement ( $B = 0.02$ ,  $SE = 0.02$ , 95% CI: 0.01 – 0.23), behavioral engagement ( $B = 0.13$ ,  $SE = 0.06$ , 95% CI: 0.01 – 0.25), emotional engagement ( $B = 0.06$ ,  $SE = 0.04$ , 95% CI: 0.00 – 0.18), agentic engagement ( $B = 0.12$ ,  $SE = 0.06$ , 95% CI: 0.01 – 0.27) and cognitive engagement ( $B = 0.11$ ,  $SE = 0.05$ , 95% CI: 0.01 – 0.24). When autonomous reason underlying MAp goals entered as a mediator, the results showed positive indirect effects of autonomy support only on emotional engagement ( $B = 0.06$ ,  $SE = 0.04$ , 95% CI: 0.00 – 0.17) and cognitive engagement ( $B = 0.04$ ,  $SE = 0.03$ , 95% CI: 0.00 – 0.13). These results indicate that there were some positive indirect effects of perceived autonomy support on student

engagement as the lower limit of CI value was higher than zero. This also means that MAp goals are mediators through which students' perceived autonomy support is related to their engagement (all four aspects and overall engagement), and autonomous reasons underlying MAp goals are mediators between autonomy support and emotional and cognitive engagement.

Likewise, given the fact that provision of structure was related only to students' MAp goals and autonomous reasons underlying MAp goals, which in turn was positively related to student engagement, it was examined whether provision of structure was indirectly related to student engagement through MAp goals and autonomous reasons underlying MAp goals. A bootstrap analysis which included 1000 replications was conducted for each aspect of engagement and overall engagement. When MAp goals were entered as a mediator variable, the results showed positive indirect effects of provision of structure on overall engagement ( $B = 0.13$ ,  $SE = 0.05$ , 95% CI: 0.03 – 0.25), behavioral engagement ( $B = 0.17$ ,  $SE = 0.07$ , 95% CI: 0.05 – 0.31), emotional engagement ( $B = 0.09$ ,  $SE = 0.05$ , 95% CI: 0.01 – 0.20), agentic engagement ( $B = 0.16$ ,  $SE = 0.06$ , 95% CI: 0.05 – 0.32) and cognitive engagement ( $B = 0.14$ ,  $SE = 0.06$ , 95% CI: 0.04 – 0.27). When autonomous reason underlying MAp goals entered as a mediator, the results showed positive indirect effects of provision of structure only on emotional engagement ( $B = 0.09$ ,  $SE = 0.04$ , 95% CI: 0.02 – 0.20), cognitive engagement ( $B = 0.06$ ,  $SE = 0.03$ , 95% CI: 0.01 – 0.16) and overall engagement ( $B = 0.04$ ,  $SE = 0.02$ , 95% CI: 0.00 – 0.10). This shows that MAp goals can be considered as mediators through which students' provision of structure is related to their engagement (all four aspects and overall

engagement), and autonomous reasons underlying MAp goals are mediators between provision of structure and emotional, cognitive and overall engagement.

**To what extent were teachers' autonomy support and provision of structure perceived in a similar way by the students and the observers?**

The rating sheet for the observers was 7-point Likert scale, whereas student questionnaires consisted of 5-point Likert scale. Therefore, a first step was to convert values in student answers into 7-point scale. Two new variables were created by subtracting the mean value of observers' need supportive ratings (i.e., autonomy support and provision of structure) from students' ratings. When the difference of autonomy support was higher or close to zero, it indicates an agreement in observers' and students' assessments. According to the descriptive statistics of the new variables, therefore, the percentage between values  $-.50$  and  $+.50$  showed the frequency of agreement between the observers and the students. When the value was lower than  $-.50$  and greater than  $+.50$ , it meant that the rating of students considerably different from the observers' ratings.

Out of all the participants, 7.5% of the students underestimated the teacher's autonomy support compared to the observers, while 59.4% rated higher than the observers. The rest of the participants (33.1%) varied between  $-.50$  and  $+.50$ , meaning that their perception was very close to the observers' perception of teachers' autonomy support. The dispersion of the ratings is as seen in Figure 2.

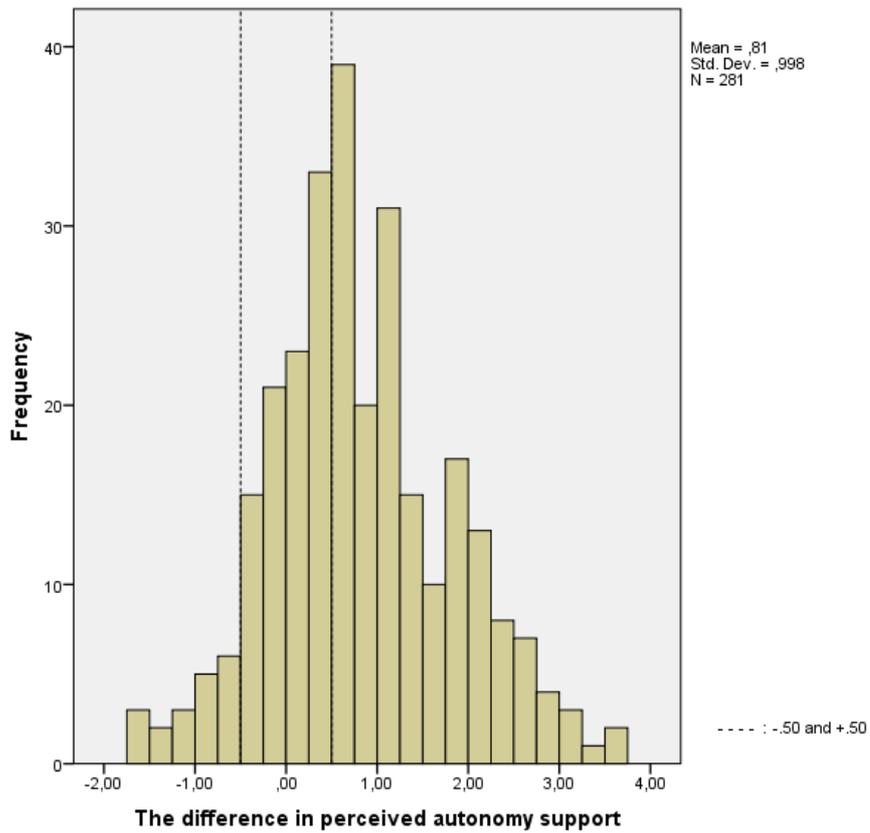


Figure 2. The difference in ratings of perceived autonomy support

As for the provision of structure, 3.6% of the participants rated the teacher lower than the observers, whereas 79% overestimated the teachers' provision of structure. The rest of the participants (17.4%) perceived their teachers as supportive as the observers did in terms of structure. The ratings of the participants can be seen in Figure 3.

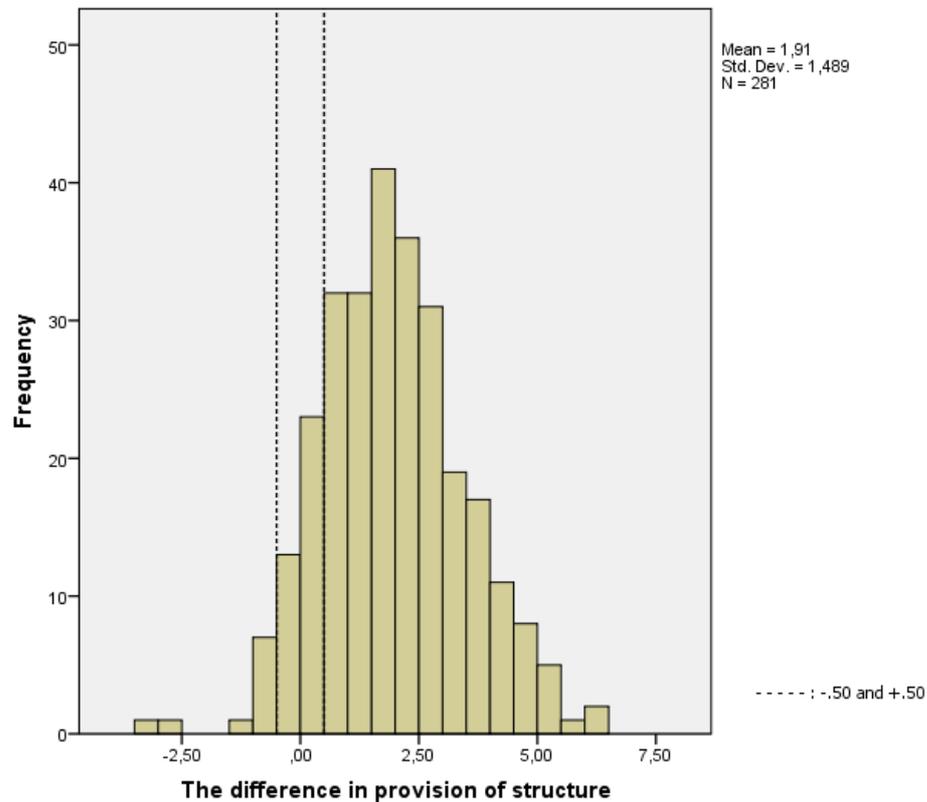


Figure 3. The difference in ratings of provision of structure

**Do need supportive instructional behaviors assessed by observers predict differences in students' motivation and engagement during a specific lesson?**

A total of 10 classes was divided into three categories according to the level of need supportive teaching provided by the class teacher. The ratings of the observers made it possible to group three classes as *high* level in both autonomy support and provision of structure, three classes as *low* level in both autonomy support and provision of structure and the remaining four classes were grouped as *average* level.

A multivariate analysis of variance (MANOVA) showed statistically significant differences among the three groups (Wilk's  $\Lambda = .756$ ,  $F [26, 496] = 2.866$ ,  $p < .01$ , multivariate  $\eta^2 = .13$ ). A follow-up analysis of variance (ANOVA) with Bonferroni correction showed that there was a correlation between students' motivation and

engagement and the group that they belonged to (see Table 10). Tukey post-hoc group comparisons suggested that students from high need supportive classes according to observers reported statistically significant higher scores in terms of autonomy support ( $M = 3.96, SD = 0.54$ ), and provision of structure ( $M = 3.97, SD = 0.67$ ); indicating that regardless of the high percentage of students who evaluated their teacher higher in autonomy support and provision of structure than the observers did, the students in the high need supportive classes perceived higher autonomy support compared to the students in the low ( $M = 3.29, SD = 0.83$ ) and average classes ( $M = 3.41, SD = 0.75$ ), and higher levels of structure compared to the students in low ( $M = 3.34, SD = 0.80$ ) and average classes ( $M = 3.41, SD = 0.78$ ).

Tukey post-hoc group comparisons also suggested that MAp goals, autonomous reasons underlying MAp goals, behavioral engagement, emotional engagement, cognitive engagement, and overall engagement were higher for the students from high need supportive classes than the average or the low need supportive classes (see Table 10 for the  $M$ s and  $SD$ s of the abovementioned variables in the three groups). The average and low need supportive classes did not differ statistically in any of the abovementioned variables.

Table 10

The statistically significant effects of the groups on perceived need supportive teaching, achievement goals, underlying reasons and engagement indicated by ANOVA

	F	df	p	M <sub>high</sub>	M <sub>average</sub>	M <sub>low</sub>
Autonomy	18.03	2, 260	.00	3.96	3.41	3.29
Structure	15.71	2, 260	.00	3.96	3.41	3.34
MAp goals	9.90	2, 260	.00	4.46	3.82	3.98
MAp autonomous	5.00	2, 260	.01	4.19	3.79	3.82
Behavioral engagement	10.10	2, 260	.00	4.06	3.39	3.45
Emotional engagement	5.14	2, 260	.00	3.85	3.33	3.24
Cognitive engagement	6.26	2, 260	.00	4.40	3.86	3.98
Overall engagement	6.19	2, 260	.00	3.82	3.38	3.33

M<sub>high</sub>: High level of need supportive teaching; M<sub>average</sub>: Average level of need supportive teaching; M<sub>low</sub>: Low level of need supportive teaching

## **CHAPTER 5: DISCUSSION**

### **Introduction**

The aim of this chapter is to discuss the findings of the present research. The chapter starts with an overview of the study, which presents the information about the method of data collection, instruments used and participants of the study; major findings and discussions of the present study follow the overview. After major findings are discussed, the chapter continues with implications for practice and further research. Finally, limitations are presented in the last section.

### **Overview of the study**

A cross-sectional correlational study, which used observations and self-reports as a method of data collection, was conducted to investigate the followings in a specific class session:

1. The relationship among need supportive instructional behaviors, student motivation and student engagement. More specifically whether students' achievement goals and autonomous or controlling underlying reasons mediated the relation between teacher's need supportive instructional behavior (i.e., autonomy support and provision of structure) and students' engagement during a specific lesson was examined.
2. To what extent teachers' autonomy support and provision of were perceived similarly by the students and the observer.
3. Whether need supportive instructional behaviors assessed by observers predicted differences in students' motivation and engagement.

The study was conducted with 310 students from 10 different classes within a public school in Ankara, Turkey. The class subjects taught during the observations included English Language, Turkish Language and Literature, and Science.

The research included external observations and each class was observed two or three times during this process; however, only one observation from each class was reported by the observers. The participants were asked to fill in a questionnaire at the end of the last observed class session that assessed their perceived autonomy support and provision of structure, their engagement as well as their achievement goals, and reasons underlying these achievement goals during the observed class session.

In the preliminary analysis, descriptive statistics for each variable and bivariate correlations among them were explored. Also, a MANOVA was conducted to check whether there were any gender differences. The main analysis included regression analyses to see the relationship among autonomy support, provision of structure, students' motivation and engagement. Also, a bootstrap analysis was conducted to see whether achievement goals and underlying reasons acted as a mediating mechanism between need supportive teaching and student engagement. Finally, the similarities and the differences between students' and observers' perception of need supportive teaching were investigated through descriptive statistics, while differences in students' motivation and engagement according to observers' assessment of autonomy support and provision of structure were checked through MANOVA.

### **Major findings and discussions**

Major findings are discussed below, under each research question of the study:

Research question #1: *What is the relationship among need supportive instructional behaviors, student motivation and student engagement in a specific class session?*

The main aim of the present study was to understand the relationship among teachers' instructional behaviors (i.e., autonomy support and provision of structure), student motivation and engagement. For this purpose, four different conditions were checked: (1) whether perceived autonomy support (e.g., teachers provision of choices, use of non-controlling language, acknowledging student perspective etc.) and provision of structure (e.g., teachers' provision of rationales for the activities, informational language, feedback and scaffolding) predicted students' endorsed achievement goals (i.e., mastery-approach or performance-approach goals) and underlying reasons (i.e., autonomous or controlling reasons behind endorsing a goal), (2) whether endorsed achievement goals and underlying reasons predicted student engagement (i.e., students' active involvement in a learning activity), (3) whether perceived autonomy support and provision of structure predicted student engagement, and (4) whether students' achievement goals and autonomous or controlling underlying reasons mediated the relation between teacher's need supportive instructional behaviors (i.e., autonomy support and provision of structure) and students' engagement during a specific lesson. Therefore, the investigated relations among these variables and main findings were described in four sub-questions.

Research question #1a: *Do perceived autonomy support and provision of structure predict students' endorsed achievement goals and underlying autonomous and controlling reasons?*

The results of the analyses indicated that there was a significant relation between teachers' instructional behaviors (i.e., perceived autonomy support and provision of structure) and MAp goals supporting Hypothesis 1. More specifically, this means when teachers nurture students' inner motivation, use informational language, set clear expectations and give feedback to them, students endorse MAp goals. These findings have been strongly supported by past research, which suggests that teachers' instructional behaviors play an important role in students' endorsing MAp goals (Akram et al., 2014; Cho et al., 2011; Madjar et al., 2013).

No significant relationship was found between teachers' instructional behaviors (i.e., perceived autonomy support and provision of structure) and PAp goals verifying Hypothesis 2. This revealed that perceived autonomy support and provision of structure do not predict students' endorsement of goals to outperform others. Earlier studies, mostly agree that performance goals are negatively or not related to perceived autonomy support and provision of structure (Cho et al., 2011).

Even though there has not been a past study that directly investigated the relation of autonomy support and provision of structure to underlying reasons of students' endorsed goals, the current study expected to find a positive correlation with autonomous reasons underlying MAp or PAp goals and negative or no correlation with controlling reasons (Hypothesis 3). The reason behind this was the fact that autonomy support and provision of structure are often positively associated with autonomous motivation (De Naeghel et al., 2016). The findings of the present study, however, showed that autonomy support and provision of structure were positively related to autonomous and controlling reasons underlying students' endorsed MAp

goals while they were unrelated to either autonomous or controlling reasons underlying PAp goals. Contrary to expected results, controlling reasons underlying MAp goals were also found to be positively related to autonomy support. The reason for this relationship could be the fact that when the students perceived the teacher as taking their perspective, supporting them autonomously, the students could endorse mastery goals and tried to learn as much as possible in order to please their teacher, or feel accepted by the teacher because s/he was very helpful and always there to support them. Regarding reasons underlying PAp goals, no significant correlation was found between teachers' need supportive instructional behaviors and reasons underlying PAp goals, probably because PAp goals, were not related to either autonomy support and provision of structure. This suggests that students provided with structure and autonomy supportive teaching think that outperforming is necessary neither for personal reasons nor for pleasing others.

Research question #1b: *Do endorsed achievement goals and underlying reasons predict student engagement?*

For the analysis of this question, two step regression models were used. In the first step, only achievement goals (i.e., mastery-approach and performance-approach) were present. In the second step, autonomous and controlling reasons underlying achievement goals were entered. The results of the analyses for each type of engagement (i.e., behavioral, emotional, agentic, cognitive and overall) showed that MAp goals predicted all four types of engagement and overall engagement; PAp goals only predicted emotional and cognitive engagement. These findings support Hypothesis 5. Autonomous reasons underlying MAp goals were found to predict students' emotional, cognitive and overall engagement, and controlling reasons

underlying PAp goals were found to predict emotional engagement negatively partially verifying Hypothesis 6.

The results regarding MAp goals aligned with expectations as past research has shown a positive relation between MAp goals and student engagement (Ames, 1992; Huang, 2012). However, as all four types and overall engagement were assessed, the findings of the present study depict a broader picture regarding the relation of student engagement to endorsement of MAp goals. The literature has not yet come to an agreement about the relation of PAp goals to student engagement. There has been studies that show a positive relation (Elliot & Harackiewicz, 1996; Wolters, 2004) and there have also been studies that show negative or even no relation between PAp goals and student engagement (Elliot & McGregor, 1999; Midgley et al., 2001). However, these studies mostly focused on only one or two aspects of engagement. The present study is comprehensive in terms of investigating the relation of all four aspects and overall engagement to performance goals. Therefore, the results revealed both positive relation between PAp goals and (behavioral or cognitive engagement) and no relation between PAp goals and emotional or agentic engagement.

Past research has suggested that when students endorse goals for autonomous reasons, they display higher levels of engagement (Gaudreau, 2012). The findings of this study found a positive relation between students' overall, emotional, cognitive engagement and autonomous reasons underlying students' endorsed MAp goals; this was an expected result. The only negative relation between behavioral engagement and controlling reasons underlying PAp goals was one that indicated when students

adopt a goal to outperform others for the sake of a reward or because of a punishment, they reported less behavioral engagement.

Research question #1c: *Do perceived autonomy support and provision of structure predict student engagement?*

The results of the analyses, in accord with Hypothesis 4, revealed that perceived autonomy support and provision of structure are positively related to overall engagement, behavioral engagement, emotional engagement and cognitive engagement. This suggests that when teachers autonomously support and provide a structured instruction, students pay attention, contribute to their own learning, try to learn as much as possible and enjoy the lessons. Agentic engagement was found to be only related to provision of structure, which suggests when students are provided with help, feedback and clear expectations by their teachers, they feel free to ask questions and express their feelings.

These findings were consistent with the expectations as past research has mostly suggested similar results. Hospel and Galand (2016) found that both autonomy support and provision of structure were positive predictors of students' emotional engagement and Jang, Reeve and Deci (2010) suggested that students' collective behavioral engagement was predicted by both aspects of teachers' instructional behaviors.

However, few studies investigated all aspects of student engagement at the same time. This study investigated the relation of all four aspects and overall engagement of students to teachers' instructional behaviors. Even though it still provides similar

results with past research, the present study adds to the literature in terms of the relation of each type of engagement to teachers' instructional behaviors; especially the relation of agentic engagement, which has recently been recognized as the fourth aspect of student engagement and not many studies have investigated its relation to teachers' instructional behaviors thoroughly.

Research question #1d: *Do achievement goals and autonomous and controlling reasons underlying achievement goals mediate the relationship between perceived autonomy support, provision of structure and student engagement?*

As PAp goals and reasons underlying PAp goals were not found to be related to any aspect of need supportive teaching in previous analyses, PAp goals and their underlying reasons are not considered as a mediating mechanism that could relate teacher's need supportive instructional behaviors to student engagement.

According to the results of the study and Hypothesis 7, MAp goals seem to be a mediator through which students' perceived autonomy support is related to their engagement (all four aspects and overall engagement), while autonomous reasons underlying MAp goals are mediators between autonomy support and emotional and cognitive engagement. MAp goals were also found to be a mediator through which students' perceived provision of structure is related to their engagement (all four aspects and overall engagement), while autonomous reasons underlying MAp goals were mediators between provision of structure and emotional, cognitive and overall engagement.

Because there has been no study investigating students' autonomous and controlled motivation as an explanatory mediating mechanism through which need supportive teaching is related to engagement, these findings contribute to the literature by providing indications that the psychological mechanism that "translates" perceptions of need supportive educational environment to engagement is the endorsement of MAp goals for autonomous reasons. Further research could provide more evidence about the mediation of students' motivation between teachers' instructional behavior and students' outcomes.

Research question #2: *To what extent are teachers' autonomy support and provision of structure perceived in a similar way by the students and the observer?*

This question was investigated by analyzing the differences in students' and observers' ratings of teachers' need supportive teaching (autonomy support and provision of structure). Regarding perceived autonomy support, the majority of the students (59.4%) rated their teacher higher than the observers did. Only 33.1% of the students agreed with the observers on teachers' autonomy support. The results were similar for provision of structure. Most of the students (79%) overestimated their teacher's provision of structure whereas only 17.4% thought the same with the observers. These findings do not support Hypothesis 8.

Past research has mostly shown that observers' and students' perceptions are very similar when it comes to evaluating teachers' need supportive teaching (Haerens, et al., 2013). However, the results of De Meyer's study (2015) suggested that students' motivation color their perception of teacher's autonomy support or controlling teaching and the present study showed that students' perception was higher than

observers' in both situations (i.e., perceived autonomy support and provision of structure). This might be the result of students' autonomous motivation.

Nevertheless, we cannot say that students' perception does not correspond to the real teaching instructional behaviors, because when we took observers' evaluation of autonomy support into consideration, students in high autonomy supportive classrooms reported higher perception of autonomy support compared to students in average and low autonomy supportive classrooms. These results emphasize the necessity to assess teachers need supportive instructional behaviors by independent observers along with students' assessment.

*Research question #3: Do need supportive instructional behaviors assessed by observers predict differences in students' motivation and engagement during a specific lesson?*

To be able to see the differences between the perceptions of students and the observers, three groups were created according to the ratings of the observers: *High*, *average* and *low* classes in terms of the level of perceived (by the observers) autonomy support and provision of structure.

The results, in accord with Hypothesis 9, indicated that the students in the classes assessed high by the observers in autonomy support and structure also reported that they perceive higher autonomy support and structure than the students in average and low classes. The students in these classes evaluated their teacher higher than the observers did; however, this did not affect the parallels found between class groupings done by the observers and students' own perceptions. These findings are in line with previous research. In their study, Haerens and her colleagues (2013)

explored that when observers reported need supportive behaviors displayed by teachers, students also reported that they perceived their teachers as need supportive.

Group comparisons in the present study also showed that in high need supportive classes students reported higher levels of behavioral, emotional, cognitive and overall engagement as well as MAp goals and autonomous reasons underlying MAp goals than the students in average and low need supportive classes. This finding is also supported by past research. In their study, Jang, Reeve and Deci (2010) found that the more observers reported high autonomy support and provision of structure from the teacher, the higher collective and individual engagement students reported. However, no previous study has investigated the relation of autonomy support and provision of structure assessed by observers to students' achievement goals and underlying reasons. In accord to the results of this study regarding the positive relation of perceived autonomous support and provision of structured to the endorsement of MAp goals for autonomous reasons, it has also been shown that high autonomy support and provision of structure assessed by independent observers predicted higher MAp goals and autonomous reasons underlying MAp goals.

As mentioned in the previous question, these results once more emphasize that teachers' instructional behaviors need to be evaluated by independent observers together with students' assessment.

### **Implications for practice**

The results of the present study showed that students in high need supportive classes endorse MAp goals for autonomous reasons and they are more engaged during the

lesson compared to the students in low and average need supportive classes. This means that quality of student motivation and engagement is strongly related to teachers' autonomy support and provision of structure.

These findings show the importance of teachers' awareness regarding instructional behaviors. Policy makers, authorities or even schools individually could organize professional development seminars and workshops in which instructional behaviors (i.e., autonomy support and provision of structure) are taught and discussed in detail. Studies show professional development trainings such as *Autonomy-Supportive Intervention Program (ASIP)* (Sung, Reeve, & Moon, 2012) or *Continuous Professional Development (CPD)* (Aelterman, Vansteenkiste, Van den Berghe, De Meyer, & Haerens, 2014) foster teachers' understanding and use of autonomy support and provision of structure in their lessons. Such training programs can be adapted to Turkish education system and used to train teachers who are aware of the importance of satisfying students' psychological needs for their motivation and engagement.

### **Implications for further research**

The present study was conducted with 310 students from 10 different classes. Because of the small number of classes, it was not possible to run multilevel analysis; the analysis was done at the student level only. To be able to see to what extent instructional behaviors predict student motivation at classroom levels, further research can be done through multilevel analysis with at least 30 different class observations.

Further research can also take into consideration teachers' instructional behaviors that support students' need for relatedness while investigating the relation of teachers' instructional behaviors to student motivation and engagement. Being one of students' basic psychological needs, relatedness also contributes to student motivation (Cox & Williams, 2008; Deci & Ryan, 2000). However, this study only investigated two aspects of teachers' instructional behaviors (i.e., autonomy support and provision of structure). Therefore, future research can add the assessment of relatedness support to see how all three aspects of instructional behaviors affect student motivation and engagement together.

### **Limitations**

As the research questions suggest, this study addressed motivational orientations and engagement of students in Turkey in relation to teachers' instructional behaviors. As this was a cross-sectional correlational study, only a correlation was sought, not a causal relationship between variables; the findings did not provide any cause and/or effect. An experimental or longitudinal study would reveal the direction of the correlation and the effects.

Time constraints were one of the limitations of this study. It was not possible to observe many classes for a long span of time due to the limited time assigned for the study. The classes were observed for two to three weeks in a row, not for the whole semester or year. This situation had a decreasing effect on the possibility of observing natural classes as the teachers might have acted differently knowing that they were observed. The more and the longer the classes were observed, the more it would be possible to have objective result. However, the fact that the classes were

not observed for a long time may have influenced the objectivity of the results. Also, the number of observed classes was small ( $N = 10$ ); more classes could have depicted stronger results in terms of generalizability.

Regarding the obtained results, multicollinearity seems to affect the results related to the prediction of engagement by achievement goals and their underlying reasons.

Therefore, the results presented in the present study should be interpreted by caution. Further research is needed to clarify the relationship of “what” and “why” aspects of students’ striving to their engagement in class activities.

All participants were from Ankara, the capital city of Turkey. This means that the study was limited to a big, urban city; rural areas were excluded from the study. This might have affected the likelihood of a generalization. Lastly, the data was only collected from public high school classes, which makes it nearly impossible to generalize the study to the all types of schools (i.e. private, vocational etc.) and students from all ages and level.

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## APPENDICES

### APPENDIX A: Student Questionnaires (English)

School: _____ Class: _____ Gender: M/F Date of Birth: _____ Date: _____
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Dear student,

This questionnaire is prepared as a part of a study investigating students' motivation during a specific class hour. Your answers will **NOT** be used to **grade** or **criticize** you. There are **NO** correct answers for the expressions below. This is why, we kindly ask you to read all the questions carefully and chose the best option that suits your perspective.

Please use the scale below to answer the questions:

- 1: I strongly disagree
- 2: I disagree
- 3: Neutral
- 4: I agree
- 5: I strongly agree

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
<i>During this class my teacher...</i>					
1. Provides interesting learning activities	1	2	3	4	5
2. Piqued students' curiosity	1	2	3	4	5
3. Explained the value/necessity of the activities	1	2	3	4	5
4. Provided choices	1	2	3	4	5
5. Provided opportunities to students to express their preferences/opinion	1	2	3	4	5
6. Allowed students to work at their own pace	1	2	3	4	5
7. Allowed students to work at their own way	1	2	3	4	5
8. Provided explicit schedule and guidelines for the activities	1	2	3	4	5
9. It made clear what the students had to do in the activities	1	2	3	4	5
10. Moved the lesson along at an orderly pace	1	2	3	4	5

11. Gave hints, tips, strategies, reminders for the activities to facilitate student engagement	1	2	3	4	5
12. Told students what they were doing well	1	2	3	4	5
13. Told students what they need to do to improve	1	2	3	4	5

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
<b><i>During this class ...</i></b>					
14. I paid attention	1	2	3	4	5
15. I worked very hard	1	2	3	4	5
16. I enjoyed today's class	1	2	3	4	5
17. I tried to learn as much as I could	1	2	3	4	5
18. I express my preferences, opinions or questions	1	2	3	4	5
19. I felt interested in today's class	1	2	3	4	5
20. I asked questions during class	1	2	3	4	5

<b>During the very last class hour, my aim was to completely master the material presented</b>					
... Because I chose that goal as a way to develop myself.	1	2	3	4	5
... Because I would not feel worthwhile if I had not.	1	2	3	4	5
... Because learning is consistent with my current goals	1	2	3	4	5
... Because the teacher would reward me.	1	2	3	4	5

<b>During the very last class hour, my goal was to perform better than the other students.</b>					
... Because I believed it was the best thing to do.	1	2	3	4	5
... Because I felt from my teacher pressure to perform better than the others.	1	2	3	4	5

... Because performing better than the others was consistent with my life goals	1	2	3	4	5
... Because I would have felt bad about myself if had not performed better than the others.	1	2	3	4	5

---

During the very last class hour, I was striving to do well compare to other students.

... Because I have chosen this goal as a way to develop myself.	1	2	3	4	5
... Because the teacher would reward me if I do well compared to the other students.	1	2	3	4	5
... Because I would not have felt worthwhile if I had not.	1	2	3	4	5
... Because doing well compared to my classmates was very important	1	2	3	4	5

---

During the very last class hour, my goal was to learn as much as possible

... Because learning as much as possible is always an integral part of my life.	1	2	3	4	5
... Because I would have felt guilty or ashamed of myself if I had not learnt as much as possible.	1	2	3	4	5
... Because learning as much as possible is always very important for me	1	2	3	4	5
... Because I felt pressure from to learn as much as possible	1	2	3	4	5

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## APPENDIX B: Student Questionnaires (Turkish)

Okul: \_\_\_\_\_ Sınıf: \_\_\_\_\_ Cinsiyet: K/E Doğum Tarihi: \_\_\_\_\_ Tarih: \_\_\_\_\_

### Değerli öğrenci,

Bu ölçek ders sırasındaki motivasyonunuzu belirlemek için yapılan bilimsel bir araştırmanın yürütülmesi amacıyla hazırlanmıştır. Ölçekte yer alan sorulara verdiğiniz yanıtlar, kesinlikle **size not vermek** ya da sizi **eleştirmek** amacıyla **kullanılmayacaktır**. Bu soruların herkes için geçerli **doğru yanıtları bulunmamaktadır**. Bu nedenle lütfen aşağıda verilen tüm soruları dikkatle okuyarak cevabınızı, ifadenin karşısındaki seçeneklerden sizin için en uygun olanı işaretleyerek belirtiniz.

Soruları yanıtlamak için aşağıdaki ölçütleri kullanınız. Soruda geçen ifadeye **tamamen katılıyorsanız (5)**'i; ifadeye **kesinlikle katılmıyorsanız (1)**'i işaretleyin. Eğer ifadenin size göre doğruluğu bunlardan farklı ise sizin için en uygun düzeyi gösteren (1)'le (5) arasındaki rakamı işaretleyin.

	Kesinlikle katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle Katılıyorum
<b><i>Bu ders sırasında, öğretmenim...</i></b>					
1. İlgi çekici aktiviteler kullandı.	1	2	3	4	5
2. Merak uyandırdı.	1	2	3	4	5
3. Aktivitelerin önemini/gerekliliğini anlattı.	1	2	3	4	5
4. Seçenekler sundu.	1	2	3	4	5
5. Tercihlerimizi/fikirlerimizi ifade etmemize imkân sağladı.	1	2	3	4	5
6. Kendi tempomuzda çalışmamıza izin verdi.	1	2	3	4	5
7. Kendi bildiğimiz şekilde çalışmamıza izin verdi.	1	2	3	4	5
8. Aktiviteler için açık plan ve talimatlar sağladı.	1	2	3	4	5
9. Aktivitelerde ne yapmamız gerektiğini açıkladı.	1	2	3	4	5

10. Dersin düzgün bir hızda ilerlemesini sağladı.	1	2	3	4	5
11. Katılımımızı artıran aktiviteler için ipucu verdi, hatırlatmalar yaptı.	1	2	3	4	5
12. Hangi konularda iyi olduğumuzu söyledi.	1	2	3	4	5
13. Kendimizi geliştirmek için ne yapmamız gerektiğini söyledi.	1	2	3	4	5

	Kesinlikle katılım	Katılım yorum	Kararsızım	Katılıyorum	Kesinlikle Katılıyorum
<b><i>Bu ders sırasında ...</i></b>					
1. Derse dikkatimi verdim.	1	2	3	4	5
2. Çok çabaladım.	1	2	3	4	5
3. Dersten zevk aldım.	1	2	3	4	5
4. Öğrenebildiğim kadar çok şey öğrenmeye çalıştım.	1	2	3	4	5
5. Tercihlerimi, fikirlerimi veya sorularımı dile getirdim.	1	2	3	4	5
6. Bugün ders ilgimi çekti.	1	2	3	4	5
7. Soru sordum.	1	2	3	4	5

Bu derste, hedefim sunulan konuyu tamamen anlamaktı.	1	2	3	4	5
... çünkü, bu hedefi kendimi geliştirmek adına seçtim.	1	2	3	4	5
... çünkü, bunu yapmazsam kendimi değerli hissetmezdim.	1	2	3	4	5
... çünkü, şu anki hedeflerim öğrenmem ile örtüşüyor.	1	2	3	4	5
... çünkü, bunu yapınca öğretmenim beni ödüllendirir.	1	2	3	4	5

Bu derste, hedefim diğer öğrencilerden daha iyi olmaktı.	1	2	3	4	5
... çünkü, bu benim için çok önemlidir.	1	2	3	4	5
... çünkü, öğretmenimden daha iyi olmam konusunda baskı görüyordum.	1	2	3	4	5
... çünkü, diğer öğrencilerden iyi olmak hayattaki	1	2	3	4	5

hedeflerimle örtüşüyor.					
... çünkü, diğerlerinden iyi olmazsam kendimi kötü hissedirdim.	1	2	3	4	5
Bu derste diğer öğrencilerden daha iyi olabilmek için çabalıyorum.	1	2	3	4	5
... çünkü, bu hedefi kendimi geliştirmek adına seçtim.	1	2	3	4	5
... çünkü, daha iyi olduğumda öğretmenim beni ödüllendirir.	1	2	3	4	5
... çünkü, daha iyi olmasaydım kendimi değerli hissetmezdim.	1	2	3	4	5
... çünkü, sınıf arkadaşlarımdan daha başarılı olmak benim için çok önemlidir.	1	2	3	4	5
Bu dersteki hedefim, mümkün olduğunca çok şey öğrenmekti.	1	2	3	4	5
... çünkü, öğrenebildiğim kadar öğrenmek hayatımın gerekliliğidir.	1	2	3	4	5
... çünkü, öğrenebildiğim kadar öğrenmeseydim kendimi suçlu hisseder ve kendimden utanırdım.	1	2	3	4	5
... çünkü, öğrenebildiğim kadar öğrenmek benim için her zaman çok önemlidir.	1	2	3	4	5
... çünkü, öğretmenimden öğrenebildiğim kadar öğrenmem için baskı hissediyorum.	1	2	3	4	5

## APPENDIX C: Observation Rating Sheets

<b>AUTONOMY-SUPPORTIVE TEACHING</b>
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	<i>Never, Not at All</i>		<i>Occasionally Sometimes yes, Sometimes no</i>			<i>Frequently, Always</i>	
<p><b>Vitalizes Inner Motivational Resources</b> during Instruction</p> <ul style="list-style-type: none"> <li>• Piques Curiosity</li> <li>• Provides Interesting Learning Activities</li> <li>• Vitalizes and Supports Students' Autonomy, Competence, Relatedness</li> <li>• Frames Learning Activities with Students' Intrinsic Goals</li> </ul>	1	2	3	4	5	6	7
<p><b>Provides Explanatory Rationales</b> for Requests, Rules, Procedures, and Uninteresting Activities</p> <ul style="list-style-type: none"> <li>• Explains Why; Says, "Because...", "The reason is..."</li> <li>• Identifies the Value, Importance, Benefit, Use, Utility of a Request</li> </ul>	1	2	3	4	5	6	7
<p><b>Uses Non-Pressuring, Informational Language</b></p> <ul style="list-style-type: none"> <li>• Flexible, Open-minded, Responsive Communication</li> <li>• Provides Choices, Provides Options</li> <li>• Verbally and Nonverbally says, "You may...", "You might..."</li> </ul>	1	2	3	4	5	6	7
<p><b>Displays Patience</b></p> <ul style="list-style-type: none"> <li>• Allows Students to Work at their Own Pace, in their Own Way</li> <li>• Calmly Waits for Signals of Students' Initiative, Input, Willingness</li> </ul>	1	2	3	4	5	6	7

## APPENDIX C (cont'd): Observation Rating Sheets

<b>STRUCTURED TEACHING</b>	<i>Never, Not at All</i>		<i>Occasionally Sometimes yes, Sometimes no</i>			<i>Frequently, Always</i>	
	1	2	3	4	5	6	7
<b>Clear Expectations</b>	1	2	3	4	5	6	7
<ul style="list-style-type: none"> <li>• “What to Do” Is Clear</li> <li>• Expectations, Standards Are Clear</li> <li>• Provides Explicit Schedule, Directions</li> <li>• States a Clear Goal or Learning Objective</li> <li>• Offers a Clear Plan of Action</li> <li>• Shows Strong Leadership</li> <li>• Is Consistent, Is Predictable</li> </ul>							
<b>Helpful Guidance, Scaffolding</b>	1	2	3	4	5	6	7
<ul style="list-style-type: none"> <li>• Mentors, Coaches Students</li> <li>• Provides Help, Assistance, Guidance</li> <li>• Gives Hints, Tips, Strategies, Reminders</li> <li>• Moves the Lesson along at an Orderly Pace</li> </ul>							
<b>Constructive Feedback</b>	1	2	3	4	5	6	7
<ul style="list-style-type: none"> <li>• Provides Competence-Diagnosing &amp; Competence-Building Analysis</li> <li>• Comments on the Quality of Students’ Work</li> <li>• Tells Students What They Are Doing Well</li> <li>• Tells Students What They Need to Do to Improve</li> <li>• Provides Suggestions for Next Time</li> </ul>							

## APPENDIX D: Permission from Ministry of National Education

178/ 010592



T.C.  
ANKARA VALİLİĞİ  
Milli Eğitim Müdürlüğü

Sayı : 14588481-605.99-E.6660991  
Konu: Araştırma İzni

29.06.2015

BİLKENT ÜNİVERSİTESİNE  
(Eğitim Bilimleri Enstitüsü)

İlgi: a) MEB Yenilik ve Eğitim Teknolojileri Genel Müdürlüğünün 2012/13 nolu Genelgesi.  
b) 29/05/2015 tarihli ve 8549 sayılı yazınız.

Üniversiteniz Eğitim Bilimleri Enstitüsü öğretim görevlisi Aikaterini Michou' nun "Lise Sınıflarında Öğretmenin Öğretim Şekli: Öğretim Şeklinin Öğrenci Motivasyonu ve Öğrenmeyle İlişisinin Sistematik bir Yaklaşımla Değerlendirilmesi" başlıklı araştırma kapsamında görüşme yapma talebi Müdürlüğümüzce uygun görülmüş ve uygulamanın yapılacağı İçişleri Bakanlığı Milli Eğitim Müdürlüğüne bilgi verilmiştir.

Araştırma formunun (22 sayfa) araştırmacı tarafından uygulama yapılacak sayıda çoğaltılması ve çalışmanın bitiminde bir örneğinin (cd ortamında) Müdürlüğümüz Strateji Geliştirme (1) Şubesine gönderilmesini arz ederim.

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