EFFECTS OF TEACHER AUTONOMY SUPPORT

INTERVENTION ON THAI STUDENTS' MOTIVATION:

A SELF DETERMINATION THEORY PERSPECTIVE

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Abstrak

Teori Penentuan Diri mengutarakan hal yang berkaitan dengan Sokongan Autonomi Guru (TAS) untuk menggalakkan motivasi pembelajaran dan meningkatkan hasil akademik. Namun terdapat kontroversi silang budaya berkaitan konstruk autonomi Teori Penentuan Diri sehingga menyebabkan timbulnya persoalan tentang aplikasi TAS dalam persekitaran bilik darjah di Asia. Kajian ini bertujuan untuk mengkaji hubungan antara sokongan autonomi dalam motivasi pelajar Thai. Seramai 103 pelajar (56 perempuan dan 47 lelaki) Gred 6 dari sekolah awam di Thailand terlibat dalam kajian yang menggunakan kaedah eksperimen kuasi antara kelompok tidak setara. Pelajar dalam kelompok ujikaji ini menerima arahan daripada guru yang terlatih dalam pengajaran sokongan autonomi dalam tujuh (7) sesi (60 minit setiap sesi) di bilik darjah. Data dikumpulkan dan dilakukan prauji, ujian1 dan ujian2 menggunakan inventori motivasi instrinsik oleh Ryan (1982), soal selidik pengaturan sendiri oleh Ryan dan Connell (1989) dan soal selidik iklim pembelajaran oleh Black dan Deci (2000). Analisis menggunakan Multivariate Analysis of Variance di peringkat prauji menunjukkan tiada perbezaan hubungan di antara kumpulan yang dikaji dengan kumpulan kawalan bagi semua pemboleh ubah termasuk jantina. Walau bagaimanapun terdapat perbezaan min antara kumpulan tersebut berdasar: (i) antara kedua-dua kumpulan yang diuji pada pra ujian1, (ii) antara ujian1 dan ujian2 untuk kumpulan yang dikaji dengan kesan utama melibatkan semua pemboleh ubah dan (iii) min di antara ujian1 dan ujian2 yang dilakukan semula di antara kumpulan yang dikaji. Bagaimanapun, kesan utama yang dilihat hanyalah bagi pemboleh ubah usaha, hubungan dan sokongan autonomi teranggap. Sehubungan itu, didapati Teori Penentuan Diri telah menunjukkan bahawa autonomi bukanlah nilai yang terikat dengan budaya, bersesuaian dengan pelajar Thai dan memberi kesan dalam pendidikan dan polisi di Thailand.

Kata kunci: Motivasi, Teori penentuan diri, Thailand, Autonomi guru, Kaedah kuasi-eksperimen

Abstract

Self Determination Theory (SDT) postulates that Teacher's Autonomy Support (TAS) promotes learning motivation and academic outcomes, but cross cultural controversies within SDT question the significance of TAS in Asian classrooms. The present research tests the relevance of TAS on Thai students' motivation in relation to Thai Education reforms. In a quasi-experimental non-equivalent group design, 103 students (56 girls and 47 boys) of Grade-6, from a Thai public school, participated in the present study. The experimental group underwent an autonomy supportive intervention for seven (7) sessions (60 minutes each) in a regular classroom setting by a trained teacher. Data were gathered for the Pretest, posttest1 and posttest2 using an intrinsic motivation inventory by Ryan (1982), a self-regulation questionnaire by Ryan and Connell (1989) and a learning climate questionnaire by Black and Deci (2000) for variables which include interest, effort, pressure, relatedness, perceived autonomy support, identified and external regulation. An analysis using Multivariate Analysis of Variance in the pretest showed no significant difference between the experimental group and the control group on all variables including gender. However, significant mean differences were observed in the following cases: (i) between both groups at the postest1, (ii) between the pretest and postest1 of the experimental group, with the main effects observed for all variables as a result of TAS and (iii) between means of the postest1 and postest2 in the experimental group. However, the main effects were only significant for variables such as effort, relatedness and perceived autonomy support. Thus, the findings have strengthened the SDT belief that autonomy is not a culturally bound value and is equally relevant for Thai students and has implications for Thai education and its policies.

Keywords: Motivation, Self-determination Theory, Thailand, Teacher autonomy support, Quasi experimental design.

Dedication

I would like to dedicate this thesis to my beloved grandparents and my in-laws for

their blessings, inspiration and dreams that guided me to this achievement.

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I would like to convey my heartfelt gratitude to the almighty for giving me the wisdom and the ability to pursue this degree.

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List of Abbreviations

SDT: Self-determination Theory

TAS: Teacher Autonomy Support

PAS: Perceived Autonomy Support

IMI: Intrinsic Motivation Inventory

SRQ: Self-Regulation Questionnaire

LCQ: Learning Climate Questionnaire

PIS: Problem in School Questionnaire

GCOS: General causality Orientation

NEGD: Non Equivalent Group Design

SES: Social Economic Status

ONEC: Office of National Education Commission

CHAPTER 1: INTRODUCTION

1.1 Introduction

"Motivation is defined as a process whereby goal-directed activity is instigated and sustained" (Pintrich & Schuck, 2002, p.3). It can be explained as a desire, or a force that induces living beings to pursue goals and maintain goal oriented behaviors. Motivation plays a pivotal role in determining optimal school functioning among students. Studying motivation for classroom learning and student performance has always been a major issue for researchers in educational psychology (Urdan & Turner, 2005). It is important for educators to have knowledge of the learner's motivation in order to develop appropriate condition for them to experience positive motivation. Without this, educators may fail to engage students in learning (Alexander, 2005). Schools, being the primary influence on children's upbringing, are studied extensively to develop a system which fosters a genuine interest for learning. Several studies have been conducted in the quest of finding out ways and means to promote better academic outcome, to enhance student engagement and reduce the dropout rate (McCombs & Whisler, 1997; Skinner & Belmont, 1993; Wlodkowski & Jaynes, 1990). Numerous theories such as Pavlov's (1927, 1928) classical theory, Skinner's (1953) operant conditioning theory, and Festinger's (1957) cognitive dissonance theory have made attempts to identify the nature and characteristics of motivation. Among these, Self-determination Theory

has made significant contributions in the domain of education, especially with regard to the issue of motivation and the concept of 'self'.

Self-Determination Theory (SDT) is a theory of human motivation which proposes competence, autonomy, and relatedness as basic psychological needs, which are innate, universal and essential to all human beings. The theory proposes that satisfaction of these needs facilitates optimal functioning of the natural tendencies towards psychological growth and development 1985, 2000). Almost 30 years of empirical research within the theory has contributed significant findings for understanding human motivation in several domains such as healthcare (William, 2002), education (Reeve, 2006), work (Guay, 2005), sport (Gagné, Ryan, & Bargmann, 2003), religion, (Hodgins, Koestner, & Duncan, 1996), and psychotherapy (Zeldman & Ryan, 2004).

SDT, when applied to the realm of education suggests measures to enhance student motivation, to promote interest in learning and to develop a value for education. It explains behavioural regulation as self-determined when one's engagement is fully volitional, and as controlled, when one's engagement is external (Deci, Vallerand, Pelletier, & Ryan, 1991). In classroom contexts, SDT differentiates between various events and social contexts as autonomy supportive and controlling. A plethora of experimental and correlational research within SDT suggests that classroom conditions that provide support for autonomy such as providing constant feedback and rationale for doing an activity (Reeve & Jang, 2006; Reeve, 1998, 2006; Reeve, Jang, Hardre & Omura, 2002; Assor, Kaplan, & Roth, 2002) enhances

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students intrinsic motivation, and facilitates internalization of academic values (Black & Deci, 2000). On the other hand, classroom conditions that prevent support for autonomy such as using directives, setting deadlines, providing rewards, not allowing children to voice their opinion (Reeve, 2006; Eisenberger & Cameron,1996) diminishes student motivation and engagement at school, and also causes anger and anxiety among students (Assor, Kaplan, Maymon, & Roth, 2005). However, most of the experimental studies were conducted in an artificially induced classroom environment where Teacher Autonomy Support (TAS) was provided for a limited duration and often the samples were not students in a natural classroom, but teachers pretending to be students (Reeve & Jang, 2006; Black & Deci, 2000, Assor et al., 2005; Reeve, et al., 2002). Therefore, in order to be able to incorporate TAS strategies in regular teaching practices, it is essential to examine the effect of TAS in a regular and natural classroom setting. This will provide one the opportunity of examining the effects of teacher autonomy support on student motivation (Reeve & Jang, 2006).

Autonomy, within SDT is described as "self-endorsement" of one's behaviour, and the behaviour that has internal perceived locus of causality (Ryan & Connell, 1989). This concept has long been the target for criticism from cross-cultural relativists and behaviourists. In spite of the successful application of SDT in various domains for understanding quality of motivation, the significance of the autonomy construct in different cultures has raised questions on the universal application of the theory. Some psychologists have questioned the significance of the construct and concept of autonomy, and volition. For example, Wegner (2002)

viewed autonomy as an illusionary concept, and Iyengar and Lepper, (2000) stated that autonomy diminishes intrinsic motivation. Schwartz (2000) described it as *Tyranny*; what an individual has to suffer when he or she has too many options to choose from.

The most prominent criticism, a critique based on the cultural theory of self-construal, views autonomy as culturally bounded and only a western value (Markus & Kitayama, 1991). Self-construal theory emphasizes the difference between eastern culture as interdependent and western culture as independent. According to the theory, people behave differently on the basis of their cultural orientation. It is perverse for an individual from a collectivist society to exercise his/her personal will against the group's interest, thus leaving the significance of autonomy ineffective in eastern culture. For example, in a study on intrinsic motivation, Iyengar and Lepper (1999) conducted a series of laboratory experiments on ethnographic studies on American and Japanese students to examine their attitude towards choice. The findings reported that the American samples wished to have more choices than their Japanese counterpart. In another experiment to examine the effect of choice on intrinsic motivation, it was revealed that Japanese students performed better and showed higher intrinsic motivation when the task was chosen by their mothers. In contrast, the American samples reported better performance when choice was made personally and they had an opportunity to stand apart. These findings supported the assertion made by self-construal, conjoint-disjoint and other cross-cultural theories that the concept of "self" varies widely in eastern and western contexts. Therefore, provision for choice might not produce the same results in all cultures. Also, Miller

(1999), in survey studies on Indians and Americans concluded that in a collectivist society, where personal choice is less valued, and students regulate their behaviour according to the will of their peers and parents, being controlled may produce better academic outcomes.

Therefore, in general, a definitional confusion, misconceptions of terminology or cultural bias (Ryan & Deci, 2006) have given rise to several questions about the construct of autonomy and its application in the classroom context for universal significance. These objections to the construct of autonomy pose an interesting phenomenon when we take Thailand, a collectivist society into consideration.

Thailand takes great pride in the fact that the country has the world's longest serving monarch and the nation has never been colonised in the era of imperialism. Thailand boasts of a 94% literacy rate among its citizens (UNICEF, Thailand, 2007), but unfortunately it fails to compete with its neighbouring countries such as Malaysia, Philippines, and Singapore in the aspect of academic excellence. The three major factors that wield great influence on Thai educational philosophy are the Monarchy, Buddhism and the national culture. The values generated from these factors are predominantly focused on respect for hierarchy, humility, and polite attitude and tolerance (Wallace, 1996; Nguyen, 2005). Thai education is viewed as a lecture based system where students remain passive during discussions; they do not voice their opinion. They are given fewer or no opportunities to manipulate and explore teaching resources, and learning is dominated by a rote memorisation

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method which limits independent thinking skills and learner autonomy in classroom settings (Atagi, 2002; Sangnapaboworn, 2003; Nguyen, 2005).

The radical economic crisis in the 1990s, the growing demands of globalisation, and a changing education paradigm worked as a catalyst for the Thai government to introduce education reforms through the National Education act in 1999. The reforms were introduced in several phases, focusing on specific areas such as quality assurance, school based management, the learning process and staff development. The issue that has remained central to the pedagogical reform has been the introduction of a student-centred learning approach (Wiratchai, 2002). The goal was to transform Thai traditional teaching methodology into a more interactive teaching approach where students are given autonomy to actively involve themselves in the learning process.

After almost a decade since the reforms were introduced, proof of the successful implementation of these reforms is still not evident. A few factors that were identified as hindering the successful implementation of these reforms were the lack of information on the relevance or effectiveness of learner-centred pedagogy in Thai classrooms. Teachers are reported to be confused with the practical implementation of this pedagogy that invites active participation of students in real classroom setting. Misconceptions about the 'student-centred' approach are prevalent among Thai educators (Chongchareon, 2008; Fry, 2002a). The literature review on Thai classroom teaching practices reflects a scarcity of research studies on

teaching methodologies that involve student autonomy (Atagi, 2002; Sangnapaboworn, 2003).

Thai education reforms encouraged the concept of learner autonomy because the concept is based on emerging pedagogical principles which emphasize the significance of a student 'being active' as an influential and effective approach in pedagogy. Bonwell and Eison (1991) popularised the concept of "active learning" where learners are required to directly (in person) engage in learning process. Similarly, a "hands-on learning' concept requires its learners to be actively involved in the learning process rather than just listening passively to class lecturers. In a "Student-centred approach', students are required to be active collaboratoIssars for their own learning (Estes & Cheryl, 2004). Therefore, the foundation of most motivational teaching strategies lies within learner autonomy or classroom autonomy support where students take charge of their own learning by involving themselves in the learning process. According to the cross-cultural literature of SDT, if the construct of autonomy is significant and relevant only in western culture, then it restricts the generalisation of all those motivational strategies that encourage active involvement of students, to western cultures only (Miller, 1999; Iyengar & De Voe, 2003). Hence this issue calls for the investigation of motivational strategies to be implemented in the Asian context to enhance learning in classroom settings. Iyengar and Lepper (1999) clearly pointed out the need for modification in motivation theories when dealing with Asians whose fundamental values are fate and duty instead of independence.

There are studies that have made attempts to justify the significance of autonomy across cultures. The SDT defines dependence as a reliance on others for guidance and support that suggests that one can be dependent as well as autonomous in personal functioning. Chirkov, Ryan, Kim and Kaplan (2003) argue that the opposite of autonomy is heteronomy, not dependence. Therefore the opposite of dependence is not autonomy, but independence. Moreover, as they emphasize, in certain cultures one can be dependent and at the same time be autonomous in his/her actions. Levesque, Zuehlke, Stanek and Ryan (2004) held the educational system responsible for not fostering the need for autonomy among students. In a study conducted by them on German and North American samples, the differences in perception of autonomy and competence were apparent because of their different educational systems; although both the cultures bear similarities in other aspects such as social set-up and family values. The study had highlighted the fact that two different kinds of educational system with more or less the same culture could still affect the perception of autonomy and competence of its students. Undergraduate colleges in Germany offered more choices to students in terms of curricula, the planning of student studies and self-guidance, as compared to American graduate colleges. However, as compared to their American counterparts, feedback from German professors was reported to be infrequent and impersonal. Consequently, German students felt more autonomous, but less competent than American students. Littlewood (2000) and Holden and Usuki (1999) came to the conclusion in their language learning studies that it was not the Asian learner who was innately passive, but it was the educational system that did not support autonomy for learning. In addition, a number of other cross-cultural studies had been conducted in the past

(Hayamizu, 1997; Yamauchi & Tanaka, 1998) and recently in Bao & Lam (2008), Kim (2004), Vansteenkiste, Zhou, Lens, & Soenens, (2005), and Hang (2008) to examine functional similarity and the role of autonomy support in samples from two different cultures (Eastern and Western).

The present research aims to provide significant information on the role of student autonomy in Thai classrooms in the light of cross-cultural controversies surrounding the SDT and its place in Thai educational reforms. The findings from this study are expected to contribute to the literature on student motivation and on understanding the factors that are responsible for learning motivation and better academic outcomes for Thai students.

1.2 Statement of the Problem

There are three major issues identified as problematic and are of great concern for the present study.

First, is the problem of the scarcity of literature available about the role of TAS in motivating Thai students in the context of the country's educational reforms.

In the era of globalisation, Thailand is struggling to improve its education standards in the country. The National Education Act B.E. (1999) ensures that all

individuals in the country have the right to 12 years of basic education, free of charge. Also, according to the Office of National Education Commission 2004, (ONEC), the country increased its education budget by 6.7 % in 2007, from 4.1% in 2004. Thailand boasts of a 95% literacy rate in primary schools, one of the highest in the region, but falls short of academic competence within the region that comprises South-east Asian countries like Malaysia, Singapore, Indonesia and Vietnam. According to an ONEC (2001a) international survey, Thailand ranked 44th in educational capability, and out of 49 countries, which include Malaysia, Philippines, and Singapore, it was 38th in terms of academic competitiveness (Chongcharoen, 2008).

The National Education Act in 1999 introduced reforms in order to raise the education standards of the country. One of the factors identified as the cause of the unsatisfactory standard of education in Thailand by ONEC (1999) was the lack of motivation for classroom learning. This lack of motivation had come about because obsolete teaching methodologies had forced students to listen passively and not participate actively in classroom discussions, thus failing to transfer classroom learning into real life contexts. Therefore, in order to motivate students for better academic performance, the education reform in teaching and learning proposed a pedagogy that encouraged student autonomy and active participation of students in Thai classrooms.

There were several studies on Thai students in the past which dealt with the factors that had affected student motivation on academic achievement, school

functioning, and learning motivation. Jaroonpol (2007) investigated the role of peer support, media support and home environment on students' science achievement motivation. The multivariate results showed a significant interaction between all independent variables on students' science achievement. Sila (2007) in a comparative case study on the language learning of Thai students pointed out that factors such as family support, financial support and reasons provided to learn the English language are responsible for better outcome and language learning motivation. Kijkosol (2005) examined student-teacher interaction as one of the factors that had affected student learning of biology as a subject. However, none of these studies discusses the role of teacher autonomy support in classroom settings. Therefore, studies on how autonomy support from teachers in a classroom setting can affect student motivation and learning are still missing in the Thai classroom context. In an international conference held in Bangkok in October, 2009 on *"Learning and Teaching of Active Learning,"* Prof Ian Smith, who has worked extensively on autonomy supportive and hands-on learning methodology with Thai students at elementary and secondary levels, lamented the fact that there is a dearth of quantitative data that explores the relevance of autonomy support among Thai students. Also, a pilot project conducted to assess progress after the implementation of educational reforms in1999, also drew attention to the critical need for studies that explore further the role of autonomy support among Thai students (Chongcharoen, 2008; Fry, 2002a).

Second, is the need for investigating the role of TAS for Thai students in light of cross-cultural controversy surrounding the autonomy construct of SDT.

SDT maintains that the need for autonomy is universal and is an essential prerequisite for all human beings to function optimally, irrespective of gender or culture. However, the autonomy construct of SDT has remained the centre of criticism from psychologist and researchers from various domains (Pinker, 2002; Schwartz, 2000).The criticism that was most directed against the implication of teacher autonomy support in the school setting came from the cultural relativist, who challenged the universal relevance of autonomy in contrast with the SDT. Markus and Kittayama (1991) in self-construal theory, described Westerners as independent selves who value personal choice and being unique. In contrast, Asians were described as interdependent selves who value belongingness and personal harmony. Thus, according to them, experience of autonomy corresponds less with eastern cultures that embrace collectivist values.

In order to contribute to the debate surrounding the cross-cultural relevance of autonomy in the classroom context, a few studies were conducted with students from eastern countries such as Japan (Hayamizu, 1997; Yamauchi & Tanaka, 1998), China (Bao & Lam, 2008; Vansteenkiste et al., 2005), Viet-Nam (Hang, 2008), Taiwan (Hardre, Chen, Huang, Chiang, Jen & Warden) and Korea (Sheldon, Elliot, Kim, & Kasser, 2001), to access functional significance of autonomy in eastern cultures. The findings of all these studies are consistent with the claim that the need for autonomy is a universal and basic need for all human beings irrespective of culture, race or gender. However, these findings and generalizations remain limited to selected Asian countries only, and may not be true of a unique country such as Thailand. The Thai education system places importance on conformity to authority,

where respect for hierarchy, humble polite attitude, and tolerance are encouraged among learners (Wallace, 1996; Nguyen, 2005), but also at the same time proposes reforms that encourage autonomy among students. Therefore, it would be interesting to investigate the role of teacher autonomy support on Thai students' motivation and its place in Thai reformed education.

The third gap is the methodological gap within the theory to investigate the effects of TAS in real classroom settings.

Self-determination theory has made a momentous contribution to the literature of motivational theories in education. The theory categorically specifies the social contextual factors or events that facilitate or undermine student motivation in the classroom setting such as 'Teacher Autonomy Support' (TAS) that is effective in promoting student motivation. Most of the proposed events and context were based on three essential psychological innate needs, namely autonomy, competence and relatedness.

One of the primitive contributions regarding events that support or thwart autonomy support and its effects on students learning were made by Deci and Ryan in 1987 through their seminal article *"The Support of Autonomy and The control of Behaviour"*. This later served as foundational guidelines for elaborated research on various teaching strategies that were autonomy supportive or controlled, and on conditions that impaired or enhanced student performance (Flink, Boggiano & Barrett, 1990); on effects of teacher behaviour as autonomy enhancing and

suppressing, on student engagement in schoolwork (Skinner & Belmont, 1993; Assor, Kaplan, & Roth, 2002), and on perceived autonomy support from children and its effects on motivation (Miserandino, 1996). Teacher autonomy support has been studied using various dimensions and forms using a variety of perspectives. The findings have always suggested a positive relationship between teacher autonomy support and student learning outcomes and a positive relationship between controlling teacher behaviour and poor motivation and negative emotions among students (Assor et al., 2005).

Reeve and his colleagues (2004, 2006) made major contributions in extending the TAS literature, identifying specific instructional behaviour as autonomy supportive that positively correlates with student perception of autonomy, better educational outcome, greater engagement, higher intrinsic motivation and greater interest and enjoyment. They also highlighted the weakness of past research in terms of the co-relational nature of their findings, and the use of self-report measures. This is because the results could have been affected by directional influence questions such as whether teacher autonomy support influenced educational outcome or educational outcomes influenced teacher autonomy support.

To overcome the weakness of such co-relational studies, a few studies were conducted in experimental settings to study the effects of teacher autonomy support over student engagement. Reeve, Jang, Carrell, Jeon, and Barch (2004) in a study, compared the impact of teacher autonomy support as a motivating style over students' engagement and emotional quality with a motivating style that did not

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support provision for autonomy. In another study conducted in a laboratory setting, with pre-service teachers of the same sex playing the role of a teacher and student. The individuals in the role of teachers were delivered hypothesised autonomy supportive and autonomy controlling instructions for in a session of 10 min duration in the form of one-on-one tutoring session to teachers in the role of students. Perception of those instructions and their effects over learning activity and academic outcomes of students were examined to study the functional significance of the autonomy construct (Reeve & Jang, 2006). However, both the mentioned studies were limited to artificial and experimentally created classroom conditions where neither the teachers or students nor the instructional duration were similar to a natural classroom situation.

The experimental studies were an attempt to overcome the limitations of correlation research. Reeve and Jang (2003) recognised the limitation of their experimental study by stating that the methodology of these studies limited the application of the findings for classroom practice, because these experimental studies were conducted in artificially induced classroom conditions or in laboratory settings rather than in a real classroom setting. Also, the participants in those studies were not school students, but adults and the instructional session lasted only for a few minutes unlike that in a traditional classroom.

List (2006) suggested that experiments in natural setting had advantages over laboratory experiments because artificial conditions might produce unnatural behaviour, and might lack control over ecological validity. TAS instruction are

proposed as a comprehensive teaching methodology which can possibly be adopted as regular classroom practice. Therefore, in order to study the effects of such a teaching methodology on student's school functioning it is necessary to test this approach in a natural setting (Hoch, Pellegrini, & Symons 2004). Moreover, in order to appreciate the differences between applied and social sciences, it is necessary to have a natural environment for examining variables and its effects. This is also because studying human beings is certainly different from studying objects. Robson (2002) also highlighted the advantages of experiments in natural settings over laboratory settings because of three issues; generalizability, ecological validity and participant's availability. Generalizability refers to external validity: the ability to generalize the results to a larger population and varied conditions. Since conditions in laboratory experiments are artificially created, it is difficult to generalize the effects to natural or uncontrolled environments. Ecological validity refers to the influence of those factors that might interfere in examining the effect of independent variables in the study. Conditions in laboratory settings are heightened by the artificial effects in order to control internal validity threats; therefore, it is difficult to compare those results with in real world settings. The participant's availability is always a challenge in laboratory settings. It takes a lot of effort to convince participants to be present on time and at the right place, whereas in a real life setting it is not much of a concern to the researcher.

Therefore, taking the limitations of experimental studies conducted in the past into consideration, the present research attempts to study a wide range of autonomy supportive strategies, and its effect on student academic functioning in a quasi-

experimental and static group A-B-A withdrawal design where two classrooms will be assigned as experimental and control groups. TAS will be manipulated as an independent variable and student responses from both the groups will be compared to study the effect on independent variables i.e. student's interest, effort, pressure felt during learning, teacher student- relatedness, perceived autonomy support by students and external and identified regulation.

1.3 Research Objectives

SDT maintains that with respect to school and learning, TAS produces optimal results among learners irrespective of their culture. The purpose of this quasi experimental study is to examine the extent to which teacher's autonomy support is relevant among Thai students by comparing the effects of teacher autonomy support in classroom settings, using teachers' instructional behaviour guidelines as proposed by Reeve and Jang (2006) with traditional classroom setting. It also aims to examine the effect on dependent variable i.e. student's interest, effort, pressure, relatedness, perceived autonomy support and external and identified regulation, after the treatment (TAS) is withdrawn. So, the study aims:

1. to examine the correlation between variables of interest, effort, pressure, relatedness, external and identified regulation with perceived autonomy support at pretest, postest1, and postest2 level.

2. to examine the effect of TAS on students' intrinsic motivation i.e., interest, effort, pressure, and relatedness.

3. to examine the effect of TAS on students' perceived autonomy support.

4. to examine the effects of TAS on students' self-regulation i.e. external regulation and identified regulation.

5. to examine the gender difference in experimental group on postest-1 for all dependent variables i.e., interest, effort, pressure, relatedness, perceived autonomy support, external and identified regulation.

6. to examine the effects of TAS withdrawal in experimental group on students' intrinsic motivation i.e., interest, effort, pressure and relatedness.

7. to examine the effect of TAS withdrawal in experimental group on students' perceived support of autonomy.

8. to examine the effects of TAS withdrawal in experimental group on students' self-regulation i.e., external and identified regulation.

9. to examine the gender difference in experimental group on postest-2 (after withdrawal of treatment) for all dependent variables i.e., interest, effort, pressure, relatedness, perceived autonomy support, external and identified regulation.

1.4 Research Questions

Research questions for the proposed study are as follows:

Research Question 1: Are there significant relationship between interest, effort, pressure, relatedness, external and identified regulation with perceived autonomy support at pretest, postest1, and postest2 level?

Research Question 2: Is there any significant effect of TAS on student interest, effort, pressure, relatedness, perceived autonomy support, external and identified regulation in experimental group?

Research Question 3: Is there any significant gender based difference between means of pretest and posttest1 of experimental group on student interest, effort, pressure, relatedness, perceived autonomy support, external and identified regulation?

Research Question 4: Is there any significant effect on student interest, effort, pressure, relatedness, perceived autonomy support, external and identified regulation when TAS is withdrawn from experimental group?

Research Question 5: Is there any significant gender difference on student interest, effort, pressure, relatedness, perceived autonomy support, external and internal regulation when TAS support is withdrawn from experimental group?

1.5 Research Hypotheses

For the present study alternative and null hypothesis were proposed in accordance with the research questions and literature review. SDT literature in relation to perceived autonomy support postulates consistent directional relationship with variable such as interest, pressure and relatedness (Reeve et al., 2003; Misserandino, 1996; Reeve, 2006, Reeve et al., 2004). Therefore, in order to examine correlation, alternative hypothesis was driven to seek consistency between relationships of variables with SDT literature. On the other hand, in order to check the effects of teacher autonomy support, null hypothesis was proposed as it was a testing of a construct and direction of its effects was still unidentified.

H1a: There is a significant positive correlation between interest, effort, relatedness and perceived autonomy support at pretest.

H1b: There is a significant positive correlation between effort and perceived autonomy support at pretest.

H1c: There is a significant negative correlation between pressure and perceived autonomy support at pretest.

H1d: There is a significant positive correlation between relatedness and perceived autonomy support at pretest.

H1e: There is a significant negative correlation between external regulation and perceived autonomy support at pretest.

H1f: There is a significant positive correlation between identified regulation and perceived autonomy support at pretest.

H1g: There is a significant positive correlation between interest and perceived autonomy support at posttest1.

H1h: There is a significant positive correlation between effort and perceived autonomy support at posttest1.

H1i: There is a significant negative correlation between pressure and perceived autonomy support at posttest1.

H1j: There is a significant positive correlation between relatedness and perceived autonomy support at posttest1.

H1k: There is a significant negative correlation between external regulation and perceived autonomy support at posttest1.

H1l: There is a significant positive correlation between identified regulation and perceived autonomy support at posttest1.

H1m: There is a significant positive correlation between interest and perceived autonomy support at posttest2.

H1n: There is a significant positive correlation between effort and perceived autonomy support at posttest2.

H1o: There is a significant negative correlation between pressure and perceived autonomy support at posttest2.

H1p: There is a significant positive correlation between relatedness and perceived autonomy support at posttest2.

H1q: There is a significant negative correlation between external regulation and perceived autonomy support at posttest2.

H1r: There is a significant positive correlation between identified regulation and perceived autonomy support at posttest2.

Ho2a: There is no significant effect of TAS on students' interest in learning in experimental group.

Ho2b: There is no significant effect of TAS on students' effort in learning in experimental group.

Ho2c: There is no significant effect of TAS on pressure felt by the students during learning in experimental group.

Ho2d: There is no significant effect of TAS on students'-teacher relationship in experimental group.

Ho2e: There is no significant effect of TAS on students' perceived autonomy support in experimental group.

Ho2f: There is no significant effect of TAS on student's external regulation for learning in experimental group.

Ho2g: There is no significant effect of TAS on students' identified regulation for learning in experimental group.

Ho3a: There is no significant gender difference on students' interest in experimental group on posttest1

Ho3b: There is no significant gender difference on students' effort in experimental group on posttest1

Ho3c: There is no significant gender difference on pressure in experimental group on posttest1

Ho3d: There is no significant gender difference on student-teacher relationship in experimental group on posttest1

Ho3e: There is no significant gender difference on students' perceived autonomy support in experimental group on posttest1

Ho3f: There is no significant gender difference on students' external regulation in experimental group on posttest1

Ho3g: There is no significant gender difference on students' identified regulation in experimental group on posttest1

Ho4a: There is no significant effect on students' interest in learning when TAS is withdrawn from experimental group on posttest1.

Ho4b: There is no significant effect on students' effort in learning when TAS is withdrawn from experimental group.

Ho4c: There is no significant effect on pressure felt by the students during learning when TAS is withdrawn from experimental group.

Ho4d: There is no significant effect on students'-teacher relatedness when the TAS is withdrawn from experimental group.

Ho4e: There is no significant effect on students' perceived autonomy support when TAS is withdrawn from experimental group.

Ho4f: There is no significant effect on student's external regulation when the TAS is withdrawn from experimental group.

Ho4g: There is no significant effect on students' identified regulation when the treatment is withdrawn from experimental group.

Ho5a: There is no significant gender difference on students' interest in learning when TAS is withdrawn from experimental group.

Ho5b: There is no significant gender difference on students' effort in learning when TAS is withdrawn from experimental group.

Ho5c: There is no significant gender difference on pressure felt by the students during learning when TAS is withdrawn from experimental group.

Ho5d: There is no significant gender difference on students'-teacher relatedness when the TAS is withdrawn from experimental group.

Ho5e: There is no significant gender difference on students' perceived autonomy support when TAS is withdrawn from experimental group.

Ho5f: There is no significant gender difference on student's external regulation when the TAS is withdrawn from experimental group.

Ho5g: There is no significant gender difference on students' identified regulation when the treatment is withdrawn from experimental group.

1.6 Significance of the Study

The three basic needs i.e. autonomy, competence and relatedness as proposed by SDT are essential to all human beings for functional well-being and are largely tested and examined in various cultures (Ryan & Deci, 2002). As mentioned earlier, all three needs have been studied as independent variables and their exclusive and combined effects on various aspects of human lives including academics and learning have been examined. Autonomy support from parents, teachers, and peers as a predictor of better relatedness, higher academic performance, well-being and learning have been highlighted in various cross-cultural studies, including eastern and western samples. The present study will make a significant contribution to the cross-cultural literature of SDT theory by studying the effects of teachers autonomy

support on Thai students, who hold social values very unique to their eastern counterparts.

Practical implications of SDT theory in classroom settings are mainly observed in studies examining the effects of autonomy supportive or controlling strategies. These studies vary in the selection of research design, samples, range of instructional behaviours and effects on student's academic outcomes. The effects of TAS have been examined in-depth in several correlational and experimental studies on samples from varied cultures (Chirkov, Ryan, & Willness, 2005; Bao & Lam, 2008; Hang 2008; Vansteenkiste et al., 2005) but the focus of TAS behaviour varies in each study such as Reeve et al., (2002) focused only on one feature of TAS of giving rationale for learning and observed its effects on students' motivation. On the other hand, Reeve et al., (2004) studied effect of a set of TAS instruction only on students' engagement. In another study, Reeve (2008) used adults as students to test effects of TAS on motivation. The growing popularity and benefits of TAS in classroom settings requires a set of TAS instructions to be tested in a natural classroom setting with regular students so that a comprehensive framework of this pedagogy can be developed for classroom implementation. Therefore, examining the relevance of TAS in a natural setting of a Thai classroom using quasi experimental design will be a new contribution for the various methodologies and research designs that were applied in past for testing the theory. Similarly, examining effects of TAS in a natural and regular classroom setting will test the significance, meaning and definition of 'autonomy support strategies' in classroom context and extend the knowledge in relevant literature.

Importance of motivation for students learning and factors that affect motivation have been widely acknowledged by educators. However the controversy surrounding the autonomy construct as proposed in SDT against the evidences produced by cross-cultural psychologist have limited the implementation of certain motivational strategies in Asian context such as allowing students to contribute, providing a rationale for learning, giving feedback, not uttering directives and setting limits as a part of teacher autonomy support as proposed by Reeve and Jang (2006). Under the influence of stereotypic notions for 'East Asian learners', several teachers fail to concentrate on individual needs of students (Little wood, 1999). Therefore, the results from present study will have practical implication for teachers and educators to understand the role of TAS among Thai students, whether TAS facilitates or thwarts or has no effect on academic outcome of students. Thus, the results of the present study will provide guidance to teachers and school policy makers in designing optimal learning environment and planning appropriate motivational strategies for students. Hence, in the end students will be most benefited when their needs for appropriate learning environment will be met. This will further facilitate them to enhance their abilities and skills to learn and produce better results in schools.

Several studies within SDT have highlighted the positive relationship between teacher autonomy support and relatedness between student and teacher. Satisfaction of the former need leads towards the satisfaction of the latter (Ryan, Stiller, & Lynch, 1994). However, the assertions made by Markus and Kitayama (1991) about the conjoint model of agency where people thrive better in harmonious

relationships contradicts the assumption that autonomy support is a predictor of better relatedness in collectivist societies (Cross & Gore, 2003). Thai society reflects true Buddhist values and a reverence for hierarchy, where giving contrasting views to elders are discouraged (Hong, 2005). This situation gives an ideal structure to investigate the compatibility of TAS and relatedness. Therefore, the study will also inform about the impact of autonomy support on student- teacher relationship

1.7 Operational Definition

The operational definitions of variables and other terms used in the study are derived from previous studies conducted in educational settings context and within SDT.

1.7.1   Teacher Autonomy Support

Teacher autonomy support is reflected in a learning environment where teachers facilitate congruence by identifying and nurturing student's needs, interests and preferences (Reeve, 2006) such as: 1) allowing students to contribute in class, 2) valuing their comments, 3) creating flexible seating arrangement, 4) not setting limits and uttering directives, 5) providing rationale for learning, 6) providing encouragement, 7) giving positive feedback by using praise as an effort and informational rewards, 8) providing hints to assist in learning and 9) not relying on controlling instructions (Reeve & Jang, 2006).

1.7.2   Natural settings:

Natural settings in the present experiment refer to the intact classroom setting adopted for the experiment in original form, without any manipulation (Robson, 2002). Experimental setting chosen for the present study is identified as natural setting. As in the present research, classrooms involved in the research as control and experimental group were used as intact groups. Nothing related to class environment like day to day activity, class time, class size, class location, class displays, subject material were controlled. This is what made natural settings different from laboratory settings.

1.7.3   Interest

It is a state that is experienced by students while learning when the task is pleasant and fun and is capable of getting student attention and students are happy to do it (Reeve et al., 2002). Hidi and Renniger (2006) refer to interest as a psychological state that is characterized by an affective component of positive emotion and a cognitive component of concentration. This variable is measured using intrinsic motivation inventory. High score on this variable implies higher interest.

1.7.4   Effort

Putting an effort is how hard a student tries cognitively or how focused his attention is to accomplish the task or learning an activity (Reeve et al., 2002). This variable is measured using intrinsic motivation inventory. High score on this variable implies higher effort.

1.7.3   Pressure

Being pressured and tensed is an emotional state where a student feels anxious and stressed to fulfil the assigned task (Black & Deci, 2000). This variable is measured using intrinsic motivation inventory. Higher score on this variable implies higher pressure felt by students.

1.7.4   Relatedness (Teacher-student relationship)

Relatedness refers to the feeling of connectedness and belongingness between the teacher and the student. Relatedness support means providing acceptance, respect, and a feeling of caring and mutuality (Filak & Sheldon, 2003). This variable is measured using intrinsic motivation inventory. Higher score on this variable implies higher relatedness.

1.7.7. Perceived autonomy support (PAS)

Perceived autonomy support refers to the quality of the environment and social context that supports autonomy as explained in teacher autonomy support (Deci & Ryan, 2000). This variable is measured using learning climate questionnaire. Higher score on this variable implies higher perceived autonomy support.

1.7.8 External regulation

External regulation refers to doing an activity for external contingencies such as rewards, punishments, and expectations. It consists of the least degree of volition (Ryan & Deci, 2000a). This variable is measured using self-regulation questionnaire. Higher score on this variable implies higher external regulation.

1.7.9 Identified regulation

Identified regulation refers to one of the forms of regulatory styles proposed by SDT as where a person reflects conscious valuing or personal importance of his or her behaviour and brings actions into congruence with one's values and needs (Ryan & Deci, 2000a). This variable is measured using self-regulation questionnaire. Higher score on this variable implies higher identified regulation.

1.8 Limitations of the Study

A few limitation of this study are recognized as under.

The application of non-equivalent groups in quasi experimental design is best recommended when intact groups are to be used such as classroom in school settings. In such situation random assignments of participants to experimental and control group is not possible. Random sampling among the groups is suggested to control internal validity of the study (Gay & Airasian, 2003). The present study requires an intervention for experimental group in a natural classroom setting. As a result, it's difficult to assign samples randomly to each group. Thus, the scope of generalizing the findings gets limited to the population of a specific school community or to the school of similar kind only. Also, several internal and external validity threats of quasi experimental design may affect the findings however, control measures for these threats are discussed in chapter3.

Past researches conducted to study the effects of teacher autonomy support have suggested that data obtained from classroom observation serve as the best information to examine the effects of intervention programs (Assor et al., 2005; Reeve, Nix, & Hamm, 2003; Vansteenkiste et al., 2005). The present study, however, relies mainly on results derived from self-reported questionnaires which might prevent making further inferences regarding the effects felt among students.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The purpose of the present study is to test the relevance of autonomy support, from SDT perspective, on Thai student's motivation in natural classroom setting. The cause for the present study lies within the reforms as proposed by Thai ministry of education in 1999 and the challenges in implementing the reforms that are faced presently. In order to give a comprehensive understanding of the background for the present study, this literature review develops subtly to connect with the issues that are focused in the current study.

The first section of the literature review briefs about the education system in Thailand and the prevalent teaching practice in Thai schools. It also explains the factors that have a large impact on the educational philosophy of the country. This section proceeds to give an overview of Thai education reforms and rationale for introducing reforms. It later focuses on a specific reform out of many i.e. 'learning reform' which is relevant for the current study. This section ends with the reviewing challenges in implementing these reforms.

The next section begins with explaining the importance of motivational theories in education and moves forward to give an overview of self-determination

theory which also explains the nature and kinds of motivation that varies for each regulatory style.

The above is followed by application of SDT theory in education and in other domains of human lives. Teacher autonomy support (TAS) which has been recognised widely by educational psychologists in educational settings, is broadly explained in the literature review to understand the meaning of TAS within SDT. The effects of TAS on students' outcome are explained as dependent variable in the study. A section in TAS also focuses on TAS as a motivating style that can be taught to teachers by imparting proper training.

Along with the constant development of the theory and its application in various domains of human lives, the theory has also been the target of criticisms from many researchers such as the universal importance of autonomy as suggested in SDT has always been questioned. The other part of the literature review discusses the issues that have been prominent in criticizing the autonomy construct of SDT. Cross-cultural theories are discussed in brief prior to reviewing the comparative researches conducted in past against the construct of autonomy. Similarly, differences between the definition of individualism, independence, self-concordance, inclusive, reflective and reactive autonomy are highlighted prior to discussing the comparative studies in favour of autonomy support. Both the sections contribute to the essential knowledge to understand collectivist and individualist societies and different ways in which they exercise autonomy in their lives, especially in education.

In the last section, a brief review throws light on the studies conducted to examine compatibility of TAS and relatedness among teacher and students. It is believed by critics that need fulfilment for autonomy in collectivist society is likely to hamper relatedness among teachers and students.

This section concludes by summing up the literature review and proposing primary objectives of the study through a conceptual framework of the present study and provides details of the independent variable and its effect on dependent variables.

2.2 Education in Thailand

Like any other developing nation Thailand also aims to achieve the best educational standards for the student citizens of the country. Education in Thailand has years long history and it has evolved with the requirement of time. The following section talks in detail about the education structure and prevalent pedagogy in Thai education system.

2.2.1 Overview of Thai Education System

The current Thai education system imparts education which is classified as formal, and non-formal. Non-Formal education is imparted by both primary and

private institutions that include either vocational schools, preschool nursery, or special schools for those who had missed out on formal education. Formal education is imparted by both private and public schools and is classified into basic and higher education strata. Basic education covers pre-primary, primary (6 years) lower secondary (3 years), and upper secondary education (3 years). Higher education is provided at universities, colleges and other institutions established and run in accordance with the laws on higher education institutions.

The National Education Act B.E. (1999) ensures all individuals rights to 12 years on basic education free of charge. Thailand boasts 95% literacy rate in primary schools, one of the highest in the region. The country spent 4.1% of its GDP on education development in 2007 and the largest portion of its 66.4% was spent for basic education [sources ONEC: 2007]. The physical infrastructure of most schools is satisfactory with 98% having electricity. The total number of teaching staff for primary and secondary schools is almost 60000 with at least 80% of them holding a BA degree. The nation also has a relatively low student-teacher ratio. In the primary sector it is roughly 20 students to one teacher; in the secondary sector 22 students to one (Pinyakong, Virasilp, & Somboon, 2007).

The above information gives the impression that education plays a significant role in nation's development and is undergoing transformation for the better. The system is relatively successful in terms of enrolment in schools. In order to make qualitative developments, several efforts are made at all levels of education However it still faces a number of challenges (Atagi, 2002).

2.2.2 Prevalent Teaching Practices in Thailand

Culture plays an important role in the development of an individual's orientation towards learning (Smith, 1990). Thai culture and its traditions has undoubtedly molded Thai student's attitude towards teachers and learning to be considerate and polite. On September 1, 2002, Dr. Adith Cheosokul, a professor from Chulalongkorn University, Thailand, commented on Thai culture's effect on student's behaviour by saying that "Thai kids have no courage to question their teachers… the Thais are usually silent in class. I think it's the culture". Such assumptions have led local and foreign educators to compare the characteristics of Thai students with western students. Nguyen (2005) describes rote memorization as a common and salient learning style among most Thai students. She also claimed that Thai students prefer structured lessons; discussion and questions sessions are discouraged during teaching since Thai students feel uncomfortable in voicing opinion, out of respect, as compared to their western counterparts. Pennington (1999), stated that the problem that persists in Thai education system is teaching methodology, which is obsolete and mainly based on rote memorization. Such practice only cultivates obedience among learners rather than stimulating independent thinking process. ONEC, 2000c (as cited in Atagi, 2002), reveals that prevailing teaching practice in Thai school is lecturing to submissive students which encourages rote memorisation practice among students. Dr Sanghlakrit organised a seminar where he asked students' candid opinion of their learning mode (Fry, 2002b). Several students expressed traditional learning modes as a major problem for

lack of learning motivation. One of the quotations received in the conference by a student was:

Students should enjoy studying and have fun at school. I really agree with the idea that academic studies should go hand in hand with other activities. Going to school should not produce stress at home. I sometimes think school is teaching me to be a "tape recorder". Many exams and lessons are based on memory. People know what they are studying but don't really know how to apply what they have learned to real life. Passing tests and getting good grades are the only things that concern them….It is time for a revolution in our education system. Old values should be replaced, or things will just be passed on as they are to the next generation.

May Sripatanaskul , Grade 10, Triam Udom Suksa School

(*Bangkok post*, July 6, 2001) (See also Archer, 2001)

Therefore, it is apparent that teaching practices in Thailand are predominantly teacher–centered and exam oriented. Students are given limited exposure to real life learning and also less opportunities to involve themselves in hands-on experiences. The prevalence of rote memorization and exam oriented structure has diminished student's motivation for school and learning.

2.3 Factors Influencing Thai Education Philosophy

Education is one the most promising tools for a nation to preserve its culture and heritage. Cultural values and belief are often embedded in Education practices

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and teaching content to pass onto future generations so that they can regulate their behaviour on the basis of those values. Just like any other collectivist society, Thailand, has its own rich culture whose splendor is reflected in its people and society. At the same time, the same magnificent culture has indirectly posed challenges for Thai students to compete with international standards of education. Following are the few factors that affect Thai education system philosophy which is quite contrary to its western counterparts.

2.3.1 Monarchy

The Thai nation was declared as Constitutional Monarchy from Absolute Monarchy in 1932 (Jumbala, 1992). According to an article by a the Thai historian Nidhi Eoseewong (2003), The King in Thailand holds a reverend and sacred position and Thai constitution section 8 of 1997 does not permit any accusation, criticism or action against the King. As a result, being respectful to elders and being ideal followers is emphasized through Thai academics, school, and social practices. The Thai society displays a great impact of Monarchy and Buddhism on their way of living and thinking. The King, the religion and the nation are three important pillars for Thai nationals. As quoted by Sabai, (2009, *IV*) "Thais are raised from the cradle to respect the trilogy: King, Buddha, and Country". Therefore, there is not a place in Thailand where one can escape a giant portrait of the king, a Thai flag, or a statue of the Buddha". Social studies contents of Thai curriculum intensely focus on values that foster respect for royal members among learners. Celebration of royal

anniversary and events is mandatory for every organization and schools in order to inculcate habit and practice behaviour of a good follower. Such environment and practices enables Thai nationals to follow years old Monarchy with utter respect. Consequently, it has shaped Thai personalities to be polite and respectful in the region.

2.3.2 Buddhism

Thailand being a predominant Buddhist country comprises 95% of its population following Buddhism. According to Tuong Hong Nguyen (2005), a Vietnamese scholar in a published paper *"Thailand: Cultural background for ESL/EFL teachers"*, Thai culture is closely associated with Buddhist religious values. Basic principles of Buddhism emphasises on tolerance towards others, respect for age, seniority, and hierarchy. Pomposity, arrogance, conflicts and social display of emotions is highly discouraged. Family ties are also given importance in Thai society. Usually, people prefer to stay together and share family house for generations. Children are taught to respect and listen to family members and are discouraged to express contrasting opinions. Wallace (1996) mentioned religious practice leads Thai society towards ideal of peace and harmony. For this reason the country is also called "The Land of Smiles".

2.3.3 Thai Culture

Thai culture that places emphasis on respect for hierarchy consequently teaches reverence for teachers and his/her position, thus, discouraging students in voicing their opinion or questioning against the lesson in the classroom. Traditional Thai culture holds high regards for education. As a result, a teacher is highly respected and considered as being authoritative and knowledgeable (Nguyen, 2005). Wallace (1996) in his paper includes quotes from His majesty the king of Thailand about teachers as:

Teachers do the right thing. They are diligent, persistent, hospitable, and idealistic, strong and patient. They are disciplined and avoid illicit activities like smoking and drinking. They are also honest, sincere and kind to others. They take the middle way. They are unbiased. They are wise, reasonable and knowledgeable.

(His Majesty King Bhumibol Adulyadej of Thailand, 1980:23).

Thai students are taught to uphold their teachers as demi-gods. Celebration of an event called "wan wai khru", literally means "teachers respect day" that helps in reinforcing these values in a formal ceremony. During this ceremony students offer flowers and gifts to their teachers by bending on their knees. Teachers are considered as the most important person in student's life besides the parents. Hence, the core of Thai education is strongly rooted in its traditional Buddhist faith, utmost respect for the King, family and teachers.

2.4 Thai Education Reform

As discussed earlier Thailand aspires to grow and achieve high standards for its educational setup. In order to keep up with the requirement of globalisation Thai education reforms were introduced in 1999 under National Education Act. The following section discusses the important features of those reforms in the country.

2.4.1 Overview of Thai Education Reforms

Education has played a prominent role in developing Thai society since old age. Presence of complex and logical Thai writing script dating back to 1292 is evidence of presence of monasteries and learned monks in ancient Siam (Fry, 2002b). In the early days, formal and religious education was imparted through "*wat*" (Thai temples). Since the historical period of King Chulalongkorn, the fifth king of the Chakri Dynasty, the development of the individual learners has been the focus of Thai education objectives for development of the nation. Therefore, Thai education system has consistently evolved as per the requirement of modern times (Wongsari, Cantwell & Archer, 2002). Lately, analysis of Thai education has raised concerns for the present education system that does not facilitate the development of individual learner as an independent and creative learner (ONEC, 1999). In 1999 the National Education Act introduced reforms in Thai education. The reforms were focused on improving education standards in Thailand at all level and moreover,

preparing the nation to compete with other nations in the era of modernisation. The component of education reforms were (Fry, 2002b):

1. Ensuring basic education for all

2. Reform of the education system

3. Learning reform

4. Reorganization of administrative system

5. Introducing a system of educational quality assurance

6. Enhancing professionalism and the quality of teaching profession

7. Mobilization of resources and investment for education and,

8. Technologies for educational reform

2.4.2 Rationale for Education Reforms

Every nation reflects at its growth in past and plans ahead the future. Similarly, the reflection of the economic crisis in 1990s that devalued the national currency inspired Thai Government to think of a strategic economic recovery. Thailand's 1999 education reform was the vital part of that strategic planning because Thailand was constantly losing its ranking in academic competitions with various countries in the world and the Asian region (Chongchareon, 2008). Moreover, the rapid transformation of Thai society from a traditional to modern society had posed several challenges to the nation to keep up with the world. In order to compete with other nations and meet the challenges of globalisation, introducing reforms to the current

education system was seen as a way to enable the Thai nation to develop in a positive way.

2.4.3 Overview of Learning Reform

Of all the components of Thai education reforms, learning reform remains at the heart of the plan. The learning reforms refer to "learner-centered" approach which is close to the constructive principle of learning. Atagi (2002, p.52) differentiates two approaches as, "In the traditional approach, teachers drilling students, lectures and seatwork are major instructional modes. Teachers maintain control of classroom activities and students work towards mastery of skills. On the other hand, the constructivist approach assumes that "learning occurs as students actively assimilate new information and experiences and construct their own meanings". (National Council of Teachers of Mathematics, 1991).Accordingly, classroom activities such as group work and discussion are emphasized so that students can develop the capabilities for applying knowledge, reasoning, and conceptual understanding. Memorization of facts and mastery of routine skills are considered less important. Therefore, the learning reform focuses on promoting independent or autonomous learning skills among students. Such skills can be generated if teachers create a conducive environment and opportunities for students to express their opinion, involve in discussion, explore and enjoy learning by doing (Muongmee, 2007).

Moreover, the Buddhist philosophy of education calls for inquiry based learning and education that can teach mental freedom and produce self – respecting people who are able to believe in their potential and reasoning powers (Wisadavet, 2003). Bright (2009) on current educational issues in Thailand describes a very unique approach to suggest reform in education in Thailand. He states that Buddhist education principles are closely tied up with constructive learning and also Buddhism uses a student- centred approach when it comes to learning. Therefore, Thailand can integrate educational reform with its religious and social philosophy in order to produce human resources to keep up with the competitive edge.

2.4.4 Challenges in Implementing Learning Reforms

A significant amounts of research is been conducted in the past few years to access the success and progress of learning reform (Fry, 2002a; Atagi, 2002). The awareness about student centred pedagogy that involves student's active involvement in classrooms has made its way among the general population through media. Still, there were some obstacles in the implementation of learning reform. One of them which directly concern the current study was the lack of information on pedagogy that was recommended by the learning reform. The principles and practices of the learning reforms were difficult to understand by teachers who were used to chalk and talk methods and also worked under the exam oriented education system (Atagi, 2002). Fry (2002b), has highlighted a major misunderstanding of student centred learning in which teachers were worried about their role in such a

classroom where students are given autonomy. Pillay's (2002) report generated on teachers training on reforms suggests that an extensive history of Thai traditional teaching methodology has hindered exposure of new researches in modern pedagogies for Thai teachers. This has created a huge gap between the methodologies used elsewhere around the world and in Thailand. According to the same report, Thai teachers give least opportunity for their students to manipulate the teaching aids as they fear that students may damage the instruments. It was advised in the report that teachers should work on student-teacher relatedness and come out of hierarchical mode so that students can feel free to participate in discussion and give their opinion. As a recommendation for teachers' development for making the learning reforms successful, it was emphasised that there is a lack of international literature on new teaching and learning methods among teachers'. It is one of the reasons that teachers in collectivist society are not so convinced about learner-centred pedagogy

Overall, in a Thai traditional society with strong collectivist values, it is more of a challenge to implement the reforms that encourage student autonomy in the classroom. Therefore, there is a need to develop in-depth understanding of the recommended pedagogy that is embedded with western values and needs implementation in Asian educational set up (Chongchareon, 2008).

2.5 Theoretical Overview

In order to achieve the objective of the study, the present study relies on motivation theory of self-determination. The following section discusses motivation in education through theoretical perspective.

2.5.1 Motivation and Education

Motivation is described on the basis of Latin verb "move", that is, the force that make someone do something (Williams, 1997). Motivation plays an important role in various aspects of human life. Intrinsically motivated people display self-determination in their behaviour and are able to achieve their goals efficiently than those who lack motivation. For example people having higher motivation were reported to have lost weight in significantly less time than that of those with lower motivation (Georgiadis, & Stavrou, 2006).

Teachers, parents and educational psychologists have long been struggling with the question of how to motivate students to learn or what motivates students to learn? Research in educational psychology indicates a lack of motivation as a major reason for lower academic achievement among school students (Wlodkowski & Jaynes, 1990). Therefore, it is considered important to understand the factors that influence motivation among school students for better school functioning.

Several motivation theories have provided explanation considering the factors that were important in understanding the nature of motivation. Freud's (1899), belief in motivation was based on unconscious mind in which he believed that most human behaviour is the result of desire and impulses that are repressed in unconscious mind. However, Skinner (1940) completely ignored the inner process and emphasized that motivation comes from the environment. Maslow's (1943) need hierarchy theory gained much popularity because of its holistic nature in understanding student's motivation. Locke and Latham (2002) in goal-setting theory proposed that goal or the end state of a task serves as a motivation to fulfil the set task. Pintrich and Schunk's (1996) work on goal achievement theory has contributed widely to understanding the nature of motivation among students. These theories focus on the nature of motivation and explain how motivation, if applied to educational setting, affects academic achievement among learners.

In a similar attempt, like afore mentioned motivation theories, self-determination theory (SDT) and findings of almost 30 years of empirical research make significant contribution in the literature of motivation in education. The theory helps in identifying basic human needs and suggest social contextual factor that thwart or facilitates those needs. The theory is consistently tested and applied into education realm that highlights the importance of motivation in classroom settings.

2.5.2 Overview of Self-determination Theory (SDT)

SDT explains human motivation by focusing on the satisfaction of three basic psychological needs. The theory proposes that human beings are active, curious, vital and energetic by nature. They constantly strive to master new skills, and make efforts to succeed because success itself is personally gratifying and rewarding. Yet, the theory recognizes that people can be alienated, apathetic and inactive regardless of their culture or social strata. Conditions ranging from psychological disorders that are found in clinical psychology to a normal classroom where students sit passively and stare at teachers are not merely the result of biological endowments but it demonstrates a wide range of reactions to the social environment. SDT informs that natural tendencies cannot be taken for granted and emphasises on social contextual factors that facilitates or thwart self-determination in human beings (Ryan & Deci, 2000a; Deci & Ryan, 2008).Facilitation of proposed basic needs in interpersonal and social contexts has reported to produce enhanced intrinsic motivation, support for optimal functioning and psychological well-being across various domains of human life.

The importance of basic needs such as food and water has never been questioned in the field of biology, since it is easier to study the effects of their absence or presence in human life. Whereas, the necessity for satisfying psychological needs is often over looked without consideration that when these needs are thwarted it leads to diminished motivation and ill- being (Ryan & Deci, 2000b).

SDT proposes three psychological needs which are essential for all human beings irrespective of their gender, culture or race. It insists that an individual or culture has its own ways to satisfy those needs through various regulation techniques (Deci & Ryan, 1985). The three needs proposed are: 1 autonomy, 2.competence and 3.relatedness that are explained below as basic innate needs

a. Autonomy within SDT was conceptualized from de Charms' (1968) concept of personal causation. It is the degree to which a person perceives himself/herself as an origin of a behaviour or responsible for action. It is experienced when ones' behaviour is self-endorsed or volitional (Ryan & Grolnick, 1986).

b. Competence in SDT is defined as a feeling of being efficient while interacting within the social environment. To feel competent, people seek challenges and put efforts to master new skills. The more competent a person feels, the higher the intrinsic motivation is (Levesque et al., 2004).

c. Relatedness within SDT is defined as a bond or sense of belongingness between individuals or groups. It is experienced when people show care and concern for others. Satisfaction of need for relatedness has shown positive outcomes and well-being in all types of relationships such as peers, parents, teachers and spouse (La Guardia, Ryan, Couchman & Deci, 2000).

entification of human basic needs that are innate has turned out to be useful in studying the contextual factors that either thwart or facilitate these needs,

thereby affecting human motivation. In the similar direction, besides the basic need theory, SDT also focuses on the types and nature of motivation that develops as per the results of environmental conditions under two sub theories namely Oraganismic integration theory [OIT] and Cognitive evaluation theory [OIT].

2.5.3 Types of Motivation and Regulatory Styles

SDT being a motivation theory provides a detailed explanation of the different types of motivation process, their nature, the factors that cause variability in motivation, developmental continuum of motivation pattern, and how it regulates and effects human personality. The followings are the types of motivation that varies along regulatory styles.

a. *Intrinsic motivation*: Intrinsic motivation serves as a foundation for SDT by proposing that human beings are born proactive and constructive. Desire to seek challenge, to master the skill and to excel in talents is an innate tendency of a human being. This natural inclination towards growth is defined as an intrinsic motivation which occurs out of natural instinct and is independent of external reasons to experience it and where perceived locus of causality is always internal and personal (Ryan & Deci, 2000a). A sub theory of SDT, Cognitive Evaluation Theory (CET), proposed by Deci and Ryan in 1980, explains the conditions that facilitate versus undermine intrinsic motivation.

It focuses on the fulfilment of fundamental need of competence accompanied by sense of autonomy to foster conditions in favour of intrinsic motivation. Whereas, it states that tangible rewards, threats, deadlines, imposed goals reveal negative effects on intrinsic motivation. Factors affecting intrinsic motivation under education domain will be discussed in detail in next section.

b. *Extrinsic Motivation:* As people grow older, not all of their activities are intrinsically motivated. Individuals need motivation to persist and perform uninteresting activities in order to integrate with social demands in their personality and personal lives (Ryan & Deci, 2000a). SDT suggests different types of regulatory styles that define the degree of motivation in an individual to carry out any activity or behaviour. This also clarifies the notion that not only actions or behaviour caused by intrinsically motivated individuals are autonomous and self-determined in nature, but depending on regulatory styles nonintrinsically motivated action can also become truly self-determined. Self-regulation is a process where an individual regulates the extrinsic motivation into a self-determined one, whereas extrinsically motivated behaviour can vary in degree of autonomy and perceived locus causality. The following figure explains different types of regulation.

Behaviour	Non Self determined		Self determined

Motivation	Amotivation	Extrinsic motivation	Intrinsic motivation

(Non regulation)   (Internal regulation)

External Regulation	Introjected Regulation	Identified Regulation	Integrated Regulation
Compliance External rewards Or punishments	Self-control Ego-involvement Internal rewards	Personal importance Conscious valuing	Congruence Awareness Synthesis with self

Figure 2.1: The Self- Determination Continuum

(Ryan & Deci, 2000a)

Oraganismic integration theory [OIT] was proposed in 1985 by Deci and Ryan to explain different forms of extrinsic motivation. Referring to the figure 1,at far left is the behaviour called 'amotivation', the state that represents a lack of intention or no motivation at all to perform an action or behaviour. As the model proceeds, extrinsic motivation gets stronger towards the extreme side as the most self-determined form of extrinsic motivation.

a. *External regulation:* It represents the least degree of volitional behaviour. Causes of such behaviours are impersonal and often undertaken to satisfy external demands, or to receive task contingent rewards.

b. *Introjected regulation:* This is the second form of regulation in which the individual does not fully identify with the behaviour or action as its own. Locus of causality still does not lies within an individual but actions or

behaviour are performed to avoid guilt, failure or for ego enhancement (Deci & Ryan, 1985).

c. *Identified regulation:* This is a more autonomous form of regulation where an individual consciously values and identifies with the behaviour for different outcomes and reasons. Such actions are identified as their own and are higher in the degree of self-determination.

d. *Integrated regulation:* It is the most self-determined and autonomous form of extrinsic motivation. It is a state where the individual assimilates and bring into congruence with one's other values and needs. Perceived locus of causality is personal and actions are volitional. This form of regulation shares many qualities of intrinsic motivation, although it might not be undertaken for inherent enjoyment.

Figure 2.1 explains one of the several motivation systems and its development that exist among human organisms. The SDT theory claims its pioneer achievement over contemporary and historical work on motivation by explaining that model that focuses on types of motivation and its development at various stages (Deci & Ryan, 2008). The mentioned process in the model occurs overtime, depending on the social contextual factors that facilitate or impede the process.

With the growing popularity of 'types of motivation' concept, recently, researchers have focused more on regulatory styles in combined forms as controlled and autonomous motivation (Bao & Lam, 2007; Vansteenkiste et al., 2005). External and introjected regulations are considered as controlled motivation, whereas

identified and integrated regulations are considered as a form of autonomous motivation (Deci & Ryan, 2008). In other words autonomous motivation refers to a state in which an individual can identify with the activity and integrate into within self. On the other hand control motivation is explained in which one's behavior is controlled by external contingencies. An enormous amount of research has confirmed the presence of autonomous motivation is a predictor of a greater psychological health and effective performance (Deci & Ryan, 2008).

The concept of motivation and regulatory process has provided several new directions for studies in multiple domains, but the field of education remains the most benefited because in education setting, social contextual factors play significant role in regulating student's academic behaviours. Those contexts and their effects on regulation are discussed further.

As said earlier ,SDT and its components have been applied and studied in various domains such as health care (Sheldon ,Williams, & Joiner 2003), organization and work (Lam & Gurland, 2008), relationship (Deci, La Guardia, Moller, Scheiner, & Ryan, 2006), psychotherapy (Britton, Williams, & Conner, 2008), sports (Hagger & Chatzisarantis, 2007), environment (Villacorta, Koestner, & Lekes, 2003), parenting (Assor, Roth, & Deci, 2004). In next section application of SDT in education will be discussed in detail.

2.6 Teacher Autonomy Support

As discussed above, the theory focuses on 3 basic needs and other sub theories to substantiate need related claims. The present research aims to explore the relevance of "autonomy" construct in classroom settings. The next section discusses autonomy support and its functional relevance in classroom context.

2.6.1 Autonomy in Self-Determination Theory

Autonomy in SDT is defined as actions or behaviour that are volitional, emanating from self, behaviours that are self-determined and have an internal perceived locus of causality. It is experienced when a person fully endorses an action in which he/she is involved and stands behind whatever he/she does (Chirkov et al., 2003). Nuttin (1973) explains the individual drive as "causality pleasure" when they perceive themselves as the initiator of the action or behaviour (See Vansteenkiste, Lens, & Deci, 2006). People feel more autonomous when they behave in concurrence with their personal values and interests (Deci & Ryan, 2000b). Support for autonomy has predicted optimal functioning and well-being in various domains of human lives irrespective of their culture and gender (William, 2002; Reeve, 2006; Guay, 2005; Gagné, et al., 2003; Hodgins, Koestner, & Duncan, 1996; Zeldman & Ryan, 2004).

Autonomy within SDT is not only concerned with its nature and consequences but also how it develops or diminishes in response to social and environmental conditions (Ryan & Deci, 2000b, 2002). The concept of autonomy support has always been popular among educational psychologist, but has equally been targeted for criticism from cultural perspective. According to Deci and Ryan (2006) it is a definitional confusion or overgeneralization of the concept of autonomy that has led to the misinterpretation and reduced functional importance of the term.

Motivation in education plays a vital role for its consequences. SDT as a motivation theory has made an important contribution in developing and enhancing quality learning experience for students, efficient teaching guidelines for teachers (Vansteenkiste et al., 2005), and has also provided support for developing quality relationship of students with parents, peers and teachers (Deci et al., 2006). Applications based on research on basic need theories have helped individuals involved in the education arena to promote motivation and supportive social context for better academic outcomes. The positive effects of support for competence and relatedness as basic needs have been reported in many studies, such as perceived competence facilitates an increase in intrinsic motivation among students (Vallerrand, 1983; Levesque et al., 2004). There have been studies highlighting the effects for support of relatedness from teachers as well as parents and peers on students to enhance motivation for school adjustment (Grolnick & Slowiaczek, 1994; Joussemet, Koestner, & Landry, 2005). Support for relatedness has been reported as a salient predictor of engagement in school related tasks (Furrer & Skinner, 2003).

However, studies have shown that these effects are at best when accompanied by support for autonomy in classroom settings (Deci et al., 1991).

The role of autonomy support in classroom, as defined by SDT, has played an eminent role in educational studies. Research findings have provided guidelines for students and teachers to differentiate between autonomy supportive and controlling that facilitate or thwart self-determination. A wide array of effects of teacher autonomy support on student's motivation and academic outcomes are studied (Deci, Koestner, & Ryan, 1999; Reeve, Bolt & Cai, 1999; Reeve & Jang, 2006). To go further, it is essential to identify how the word "autonomy" is interpreted within SDT.

2.6.2 Teacher Autonomy Support in Classroom

With the aim of getting students motivated to learn, involving themselves in school activities, promoting school related values and for generating optimal learning outcomes, various teaching methodologies and philosophies have been applied in educational settings. Several theories such as theory of multiple intelligences, child-centered learning, project based learning, co-operative learning, active learning and learners' autonomy support suggest various ways with the single intention of benefiting students by involving them in learning at all levels (Johnson, Johnson & Smith, 1998).

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The application of SDT in educational context has made a recommendable contribution (Reeve, 2006; Reeve & Jang, 2006). It provides intensive guidelines to differentiate between events and contexts that support or thwart proposed innate needs.

Deci and Ryan (1987) presented events and context that could function either to support autonomy or control behaviour. Under controlling events, tangible rewards were considered to have negative effects on self-determination and also it was reported that they undermine intrinsic motivation. Task contingent reward seemed to have short term effect on student's performance and they were needed to be present all the time to elicit the desired response from learners, thus, rewards were considered as a control event that pressurizes the behaviour (Deci et al, 1999). Like rewards, threats and deadlines were considered as having a controlling effect on ones behaviour and it undermine intrinsic motivation. It was reported that direct surveillance that prevents privacy and constant evaluation diminishes self-determination in the actions performed. Furthermore, in autonomy supportive events, giving choices to students to accomplish a task in a manner they would like to and providing positive feedback on competence was reported to increase intrinsic motivation (Deci & Ryan, 1987).

Later the literature on teacher autonomy support was refined further and guidelines were presented into a set of instructions. Reeve et al. (1999) developed an instrument to assess teachers' motivating style which ranges from highly autonomy supportive to autonomy controlling. Teacher autonomy support strategies were of

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great importance for those teachers who liked to adapt their teaching methodologies in order to be more autonomy supportive and prevent from being controlling. In another experimental study Reeve et al., (2004) presented a webpage and a teaching observation sheet consisting of autonomy supportive and controlling behaviours displayed by the teachers. The study was conducted to test if teachers can modify their teaching styles after learning more about motivating or autonomy supportive teaching styles. The results supported the hypothesis that teachers can modify their teaching style after receiving informational session on TAS and also students showed better task engagement in response to changes in teachers' autonomy support. Based on that study recently, Reeve and Jang (2006) proposed 11 hypothesized autonomy supportive and 10 controlling behaviours in the forms of classroom instruction. These instructions were tested to investigate if student's perception of autonomy correlates with instructional behaviour of the teacher. The findings through correlational analysis confirmed that students perceived 8 instruction as autonomy supportive and 6 instructions as controlling. Therefore, through research findings it can be concluded that TAS is a set of instructions that facilitates student motivation and learning process in the classroom and is a predictor of higher learning outcome, greater engagement and higher persistence.

In order to present above mentioned concept in a concrete way, a dialectical framework is presented in SDT by Reeve, Deci and Ryan (2004) which explains that students possess an innate urge for growth and engagement in classroom activities but contextual events in the classroom are capable of affecting students' motivational

development. The dialectic framework (*Figure: 2. 2)* shows two agents and its

contents in adjacent boxes. The upper and lower arrows present an interchange of

effects on each other.

Students Inner Motivational Resources	Classroom Conditions

Psychological Needs
• Autonomy
• Competence
• Relatedness
 	
Interest, Values, and Strivings
• Interest
• Preferences
• Values
• Goals
• Aspirations
	Teachers Motivating Styles **Affordance**
	• Autonomy supportive Interesting activities
	• Controlling Optimal challenges
	                Opportunities for actions
	
	External Events **Social Demands**
	• Rewards Prescriptions
	• Punishers Proscription
	• Praise Goals
	• Feedback Priorities
	• Evaluation Values
	• Surveillance Rules
	• Competitions Norms
	                Expectations

Figure 2.2: The Dialectic Framework within Self-Determination Theory

(Reeve, Deci & Ryan, 2004)

The above figure is explained as a cycle, the upper arrow presents that students

engage themselves actively in classroom conditions as an expression of their innate

motivational resources and in turn , as shown through lower arrow, classroom

conditions either supports or hinders their autonomous motivation (Reeve, 2006).

Therefore, the dialectic framework suggests the classroom climate as a crucial factor

in creating, developing and sustaining student's inner motivational resources. The

mentioned classroom climate refers to teacher autonomy support (TAS) that

incorporates motivating styles such as providing choices and opportunities, valuing

students' opinions, providing rationale for learning, using non controlling language,

and providing praise as an informational feedback. Several years of research within

SDT (Assor et al., 2002, Reeve, 2006, Reeve & Jang, 2006, Flink et al., 1990) on

testing instructions that support or thwart autonomy in educational setting has

identified the mentioned instruction as TAS motivating styles. Following are the

details of features of TAS motivating styles.

a.Provide choices, opportunities and time: Inviting students' opinion such as "what

would they like to do" or "how would they like to do" offering them alternative

choices for a task to choose according to their goals and interests (Assor et al.,

2002),valuing their desire for freedom to choose (Reeve & Jang, 2006), creating

opportunities for students to work in their way and encouraging them to think for an

answer, by providing enough time for them to work on their own pace to facilitate

learning (Reeve, 2006).Setting up deadlines and limits are considered as controlling

and it also diminishes one's self-determination (Reeve & Jang, 2006; Deci & Ryan,

1987).

b. Value their opinion: Allowing students to contribute their thoughts during a class

activity and discussion, being responsive to their suggestions and acknowledge their

outlook and experience (Reeve & Jang, 2006), establishing a reliable communication rapport with children, listening and acknowledging negative feelings from students, and discouraging conflicting feelings regarding classrooms among students are considered as one of autonomy support style (Reeve, 2006).

c. Provide rationale: Keeping students motivated for uninteresting activities and helping students to internalize a better form of self-determination for school related values, providing rationale for doing an activity in a non controlling language is predicted as a valuable autonomy supportive behaviour. Teachers must communicate the worth of learning a particular task rather than imposing the task on students without any rationale (Reeve et al., 2002; Assor et al., 2002).

d. Non controlling language: Use of controlling language such as uttering directives, "you must", "you should" and setting limits such as "work faster", are reported to be perceived by students as controlling and they undermine intrinsic motivation (Assor et al. 2005). Instructions that are informational and flexible and teachers' verbal and body language that is not hostile facilitates students in producing better learning outcomes (Reeve, 2006; Flink et al., 1990).

*e. Praise as an informational feedback: T*he fact that external reward can undermine intrinsic motivation has long been controversial among educationalist. However, research findings within SDT support the fact that task contingent and tangible rewards serve as an agent of deteriorating self-determination (Deci & Ryan, 1987). External rewards such as, gold stars, monetary payments, and food have controlling

effects on human behaviour. In line with Skinner's (1953) operant conditioning, students behaviours gradually becomes conditioned to external rewards that are provided as reinforcement and when the reward situation is withdrawn Students terminate the desired behaviour. Thus, praise, when offered as an informational reward to affirm student's progress and without the intention of controlling behaviour serves as an autonomy supportive behaviour and facilitates intrinsic motivation (Reeve & Jang, 2006).

f. Hints and encouragement: Offering hints and encouragement is close to providing optimal opportunities to students to think in their own way rather than teacher imposing her ways on students. According to Grolnick (2001) hint serves as assistance from teacher as information and guidance for students when they are stuck at a task.

Overall, the explanation of each feature of TAS motivating style suggest that these set of instructions can be incorporated in a teaching style or can assist in providing practical recommendation to teachers who might want to expand their existing motivating styles to be more autonomy supportive. It also provides guidelines to distinguish between control and autonomy supportive styles.

It is not appropriate to appreciate the advantages of TAS without analyzing the effects of TAS on students' learning and other academic outcomes. The following section is a review of the literature that explains correlates of TAS in academic domain.

2.6.3 Effects and Correlates of TAS on Students

Several studies were conducted to test the effects and correlates of proposed instructions and behaviours as autonomy supportive or controlling. Deci and Ryan (1987) presented a summary on empirical findings on the effects and correlates of autonomy support. Reeve (1998; 2006), Reeve et al., (1999) and Reeve and Jang (2006) also focused on the variables discussed above, in the light of newer findings in order to present contrast between autonomy supportive and controlling motivating styles.

Past researches have shown that TAS nurture student's inner motivational resources and in turn students show a range of meaningful educational outcomes (Reeve, 2006). Each outcome of TAS is explained as followings:

1. *School functioning*

a) Reduced dropout rates: Hardre and Reeve, (2003) discussed factors such as peer and parental relationship, financial status that are responsible for students drop out from school. However, it was agreed that teachers are unable to contribute to outside school circumstances to reduce drop outs, but teachers can contribute positively in classroom contexts to enhance persistence. If student's needs are neglected or frustrated, they become vulnerable to begin to formulate dropout intentions. In a classroom where students' interest is protected rather than being controlled, they learn to value their learning and are less likely to dropout. Vallerand, Fortier, and

Guay (1997) also stated dropping out as a huge social problem that occurs mainly due to lack of motivation among students. In their study it was revealed that teacher autonomy support leads to higher self-determination for academic persistence, hence, reduces dropout rates. Also, in another study, Vansteenkiste et al., (2005) found out that among students feeling controlled was positively related to higher drop outs for the course that they had adopted. Feeling autonomous gave them the reason and pleasure to pursue the goal, hence, decreased dropout rates. Therefore, reduced dropout rate is a substantial indicator as an outcome of teacher autonomy support.

b) Effort: Teacher's classroom autonomy support helps students in believing positively and maintaining effort belief about their ability that is required by academic tasks. Effort is an important cause of success or failure in school. Children who are self-determined, believe in applying more effort during a learning activity (Patrick, Skinner, & Connell, 1993).In a study conducted by Reeve et al., (2002) on college students it was reported that students exerted more effort when provided a reason in an autonomy supportive way for doing an uninteresting activity because, it helped students in identifying with the personal value of the task which in turn have the student put more effort. Therefore, it is likely that an autonomy supportive teacher can motivate students to maintain their effort belief while doing a task.

c) Student performance and learning outcomes: When students feel controlled or are compelled to achieve certain outcome, their self-determination decreases and consequently it reduces their performance level. Flink et al., (1990) in his study,

provided evidence of impediments that deteriorates students' performance. In their field experiment with 4th graders, teachers were asked to use either pressured techniques or instruct students in a helping manner to maximise academic performance. The results reported that students' performance declined when they were exposed to controlling conditions. In another study, Boggiano, Flink, Shields, Seelbach, and Barrett (1993) studied effects of controlling strategies and restricted choice options on students' performance and found similar results that controlling strategies lead towards deleterious effects on student's performance and learning outcomes, whereas autonomy supportive strategies maximised academic performance. Controlled conditions tend to pressurise students to achieve only the goal and not enjoy learning as a process.

d) Self-esteem and perceived competence: Rosenberg (1965) described self-esteem as an attitude towards self and the new literature by Ryan and Deci (2000) states competence as a feeling of being efficient. It is suggested that whenever children perform under conditions that are autonomy supportive, they tend to perceive themselves as more competent in cognition based activities and report higher self-esteem (Deci & Ryan, 1987). A study, conducted by Black and Deci (2000) on students taking organic chemistry course, revealed that students, who opted to enter the course with more autonomous motivation which occurs under autonomy supportive environment, reported higher perceived competence than with those with controlled motivation. Absence of coercion in learning process facilitates positive experience and enables learners to enjoy the learning process rather than focusing

only on the outcome. Therefore, the absence of TAS is likely to control learner's motivation and lead to a significant decrease in competence or self-belief.

e) Student – teacher relationship: Relatedness is defined as a need to establish mutual respect and understanding for each other. Teacher's behaviour, when perceived to be supportive predicts a healthy relationship between teacher and student (Vansteenkiste, et al. 2006). Furthermore, Deci, Guardia, Moller, Scheiner, and Ryan (2006) in their study highlighted the benefits of giving autonomy support to all kinds of relationships such as parents, peers and teachers. Filak and Sheldon (2003), specifically, in a psychological need satisfaction study found autonomy support in the classroom as the strongest predictor of better relatedness among student and teacher. Because feeling autonomous in a relationship enhances feeling of security and self-respect (La Guardia et al., 2000). Specially, in teacher-student relationship, when teacher listens to students' perspective and acknowledges their comments and encourages them to produce better outcome, a natural bond is likely to emerge between teacher and student. Therefore, TAS is considered as an essential condition to strengthen the bond between teacher and student.

f) Interest and enjoyment: Interest theory suggests that psychological state of interest is triggered when one finds contents relevant to his/her interest (Tsai, Kunter, Ludtke, Ulrich & Ryan 2008). Hidi and Renninger (2006) in four phase "model of interest development" suggest one factor as situational factor that influences one's interest level. TAS is capable of creating opportunities and situations for students where they find contents relevant to their interest. According to Deci and Ryan's

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(1987) self- report measure of interest and enjoyment, during autonomy supportive events are found to be positively correlated with reported intrinsic motivation. In a study by Reeve et al., (2002) students reported more interest and enjoyment for the activity that was meaningful to them and when a rationale for doing an uninteresting activity was provided in an autonomy supportive way. Also, in another study by Black and Deci (2000), on chemistry students revealed that students who entered the course with more autonomous motivation and students who perceived their instructor to be more autonomy supportive, reported higher interest and enjoyment in learning chemistry. It is believed that autonomy supportive motivating techniques provide students with opportunity to explore learning material at their own pace and personally value the learning. Therefore, it is concluded that TAS is capable of initiating interest for activities that are uninteresting, but important for students to learn.

g) Intrinsic motivation: SDT describes intrinsic motivation as a motivation that occurs as a result of internal reasons, not of external contingencies. Cognitive evaluation theory [CET], a sub theory of SDT, specifies in detail about social and environmental factors that either facilitates or undermine intrinsic motivation. It explains autonomy supportive environment as a crucial element in enhancing intrinsic motivation; for example, giving regular feedback was reported to have increased student's intrinsic motivation. A brief on Meta-analysis presented by Deci, Koestner and Ryan (2001) also stated results in support of CET that extrinsic rewards, contrary to autonomy support, have detrimental effect on intrinsic motivation. Enzel and Anderson (1993), in a study revealed greater intrinsic

motivation in the noncontrolling and no-surveillance condition, if reason for watching was not specified. Detrimental effects of controlling strategies on intrinsic motivation were also reported in the study conducted by Flink et al., (1990) in a field experiment. Controlling strategies during teaching often include the use of tangible awards which eventually takes over learner's inherit interest for doing an activity. Therefore, it is evident that autonomy supportive environment facilitates intrinsic motivation.

h) Internalization: It is a process of self-regulation of behaviour that facilitates autonomous motivation when activities are not interesting enough to pursue. Human beings tend to regulate their behaviour to achieve goals that might not be pleasurable but are essential for their lives. Teacher autonomy support is an essential factor to help student internalize academic values by creating opportunities that are challenging, interesting and have a rationale behind it (Assor, et al., 2002). In classroom context during uninteresting, but important activities, teachers usually use extrinsic contingencies to motivate students and that promotes controlling form of extrinsic motivation and poor functioning. Reeve et al. (2002) focused on motivational strategy of 'providing rationale' in an autonomy supportive way for an uninteresting activity. It was found that autonomy supportive strategies facilitated students in internalising the importance of learning. Therefore, using TAS it is possible for teachers to help students internalise and assimilates the school and learning values that are not very convincing to them.

2. *Cognitive functioning*

a) Creativity: Boden (1994) describes creativity as "creation of a novel idea that no one else has had before". In order to be creative, exploration and exploitation (March, 1999) are considered as essential factors which can be achieved in a formal set up like classrooms. According to Nonaka and Taceuchi (1996) formal education that is transmitted through education transforms into tacit knowledge and it facilitates in exploration of new ideas. According to Amabile (1983), whenever children produce any work for a reward or for an evaluation, the creativity diminishes. Fear of evaluation or setting limits restrict student's freedom of expression hence, diminishes creativity. Hence, a learning environment like TAS that supports conditions for exploration and exploitation encourages better creativity.

b) Conceptual understanding: Cognition in scientific definition is the ability to process information. It is reported that when a cognitive activity is controlled, it is likely to become rigid and less conceptual (Deci & Ryan, 1987). McGraw and McCullers (1979) found that tangible reward restricted cognition for a task in comparison with non-rewarded task. Evaluation and test were also reported to diminish conceptual learning and intrinsic determination (Benware & Deci, 1984). TAS support encourages teacher to use praise as a motivational rewards and restricts threatening evaluation techniques which in turn helps in increasing students' conceptual understanding while learning.

c) Engagement: Engagement refers to student's intensity of involvement while doing a task. Teacher's motivating style influences a great deal of engagement among students (Reeve et al., 2004). In a study conducted by Assor et al., (2002) to determine which kind of teacher autonomy support behaviours would predict higher engagement for school work among students, it was reported that "fostering relevance", as an autonomy supportive behaviour, was the most important predictor of engagement for school work. Also, in an another study by Assor et al., (2005) it was found that student's perception towards their teachers as controlling undermined their academic engagement and promoted restricted engagement while learning. Hence, an autonomy supportive teacher is likely to get success in engage student in meaningful learning as compare to a controlling one.

3. Psychological and health functioning

a) Positive Emotions: Control and autonomy supportive teaching strategies, both have different effects on students' emotions such as anger, happiness, boredom, anxiety, and distress during learning activities. In an experimental study, on elementary school students, Assor et al, (2005) conveyed teaching instructions to in a controlling way such as gave frequent directives, interfered with students preferred pace of working, and not allowed critical and independent opinion. In return students responded in higher anger and anxiety, thereby enhancing a motivation, while accomplishing a task. It is also reported that non directed learning, which is independent of controlling strategies arises positive emotions among students (Ryan,

Connell, & Plant, 1990). Hence, autonomy supportive motivation techniques are capable of providing positive learning experience to students.

*b) Pressure and tension***:** It's necessary to make student feel at ease to lessen the pressure and tension while learning to be able to produce effective learning outcomes. Students, whose motivation is controlled tend to feel more anxious and pressured while learning or doing an activity. For example, in a study conducted by Black & Deci (2000) on chemistry students, it was observed that when students perceived their instructor to be autonomy supportive, it produced less stress and pressure for learning chemistry. Similarly, in another study by Vansteenkiste et al., (2005) on students of varying age, the results revealed a correlation between teachers teaching style and students response on feeling pressured and tensed. In controlling conditions students tend to feel coerced and response highly on pressure and tension, whereas in autonomy supportive condition students feel more relax while learning or doing an activity

c) Health and well-being: As proposed by the SDT theory that satisfaction of proposed three basic needs leads to optimal functioning of human personality and well-being. In contrast, environment that impedes satisfaction of these needs yield deleterious effects on human well-being (Deci & Ryan, 2008). When an environment supports experience for autonomy and self-determination it also facilitates long term health effects (Deci & Ryan, 1987; Black & Deci, 2000). In a study conducted on participants from Russia and the US it was reported that when students perceived their teachers as more autonomy supportive they reported better life satisfaction and

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well-being (Chirkov & Ryan, 2001). Hence, last but not least, TAS can help in facilitating a better health and well-being among students that in turn will produce better learning outcomes.

Since the conception of SDT, its implications in academic and educational setting have been studied widely and suggestions are well received by educators and facilitators for the benefits of the students. At the same time there are questions that have created controversies regarding the universal relevance and significance of the theory. The debate is still going on with researchers producing results in favour or against the argument and its significance for many students remains undecided. Before moving on further to discuss cross-cultural implication of the theory, a brief review of TAS is presented as a techniques that can adapted into one's motivating style.

2.6.4 Teacher Autonomy Support: Is It Teachable?

Teacher's motivating techniques varies on the basis of their interpersonal styles that they rely on to teach students (Rigby, Deci, Patrick, & Ryan, 1992). It is evident through research that the quality of student's motivation is largely influenced by teacher's instruction style (Reeve, Bolt & Kai, 1999). Based on associationist theories such as Skinner's (1953) operant conditioning, several educationalists assumed that regulation of behaviour is a function of associative bonds between

inputs and behaviour that develop through reinforcement process (Deci & Ryan, 1987). Later, with the concept of intentionality, it was discovered that behaviours can be initiated and regulated by manipulating environmental forces. Various theories, research findings and individual personality orientation steer teachers to adopt different interpersonal styles that can help them achieve their goals in a classroom setting. Some teachers, in order to illicit desired behaviour frequently, offer external incentives. In contrast, other teachers motivate students by identifying their interest (Reeve, Bolt & Kai, 1999). These practices are broadly classified as controlling versus autonomy supportive styles.

Self-determination theory identifies three sources that influence a person's interpersonal motivating styles. First, personality orientation towards certain behaviour such as authoritarian personality tends to control others. Second, interpersonal motivating style is a matter of acquired skills such as behaviour modification through deliberate practice. Third, motivating style is also influenced by social contexts such as, under pressure of school administrators teachers tend to use more directives and controlling language with students. The above assumptions suggest that by manipulating social contextual factors and practicing skills teachers can be oriented towards an autonomy supportive motivating style (Reeve, 1998). Late in 1968, deCharms had developed an extensive training program to help teachers know how to be autonomy supportive. The training was a success as students showed enhanced intrinsic motivation and higher academic achievement for changed motivating style of teachers. Also, Black and Deci (1996), in medical education provided evidence that interns were able to develop autonomy supportive

interpersonal style when they themselves were instructed in an autonomy supportive way. Reeve (1998), substantiates his claims using conceptual change literature of learning. According to him, learners prior beliefs about what they are learning affects how new information is accepted or rejected. If teachers already possess autonomy oriented beliefs about motivation, it is likely that they would learn autonomy supportive behaviour with little cognitive resistance, as compared to those who possess preexisting control oriented beliefs. In an experimental study, conducted on preservice teachers, Reeve (1998) attempted to find out relationship between teachers causality orientation towards autonomy support and motivating styles. In the procedure, preservice teachers were classified on the basis of their motivational belief and teaching styles, which were assessed using highly reliable and validated scales. Later, those teachers were trained to be autonomy supportive in their groups. The training involved a booklet detailing autonomy supportive styles of teaching, literature and findings on autonomy supportive strategies, and posed scenarios that teachers could use to apply in real classrooms settings. The contents of the booklet came from published research on TAS. The post experimental findings of the study revealed that teacher autonomy support was teachable. It was evident that the exposure to teacher autonomy support information was able to conceptually change their beliefs about how to motivate students. Undoubtedly, it was challenging to overcome pre-existing control oriented motivational beliefs as it required significant conceptual change in teaching styles. However, if the information transmitted is plausible and fruitful interpersonal motivational styles are expected to undergo development changes.

In a similar attempt to find out if teacher autonomy support is teachable and consequently can modify teacher's motivating style. Reeve, Jang, Carrell, Jeon, and Barch (2004), conducted an experimental study on school teachers where teachers were put into experimental and delayed treatment groups and both the groups were exposed to teacher autonomy support information/training at different times. The training was imparted in two sessions. The first session involved a presentation on information about self-determination theory, different types of motivational styles, autonomy supportive and controlled teaching strategies and their effects on student's academic outcomes. In the second session an independent study was conducted using an interactive website which enabled teachers to use autonomy supportive behaviours in classroom settings. Following training, raters observed a significant change in autonomy supportive behaviour of teachers who were trained than nontrained teachers. Hence, the literature suggests that when teachers are exposed to autonomy supportive strategies and are being familiarized with the benefits of autonomy support in classroom settings they are able to modify and expand their teaching styles towards more autonomy support.

2.7 Autonomy and Cultures

Since the construct of autonomy is the main focus of the present study, it is essential to discuss the controversies surrounding this construct. The section below discusses in detail the cross culture controversy which is also relevant to the context of the present study.

2.7.1 Overview of Controversies Surrounding SDT

In an article entitled "Self-Regulation and the Problem of Human Autonomy" Ryan and Deci (2006), while addressing the controversies surrounding the significance of autonomy construct, defined the term *autonomy* as regulation by the self. In order to clarify definitional confusion they highlighted that opposite of autonomy is not independence, but *heteronomy*, which means without self-endorsement.

The criticism of this construct has come from individuals from varied backgrounds such as psychologists, behaviourists, cultural relativists, neurologists, and biological reductionists. The present criticism of the concept of 'self' seem to continue with the years old view of behaviourists who denied the existence of personal will. Skinner (1971) believed that human behaviour is the product of "operant conditioning" that it can be controlled with positive and negative reinforcement. According to him, man is totally determined by his environment and concept such as volition, independence, purpose and freedom are just an illusions. Eisenberger and Cameron (1996), who believed in external contingencies and environmental factors as the only factor influencing human behaviour, also denied the existence of the concept of autonomy. They emphasized that incentives can elude the significance of autonomy and can force people to behave against their values and interest. Moreover, behaviourists tried to describe intrinsic motivation with internal process that did not include autonomy.

Baumeister, Bratslavsky, Muraven and Tice (1998), reported through a study that making choice depletes person's ego, because in the study, the group with high choice condition showed less persistence for the assigned tasks. The findings concluded that the effects of ego-depletion are detrimental and maladaptive for persistence and performance. In *The Blank Slate: the Modern Denial of Human Nature*, Pinker (2002), stated human brain as the only ultimate cause for people's action and behaviours, ignoring the effects of environmental and social influence and reducing the concept of 'self' to nothing. Similarly, Wegner (2002) in *The Illusion of conscious will* describe that people's actions are nonconsciously determined based on explicit and implicit motives. It implied that human beings do not consciously control their actions because their actions are determined by the events in the brain; therefore, the feeling that our intentions cause our actions is merely an illusion. Schwartz (2000) in his article *"The Tyranny of Freedom"* stated that making choice can be burdensome for individuals who are unable to decide their preferences as a rational chooser because of constraints such as culture or organisation of self. In his view, then, mechanism of rational choice will be overwhelmed rather than empowered, because having more options and not being able to avail all options, as a result of constraints, might trigger frustration and lead to poor psychological health, instead of self-determination. In the similar lines, Iyengar and Lepper (2000) after conducting a survey on people's shopping habits and preferences found that too many options for making choice demotivate people's behaviour to shop.

The above cited claims have come from different domains, but the most popular critique, that is also the focus of the present study, has emerged from the cross-cultural theories and the concept of 'self'.

2.7.2 Cross-Cultural Theories

The following is the brief explanation of popular cross-cultural concepts and theories that familiarises us with the forms and nature of 'self' in different cultures.

a. Self-construal Self-construal is about the concept of self and it is considered very important for cross-cultural research. It explains culturally based differences in perception and behaviour among individuals According to Markus and Kitayama (1991), westerners are more likely to have independent self-construal, whereas, easterners have interdependent self-construal. In independent self-construal people believe in being unique and it is natural for them to stand apart in society. People with independent construal are free to enter into social relationships on their discretion and choice. Their cultural practice emphasizes on maintaining their sense of self. On the other hand, people with interdependent construal perceive themselves as interconnected with society members and strive for belongingness and harmony among groups by fulfilling expectations for each other. Individuals with interdependent self-construal describe obligations, duties and responsibilities as a

definition of 'self'. Therefore, the perception of individual relationship in society and goals for self-fulfilment distinguishes between interdependent and dependent self-construal.

*b. Model of agency***:** Markus and Kitayama (2004) described conjoint agency as responsive to an obligation and expectation of others. Therefore, in conjoint model of agency acts are good if people perform them as obligation to others and out of related preferences. In disjoint model of agency emphasis is on choice and independence. Therefore, an act is considered good if it reflects individual preference.

c.   Individualism and collectivism: The concept of individualism and collectivism has helped in providing direction to several studies in cross-cultural psychology to understand the different ways people act or behave in a particular culture. Hofstede (2001) has shown how the constructs of individualism and collectivism can be helpful in characterizing people's social perceptions and behaviour. Triandis (1995) defines individualistic cultures as where people are more autonomous and their behaviour focuses on their personal goals and choice. They act independently from their in-groups. In contrast, people in collectivist societies act in accordance to the wishes of their in-groups. They behave according to the norms of their society rather than personal choice or preferences. Triandis (1998, 2001) further stated that type of collectivism and individualism varies according to each country and its culture. The categories of different cultures are:

i. Horizontal individualist: Where people prefer to be unique and self-reliant but not actually competing for high status. People in horizontal individualist cultures are likely to behave in a direct manner when having discussions.

ii. Vertical individualism: Where people want to do everything on their own. They strive for more achievements and high status because they believe that competition is the law of nature.

iii. Horizontal collectivism: Where people act in accord to group and social norms. They perceive themselves as a part of a group and believe in maintaining group harmony. They rely on friends and relatives to get ideas for decision making.

iv. Vertical collectivism: Where people merge themselves fully to their groups or society and sacrifice their personal preference and self- interest for the sake of the group goals. They are likely to accept any decision made by their group as their moral duty.

The above classification of societies or group of people on the basis of their cultural orientation and social practices helps us understand the factors that affect an individual's or group's perception, cognition, motivation about several situation. In the context of the present study, knowledge of the factors that affect individuals or group's perception on construct such as autonomy support will help us better understand the following research literature based on cultural orientation and autonomy construct.

2.8 Comparative Research against Autonomy

On the basis of cross-cultural literature, prominent cultural relativists highlighted the role of self-construal, agency, and cultures for exercising autonomy in different cultures. However, the ideas from cross-cultural psychologist challenged the functionality the relevance of autonomy, that the provision of choice enhances motivation and self-determination in individuals from all cultures. They categorically denied the universality of the concept of autonomy by defining it as only a western value and assuming that provision for autonomy does not play crucial role in collectivist societies (Markus & Kitayama, 1991; Iyengar & Lepper, 2000).

Iyengar and Lepper (1999) examined the cross-cultural components that might affect people's attitude towards autonomy. They tested students' preference on making choice on American and Japanese samples and found that American samples made 50% more choices than their Japanese counterpart. To shed light on these differences, self-construal of American samples or independent agency was highlighted. Since people from individualistic societies strive for more independence, making choices give them the opportunity to preserve their unique identity and sense of self. In contrast, people from collectivist society, who follow conjoint model of agency do not value independence or individual preference and, in fact, feel more contented and drive pleasure by submitting themselves to the choice of their group. They strive for harmony and balance in society, and making personal choice or independent decision might interfere with their motives.

In another experiment conducted by Iyengar and Lepper (1999) on European and Asian American samples, European American samples showed more task engagement and higher preference for challenge in high-choice condition, whereas Asian American showed better results in no-choice condition. Hence, it was concluded with the understanding that the provision of autonomy or independence is beneficial only for people from individualistic cultures. People from collectivist cultures thrive more when actions are identified as group goal or when preferences are dictated from someone else. They initiate behaviour not to stand apart but to fit in with the group.

To examine the relationship between provision of choice and intrinsic motivation, Iyengar and Lepper (1999) further studied the individuals from different cultures. In the first condition, Anglo American and Asian American samples were given an opportunity to choose by themselves and in another condition, someone else made a choice for them. The findings supported beneficial effects of choice on intrinsic motivation of western samples only. In disjoint agency, personal choice is encouraged and such opportunities help in enhancing intrinsic motivation of the individuals whereas, in collectivist cultures where personal choices have less relevance, it hardly contributes to intrinsic motivation. In fact a lack of personal choice has reported to have beneficial effects on children from interdependent societies.

Later Hernanadez and Iyengar (2001) elaborated on human agency that people from western countries stress on independence and are more personally

agentic whereas people from eastern countries stress on group interests are collectively agentic. They emphasised that the two cultures also differ in their perception of the way individual relates to others; In causal reasoning, collectivist emphasise more on situational factors as the cause of the action, while individualist emphasizes more on dispositional factors for the cause of the action.

Consistent with other cross-cultural researchers, Markus and Kitayama (1991) stand with the notion that the pursuit of independence is not the source of self-determination across all the cultures. According to his self-construal theory, westerners find it natural to stand apart as a unique individual and exercise their own will. Their perception of self is independent of social roles. In contrast, Easterners find themselves interconnected and interdependent with their group. They behave in accord with social norms and their self is defined as intermingled with their group striving for harmony and belongings.

Kitayama, Snibbe, Markus and Suzuki (2004) investigated cultural variations based on cognitive dissonance theory where a person justifies his/her choice in order to eliminate culturally sanctioned doubts by accepting the negative features of the chosen object. Japanese and American samples were asked to show their preference for movies just like a study conducted by Hein and Lehman (1997) on free choice cognitive dissonance paradigm. It was found that Japanese students showed dissonance effect only when others were involved in the study; in the absence of social cues they showed no dissonance effect. According to Hein and Lehman (1997)

also, collective agents show more consistency in private thoughts or stand by the decision they made with the groups.

Kitayama and Duffy (2004) and Kittayama and Uchida (2004) provided empirical evidences to identify cultural variation in human being in several areas. They mentioned the fact that in interdependent cultures choice is relevant only when it is made in reference with some relationship and the people from collectivist cultures feel motivated to work when the task is chosen for them by others. They highlighted the cultural variation in emotional experiences as well. For example, an individual exercising independent agency experiences socially disengaging emotions that are focused on self such as pride, anger, and frustration. In contrast people with interdependent agency experience socially engaging emotions that are focused on others such as guilt, feeling of relatedness.

Several researchers have proposed life satisfaction and higher self-esteem as a predictor of well-being across cultures (Ryan & Deci, 2000a). Therefore, those with independent agency showed well-being in fulfilling internal attributes whereas those with interdependent agency showed higher well-being in fulfilling relational attributes. In another study conducted by Kitayama, Markus, Mastsumoto, and Norasakkunkit (1997), cultural variations in perception of self were studied. Americans felt higher increase in self-esteem in success situation and showed less decrease in self-esteem in failure situation, whereas results were opposites in Japanese samples. Masuda and Nisbett (2001) also claimed cultural variation in perception of an object which was said to influence cultural background such as East

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Asians gave greater attention to contextual information of an object, whereas Westerner reported attention on object features and characteristic.

Brickman and Miller (2001) and Oishi (2000) have also argued that autonomy is not valued in collectivist cultures and the implication of this theory is limited to western samples only. In the collectivist cultures being controlled is associated with better life satisfaction.

Savani, Markus and Conner (2008) in a recent study conducted on Indian and North American participants based on conjoint and disjoint model reported that Indian samples were slower in making choices, were less likely to choose according to their personal preference and were less motivated to express their preference.

Findings and theories from cross-cultural relativist suggest that the concept of "self" varies from Eastern culture to Western culture perspective and so does the meaning and the relevance of autonomy. Hence, the research literature provides evidence to challenge the universal the relevance of autonomy construct as posit by SDT.

2.9 Autonomy and Collectivist Cultures

There is no denial of the fact that cultural practices produce variation in human personality but if individuals felt controlled in exercising their will for the sake of group or society, they would suffer psychological ill being (Ryan & Deci, 2006).

In spite of this, statements regarding cultural variation among easterners present a bizarre attitude towards eastern cultural practices and reflections. Markus and Kitayama (2003) describes Japanese students behaviour as "weird" and having low self-esteem for students not contributing much in classroom discussions as compared to their North American counterparts. They also highlighted the incident where Japanese guests ordered exactly the same dinner, in order to fit with group choice. This claim not only threatens the fulfillment of need for autonomy among easterners, but satisfaction of basic desire to choose food such as proposed by Maslow's needs theory (1943). Iyengar and Lepper have made consistent attempts through several experiments on Asians and non-Asians samples and have provided evidence showing that personal choice undermines intrinsic motivation and participants fare well only when choice is made by others. Therefore, the concept of 'self' was negated for all human beings by behaviourist, was reduced within cultural boundaries. Such assumptions towards easterners have invoked opinions from researchers and psychologist who believed in autonomy as a universal need. They refused to agree that people from collectivist nations have no desire to follow their preferences and desires or students in collectivist societies would not like opportunities to choose about what to learn and how to learn and positive academic

outcomes will only be produced if students were directed in controlling language (Miller, 1999) or not given positive feedback for their performance (Reeve & Deci, 2006). In order to explain the factors that are usually overlooked by critics of autonomy construct. The following concepts are explained by those who believe that autonomy is relevant in all cultures.

a. Individualism and Independence: The core of entire cross-cultural criticism has been focused upon interpreting 'autonomy' as independence and individualism, as proposed in conjoint and disjoint cultural model and interdependent and dependent agency. Agency implies to act in accordance with personal values and set of rules (Kitayama & Uchida, 2004). Therefore, people feel autonomous when they fully endorse their actions with their authentic interest and integrated values (Deci & Ryan, 2000a). As defined within SDT opposite of autonomy is heteronomy not dependence. In heteronomy, one's actions are not initiated from self, but rather external force originates them whereas, dependence means reliance on others for guidance and support (Chirkov et al., 2003). According to cultural model, individuals from interdependent cultures value relationship a lot more than individuals in independent cultures, therefore one can autonomously depend on others for support and guidance and produce better outcome and show better well-being (Bao & Lam, 2008). In contrast, if one is forced or compelled to fit in group values, it can cause an individual maladjustment and psychological ill-being (Markus & Kitayama, 1994).

Issue of conformity is another issue in explaining the Asian perspective of autonomy as an external influence. The degree of conformity, while carrying out an action can be associated with heteronomy or autonomy. People often feel pressured in doing something that they fail to identify with their values or interest, but at the same time if one fully concurs with the external demand, he/she can experience autonomy in actions (Ryan, 1993). Kittayama and Uchida (2004) have themselves reported that being independent may vary across culture. This argument stands parallel to the practice of teacher autonomy support of providing a rationale for doing an interesting task to experience autonomy in one's action.

b. Reactive and Reflective autonomy: Koestner & Losier (1996) and Hodgins, Koestner, and Duncan, (1996) have defined two kinds of autonomy on the basis of SDT. They define 'reflective autonomy' as when people willingly accept guidance and 'reactive autonomy' as when people move away from guidance. In a study conducted on US sample, Hodgins and colleagues (1996) reported benefits of reflecive autonomy as a predictor of better performance and life satisfaction and also that people with reflective autonomy has more intimate interaction with peers than those high in reactive autonomy.

c Internalization and Autonomy: SDT provides self-determination continuum for regulation techniques among different individuals (external, introjected identified, integrated). As the continuum proceeds towards the right end, the degree of internalisation increases with it. Integrated regulation is considered as fully internalised and highly autonomous. Referring to the structure provided by Triandis

(1995, 2001) of horizontal and vertical collectivism and horizontal and vertical individualism, it is revealed that in every culture individuals are able to internalize their cultural values such as family expectations and common goals with their actions, and it facilitates them in experiencing autonomy in their actions (Deci & Ryan, 2000b). Therefore, when individuals fully assimilates their actions with their cultural values their actions become highly autonomous because acting in group interest or behaving in accordance with group values drives pleasure for them and supports life satisfaction. Chirkov et al., 2003 in a study conducted to examine the functional significance of internalisation across diverse cultures found that autonomous functioning is compatible in collectivist cultures, because of the provision of internalisation of cultural values. Individuals are likely to feel autonomous when they follow a choice made by others as long as they identified themselves fully with the action. Similarly it is likely for an individuals to not to feel autonomous when they are offered many choices but none of the option is preferred or does not identify with his/her values. Hence, people from collectivist still can be motivated to act, if they are able to internalise with the demands and need of their associates (Bao & Lam, 2008).

d. Self-concordance and Autonomy: To justify the significance of autonomy against cultural values, here is yet another concept proposed by Sheldon, Elliot, Ryan, Chirkov, Kin, Wu, Demor and Sun (2004), according to them "self-concordant individuals are people who pursue life goals with a sense that they express their authentic choices rather than with a sense that they are controlled by external forces over which they have little say". People who follow goals with concordance were

reported to have higher well-being in all cultures contrary to Markus and Kitayama's (2004) belief that people pursue goals to fit in group expectation only.

e. Inclusive autonomy and culture: Recently in order to understand cultural variation in motivation Rudy, Sheldon, Awong and Tan (2007) proposed the concept of inclusive autonomy i.e., "my family and I" in order to change the conventional mode of measuring autonomy, in which "I" is the subject. The study clarified 'reason for behaviour' in two distinct cultures as 'individual motivation' and 'inclusive motivation'. When the participants reported the reason for doing an action, it was revealed that feeling of autonomy and feeling of independence is not the same. In the study, samples from the collectivist cultures reported endorsement of their actions with "inclusive motivation' i.e., included the family and group perspective and showed positive correlation with wellbeing.

2.10 Comparative Research for Autonomy Construct

As mentioned earlier, psychologist opinion is still divided on the the relevance of autonomy in different cultures. Focusing on above cited contexts that explain the various ways that people use to exercise autonomy in different cultures, various psychologists conducted studies on samples from diverse cultures to test functional significance of autonomy.

Chirkov and Ryan (2001) studied the effects of teacher and parent autonomy support on self-motivation and well-being on participants of two different cultures i.e., Russia, which is traditionally authoritarian and The United states which is viewed as democratic. The result of the study supported the claim made by SDT because greater parental and teacher autonomy support predicted higher motivation and well-being in both the samples. Chirkov et al., (2003), studied samples from 4 cultures namely South Korea, Russia, Turkey and United states and reported findings in support of SDT claims. A positive relationship between autonomous motivation and well-being was found in cultures that practice different regulation techniques. On the basis of claims made by Triandis cultural model (1995), Chirkov, Ryan, and Willness (2005) examined psychological need support among samples from Canada and Brazil and found out that greater relative autonomy and need support was associated with greater well-being and cultural identity. In order to study the relevance of autonomy among eastern culture Vansteenkiste et al., (2005) studied Chinese students and reported that students who entered the course for autonomous motivation predicted higher well-being, better learning outcomes and academic success than those who entered the course for controlled reasons. In recent researches, Bao and Lam (2008) examined the importance of autonomy for motivation in students from school in Hong Kong and reported positive results. Hang, (2008) studied the feeling of self-determination in French and Vietnamese children with respect to school in relation with teacher autonomy support and reported positive results and highlighted the importance of autonomy in both the cultures.

Besides such studies that were conducted in a straight forward manner to test the significance of TAS in varied cultures. The following are also the researchers who have identified and explained several other components with regard to cultural practice and their perception and how they are used in exercising autonomy construct. It includes terminological interpretation and various forms of autonomy in context of different cultural practices.

2.11 Compatibility of Autonomy and Relatedness

According to SDT need for relatedness refers to the need to feel connected, to establish mutual respect, reliance and caring for each other. Ryan and Powelson (1991) define relatedness as emotional and personal bond between individuals. It also reflects individual's strivings for contact and support with others.

Self-determination theory proposes that relatedness and autonomy support represent innate and universal need for all human beings, and when both needs are satisfied, should yield an independent positive effect on well-being and adjustment for Individuals (Vansteenkiste, Lens, Soenens, & Luyckx, 2006). SDT literature, as discussed below, provides bountiful of evidences that autonomy support is a predictor of higher relatedness among parent-child, peer and teacher-student relationship.

In academic domain teachers are primary figures and play an important role in student's life, hence student's relationship with teachers plays a significant role in school functioning. In learning process, students need to feel assured that teachers are involved with them and supporting them. Students also need to feel that they can make important decision about themselves (Klem & Connel, 2004). Results from the study conducted by Ryan, Stiller, and Lynch (1994) on school students revealed that relationship with teachers, parents, and peers have direct significance on adaptive functioning in schools.

The need for relatedness, among all cultures, has been gracefully accepted since it is a fundamental need for all human being as proposed by several theories (Maslow 1946). But proposed cultural model of agency poses conflicts with the relationship between autonomy support and degree of relatedness. According to cross-cultural relativist, interdependent agency refers to behaviour or act carried out of others interest and preferences. And the notion that "autonomy" refers to independence, contradicts the assumption that autonomy support is a predictor of better relatedness in collectivist societies (Vansteenkiste et al., 2006). Murray (1938) reported the fact that autonomous people view marriage as bondage (see Hodgin et al., 1996). Thus, an individual striving for autonomy in an interdependent culture will jeopardize his/her relationship in social group or their pursuit of autonomy will hamper the development of relatedness among collectivist cultures (Markus & Kitayama, 2003; Cross & Gore 2003). However, several studies have supported the fact that autonomy support is positively associated with relatedness and well being.

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Therefore, according to Deci et el., (2005) those who function autonomously experience better social relationships.

Hodgins et al., (1996), who have worked extensively on the concept of reflexive and reactive autonomy, conducted a study on US college students to examine the effect of reflective autonomy on student's interaction with their parents and peers. The findings reported that autonomy support was positively correlated with the satisfaction of human needs for relatedness and displayed positive interaction among parents and peers. It was known that controlled oriented students reacted defensively and with low esteem to the interaction of their parents and peers. In another study Vansteenkiste et al. (2006) studied Chinese samples to examine that if pursuit of autonomy would hinder the development of relatedness and lead to lower ill-being. The results supported the claims made by SDT that when need for autonomy was supported, it produced higher relatedness among groups and individuals. Patrick, Knee, Canevello, and Lonsbaryn (2007) investigated the role of autonomy support as a component of need fulfilment in relationship functioning on 60 couples. The results confirmed the theoretical supposition that receiving autonomy support is associated with better relatedness. A recent significant addition to the literature of autonomy and relatedness among collectivist cultures has been made by Bao and Lam (2008), who conducted a series of studies on Chinese students by clarifying that lack of choice, is not equivalent to lack of autonomy. Individuals can be motivated to perform an action when choice is made by someone they feel related to. The results revealed that effects of choice on student's motivation are

moderated by mother-child relationship. When students reported better relationship with the person who made choice with them, their motivation was strong as if they had made their own choices.

In a nutshell, studies concerning the effects of autonomy on relatedness explain that when one experiences autonomy in a relationship it contributes to higher security and greater bonding between individuals (Deci et al., 2006). Also, autonomous functioning helps individuals to experience warmth and mutual understanding for each other, thus promotes better interpersonal relationship among individuals. Hence, concluding, that the concept of relatedness contributes positively for higher motivation and better life satisfaction in all cultures.

As the above literature suggests that TAS autonomy support can be a crucial factor in motivating the students and similar notion has led the Thai government to introduce reform that focus on learner's autonomy. But the cross-cultural debate surrounding the autonomy construct opens up possiblity for investigation for its relevance especially in Thai society which conforms very much with authority and collectivist principles.

2.12 Conceptual Framework

Literature from the past studies on SDT suggest a plethora of effects of TAS on children such as greater engagement (Reeve et al., 2004; Assor et al., 2005), positive emotions (Patrick, et al., 1993), higher intrinsic motivation (Reeve, Nix & Hamm, 2003; Flink et al., 1990), enhanced well-being (Black & Deci, 2000), better academic performance (Boggiano et al., 1993), reduced drop outs (Vallerand et al.,1997 ; Vansteenkiste et al., 2005), higher interest and enjoyment (Tsai et al., 2008; Black & Deci, 2000), greater effort (Reeve et al., 2002), internalisation (Assor et al., 2002).The present study aims to study the effects of TAS in a natural classroom condition on Thai learners. The conceptual framework below (*Figure 2.3)* explains the conceptual scheme for the present study.

Practice   **Impacts**

                                                          Students' school functioning

Teacher Autonomy Support Intervention	Interest
	Effort
	Pressure
	Relatedness

Intrinsic motivation

1. Allowing students to contribute
2. Valuing stu dent comments/opinions
3. Creating flexible seating arrangements
4. Not setting limits/uttering directions
5. providing rational for learning
6. Providing encouragement
7. Giving positive feedback/avoid tangible
   Rewards.
8. Providing hints

External regulation

Identified regulation

Self-regulation

Perceived Autonomy Support

Learning climate

Figure 2.3: Conceptual Framework

The study aims to examine the effects of teacher autonomy support on students' interest, effort, pressure and tension, intrinsic motivation, internalisation and relatedness. According to Reeve (2006) in an autonomy supportive environment teachers nurture students inner motivational resources such as provide them with choices, preferences, interests, sense of enjoyment and challenge. Autonomy supportive environment avoid incentives, tangible rewards, uttering directives and giving deadlines. In the present study TAS is considered as a practice and an independent variable, to study its impacts on dependent variables. In a quasi-experimental design, during the intervention period, one group will practise classroom teaching in the presence of independent variable i.e., TAS and another group will practice teaching in the absence of independent variable. In the present study dependent variables, representing school functioning, to be measured are students' interest and enjoyment, effort, felt pressure and tension, intrinsic motivation, internalisation and relatedness. That will be studied as impacts of TAS practice. Mean differences of the dependent variables of two groups will be examined in pretest and posttests conditions.

The objective of the present study is to examine student's motivation and its effects under conditions that are autonomy supportive and controlled in the classroom context. In previous studies, as mentioned above, a variety of variables that were relevant to the specific context of the study were studied. The variables, enjoyment, pressure and tension, and effort, to be examined in the present study are driven from the same literature and considered appropriate for determining elementary school student's success in school functioning , academic performance,

learning motivation and self-regulation techniques (Black & Deci, 2000; Assor et al., 2002; Reeve, Nix & Hamm, 2003 & Reeve et al., 2002) Moreover, these variables are ideal in measuring student's respond corresponding to the TAS that will be manipulated as an independent variable. A sub theory of SDT, Cognitive Evaluation Theory (CET) provides social cues, such as TAS in classroom context, that facilitate or undermine intrinsic motivation such as interest and enjoyment, pressure and tension and effort.

In regard to motivation it is also considered necessary to study "internalization" as a form of extrinsic motivation because it is likely that elementary students might not be involved or participate in learning for intrinsic reasons because of uninteresting activities, difficult contents or other reasons (Reeve, 2002). *Figure 2.1,* presents the self-determination continuum of self-regulation techniques that develops over a period of time, depending upon social contextual factors. It explains how people take in external contingencies and social events and progressively transforms them into personal values (Ryan & Deci, 1996). Self-regulation Questionnaire (SRQ) provides scales for assessing each of the four types of regulation. Researchers in the past have used SRQ scales in various ways to suit the purpose of their studies (Levesque, et al., 2004; Reeve et al., 2002; Vansteenkiste et al., 2005). The scale description suggests that each subscale can be used separately to analyse participant's different regulation styles. Second, Relative Autonomy Index (RAI) can be computed by weighting the subscale score and combining them. Third, two type of motivations, controlled and autonomous, can be computed by averaging across external and introjected items for controlled motivation and identified and

integrated items for autonomous motivation. The present study focuses on TAS as an essential environmental factor that will gradually transform student's self-regulation for learning English. In order to examine that TAS produce significant change in internalizing learning process or not, external and identified regulation techniques of students will be assessed. The self-determination continuum describes the reasons and degree of autonomy behind every regulation. External regulation is the first most form of regulation which is driven by external contingencies and rewards and punishments and Identified regulation, which is second last of the highest form of regulation, concerns personal and conscious valuing of a task. These regulations in negative conditions are strongly associated with school anxiety and maladaptive coping with failures and whereas, in positive environment they are associated with learning enjoyment and proactive coping (Deci et al., 2006). Transformation between these two stages is more relevant to study student's school functioning since, in a controlling or rigid classroom students tend to develop external regulation for learning. They perform task or learn to avoid punishments or to get rewards. Whereas, in an autonomy supportive classroom student perceive importance of learning, and learn to identify with the matters that are not interested enough to being into congruence with self (Reeve, 2002).

Furthermore, it is considered essential to study student-teacher relatedness as one of the variables, under intrinsic motivation, in the present study for two main reasons. First, like other variables in intrinsic motivation, teacher-student relatedness is also seen as having a great impact on elementary students school functioning and success in school. Secondly, it is assumed that pursuits of independence or autonomy

in a collectivist society will hamper the relationships (Markus & Kitayama, 2003; Cross & Gore 2003). Therefore, examining student-teacher relationship under control and autonomy conditions will provide us relevant information for these contexts.

2.13 Summary

The literature review gives an overview of SDT theory, its constructs and its practical application in various other domains. It emphasizes on the construct of autonomy and its application in the education domain as Teacher Autonomy Support. It gives a detailed account of TAS, its guidelines and practical implications provided by well researched resources. There is a proper explanation of variables to be studied as impacts or outcomes of teacher autonomy support in classroom or learning situations.

In the next section, the literature review throws light on various controversies surrounding the construct of autonomy in SDT. It explains in detail the evidence provided by cross-cultural studies that challenges the universal the relevance of autonomy support in education. The next section of this chapter explains several factors and reports data from other researchers conducted to provide evidence to justify the relevance of autonomy construct in collectivist societies. In the end of the chapter there is a short account of construct of relatedness and its relationship with autonomy support and also a figure explains the conceptual framework for the study. The next chapter moves on to methodology that explains the research design, instrument and experimental process.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter begins with explaining about basics of a quasi-experimental design and its characteristics as a research methodology chosen for the current study. It also explains in brief about external and internal threats, in a tabular form, that are relevant for the present study. The second section explains about sampling procedure and gives information about the population. This section concludes by providing a rationale for choosing the particular sample as a target population. Prior to reaching the data collection, section three explains about the rater's observation form, its purpose, and frequency of its use in the current study.

The fourth section of this chapter deals with details on field experiment and data collection. This section develops in form of steps as they were followed in real situation while collecting data. It begins with explaining about teachers sampling that was essential for assigning classes to experimental and control group. A complex procedure was adopted based on the past literature to choose appropriate teachers among available options in order to reduce experimenter effect. Once the teachers were selected, students were assigned to experimental and control group. Various measures that were taken to control internal and external validity threats are also explained in detail. A separate section also informs about teachers training that was conducted to enable intervention with experimental group. Later on, intervention procedures and data collection within both groups are explained clearly. This chapter

ends with explaining in detail about the instruments that were used in the present study and how the data collected from these instruments was analysed.

3.2 Research Design

It is recommended in the past studies within SDT that there is a need to examine the effects of teachers autonomy support in a natural classroom setting (Reeve & Jang, 2006). A quasi experimental, non-equivalent group design was considered appropriate to study the effects of TAS in a natural classroom setting in order to compare the mean differences of proposed dependent variables, in pretest and posttest conditions.

Prior to understanding quasi experimental design, control methods, and manipulation of variables of the present study, it is essential to discuss basics of a true experimental design because that is the foundation of all types of experimental designs.

3.2.1 Quasi Experimental Design

Experimental research is considered to be one of the best research designs to establish a cause and effect relationship between variables. The manipulation of the independent variable and study of effects on dependent variable is the most important characteristic of experimental research. This kind of research usually

includes comparison of two or more groups. The group or groups that receive treatment is called experimental group and the one that receives no treatment is called control group (Gay & Airasian, 2003). Control and manipulation of the independent variable is the essence of experimental method. Control refers to the effort of removing influences of external or internal factors in the treatment that might affect the results on dependent variables. Control of threats is the essence of experimental design.

On the basis of degree of control, experimental designs are classified as pre-experimental and true-experimental or quasi experimental design. A true experimental design uses randomization and provides maximum control of extraneous variables (Ary et al., 2005). The word "quasi" means *as if* or *almost*, so a quasi-experiment means almost a true experiment. Sometimes it is also referred as natural experiment because several conditions during the experiment are beyond experimenter's control. The commonly used quasi experimental design in educational settings is identified as nonequivalent group design because it does not allow random assignment of participants to control and experimental groups. However, several matching techniques are used in order to establish two groups as homogenous.

The purpose of control in experimental research is to arrange a situation in which the effects of independent variable can be easily investigated (Ary, Jacobs, & Razavieh, 2005). Campbell and Stanley (1966) identified eleven threats to internal validity in experimental design that are, history, maturation, testing, instrumentation,

statistical regression, differential selection of participants, mortality, selection maturation interaction, experimenter effect, subject effect, and diffusion. According to them, even if the design and instrumentation is robust, the external validity threat, if not controlled, can jeopardize the study. Smith and Glass (1987) also identified three types of external validity threats that are population external validity, ecological external validity, and external validity of operation.

The sample for the current study was obtained from two classes of grade-6 of a Thai public school, therefore, the groups were previously formed and intact in form of classes. In case of present research design it was not possible to have random assignment of participant to experimental and control groups. Under such conditions when static groups are to be used, research designs that are implemented are referred to as quasi experimental designs. If controls are taken carefully, such designs permit the researchers to reach reasonable conclusions (Campbell & Stanley, 1966; Ary et al., 2005). Quasi experimental design is further divided into several other designs such static group comparison design, pretest-post-test design. The design employed for the following study is often recognized as Pretest-Posttest Design or Nonequivalent Control Group Design (NEGD) (Ary et al., 2005).

In order to have a robust research design and be able to examine effect of the treatment, another kind of experimental design called single subject A-B-A was incorporated with the NEGD quasi experimental design. It is usually applied when the sample size is one or when a number of individuals are considered as a group (Gay & Airasian, 2003).Single subject design is basically extensions of the quasi

experimental one-group time series design. A consists of a period when there is no

treatment and it is called baseline period which is pretest of quasi design. B is called

treatment phase, which is also identified as a treatment or independent variable

manipulation period in quasi experimental design. The second A is the exclusive

stage of single subject design that occurs usually after the withdrawal of the

treatment (Ary et al., 2005). Incorporating such a design in NEGD helped in

studying relation between manipulation of independent variable and its effects on the

dependent variable in a thorough manner. The design for the present study is as

follows:

Group					
	Pretest	Treatment	Postest1	No treatment	Posttest2
Experimental	Y1	X	Y2	-----	Y3
Control	Y1	-----	Y2	-----	Y3
	A Baseline	Y1	B Treatment	Y2	A Baseline	Y3

Figure 3.1: Quasi Experimental NEGD Design & Single Subject Design:

(Ary, Jacobs, & Razavieh, 2005)

3.2.2 Natural Settings in Quasi Experimental Design

Experimental setting chosen for the present study is identified as natural setting. As the name suggests the natural setting refers to settings adopted for experiment in original form, without any manipulation (Robson, 2002). In the present research, random assignment of participants to experimental and control group was not possible, therefore, the classrooms involved in the research as control and experimental group were used as intact groups. In the actual school things related to class environment like day to day activity, class time, class size, class location, class displays, subject material were not controlled due to real life setting for experiment. The intervention was conducted during the regular English class to maintain ecological validity (see section 2.1) of the study.

3.2.3 Challenges in Data Collections

Chapter 3 of the present study discusses the technical handling of theoretical threats to experiments conducted as quasi experimental design. In this section researcher aims to share a brief personal account of the challenges faced during experimentation and data collection. This information is likely to be beneficial to those who would consider replicating the study in future.

Quasi experimental design required a complex intervention into existing school system. Being a foreigner and an outsider, it was a great challenge to win the trust of

the school and the staff assisting to conduct intervention. Since the study was a personal matter, the researcher had to negotiate exchange conditions in lieu of permission granted to conduct the experiments. On the basis of research outcome, the research was made to train other staff members on TAS methodologies. The major challenge was to create a rapport with the experimenter, the teacher who conducted the experiment, so that experimenter fidelity (Ary et al., 2005) would not occur. If the experimenter thought that she was obliging the school by doing this or she felt pressured for doing, it would jeopardize the experimentation. For this, the researcher spent considerable time with the experimenter on casual social meetings or taking her out on various occasions. Conducting intervention in a desired period of time was also challenging enough. There were times when the experimenter would be absent for personal reason or the school would close for national holidays or other events. Experimenter's class schedule, time and dates were swapped and altered a few times. Keeping experimenter motivated and sincere to conduct the intervention and collecting data in a desired way was a real test.

3.3 Validity Threats of Quasi Experimental Design

In order to strengthen the power of the experiment it is necessary to investigate and control internal and external validity threats to any experimental design. Internal validity threat refers to a question such as, is the difference observed on independent variable is caused by the treatment or other factors like extraneous

variables? Similarly, external validity refers to question such as would the same difference on independent variables be observed with other subjects, other settings and at other times? The section below discusses the validity threats and control taken measures taken to control these threats in the present study.

3.3.1 Factors Affecting Internal Validity

Since lack of control because of non-randomization is the weakness of quasi experimental design over true experimental design, it is important to analyse the extraneous factors that could lead to alternative interpretation of results. Factors relevant to present study that can jeopardize the internal validity of Quasi Experimental Design as suggested by Ary et al. (2005) and Gall, Gall, and Borg (2002) are discussed below:

Table 3.1: Internal Validity Threats of Quasi Experimental Design

(Ary et al., 2005; Gall et al., 2002)

Differential selection	It occurs when there are important difference between subjects of experimental and control group.
Experimenter Effect	Unintentional effect that experimenter may have on the subjects such as gender, race, age and it also refers to the effect personal bias of an experimenter can have on independent variable.
Experimental Mortality	It occurs when there is a loss of participants in during the experiment.
Subjects Effects	It refers to "just the knowledge" they are participating in a study or novelty effect that can affect dependent variable.
Diffusion	It occurs when participants in two groups interact about the treatment with each other.
Maturation	It refers to biological and physical changes that can affect dependent variable during one of the tests such as age.
History	Other events or condition, other than treatment that can occur between pretest and posttest and may affect dependent variable.
Selection – Maturation interaction	Subjects in two different groups have different maturation rate.
Pre testing	This refers to the familiarization with test instrument during pretest then is likely to affect the response on posttest.
Instrumentation	It refers to the type of instrument and its difficulty level.

3.3.2 Internal Validity Threats Control for the Present Study

In order to have a robust design several precautionary measures were taken for the present study to minimize the effect of those threats in a natural and causal way. The researcher was aware of preserving the essence of quasi experimental design by not artificially controlling the regular, natural setting of learning environment. However, the following points explain the role of these threats in the following study.

3.3.2.1 Differential Selection

In order to control threat of having differences between the two groups, equalizing technique was used for all the confounding variables such as number of students in each group, gender, age, socio economic status, ethnicity, parents qualifications, number of years of learning English, and extra support for English, number of meetings, learning content and national test score. Most of all the pretest responses of the participants were considered carefully in order to equalize groups.

a. Total Number of students and gender: Both the groups had almost the same number of participants with equal gender distribution because of school's policy for creating several sections of same grade. The following table shows the gender distribution of respondents in the study.

Table 3.2a: Summary Statistics for Respondents by Gender

	Experimental		Control	
Gender	N	%	N	%
Male	23	45.1	24	46.2
Female	28	54.9	28	53.8
Total	51	100.0	52	100.0

b. Age group: The students participated in the study were also screened for their ages. Since the participants were from the same level of class, the majority of participants in both the groups belonged to 12 years age group.

Table 3.2b: Summary Statistics for Respondents Age

	Experimental		Control	
Age	N	%	N	%
11 Yrs	0	0	1	1.9
12 Yrs	48	94.1	47	90.4
13 Yrs	3	5.9	4	7.7
Total	51	100.0	52	100.0

c Socio Economic Status [SES]: Researches suggest that economic status of a family affects its children academic performance at a significant level. Such as, in the case of non-availability of funds in a family inhibits provision for text books, school fees and other educational aids (Johnson, 1996). Therefore, on the basis of background information provided by the school, students were screened for a similar economic level such as low, middle or high income group. Office of the National Economic

and Social Development board of Thailand, 2008 (NESBD) (http::/www.nesbd.go.th/econsocila/macro/gdp_data/11/6/2010) proposes annual per capita income of Thailand as 90.864.17 baht for the year 2008. Similar to economic level, parent's qualifications are likely to affect child's academic performance in both good way and bad way (Oghuvbu, 2007).All the samples were screened to ensure that majority of them belonged to the same class. Data for family income and parents' qualification was used to compute SES of each participant. The following table supplies data related to economic status of the students.

Table 3.2c: Summary Statistics for Respondents Social Economics Status

	Experimental		Control	
SES	N	%	N	%
Lower	0	0	0	0
Middle	50	98	51	98.1
Higher	1	2	2	1.9
Total	51	100	52	100

d. Ethnicity: Thai society represents multiethnic society (Eoseewong, 2003). A classroom, other than Thai students may have Eurasian, Chinese or Malay students. Student's ethnic identity is likely to affect their perception and performance towards English (Drew & Fosam, 1994). Also, in order to widen the generalizablity of results, students were screened for ethnicity as well.

Table 3.2d: Summary Statistics for Respondents Based on Ethnicity

	Experimental		Control	
Ethnicity	N	%	N	%
Ethnic Thai	51	100	51	98
Other than Thai	0	0	1	2
Total	51	100	52	100

e. Numbers of years learning the English language: One of the factors that influence students achievement in a particular subject especially in a foreign language is largely because of amount of duration or number of years student have been learning that subject (Iwashita & Liem, 2005). Therefore, those students who have been learning English for minimum 4 years were included in the experiment. Another reason for considering the factor was the present study administered the questionnaire in English language.

Table 3.2e: Summary Statistics for Respondents No. of Years Learning English

	Experimental		Control	
No. of years learning English	N	%	N	%
2 Years or less	0	0	0	0
3 Years	0	0	0	0
4 Years	14	27.5	16	30.8
5 Years or more	37	72.5	36	69.2
Total	51	100.0	52	100.0

f. Extra/Outside support for English classes: It is assumed that more exposure to second language facilitates better learning and interest for subject. Similarly, extra assistance and practice in a particular subject is likely to affect student's proficiency level (Iwashita & Liem, 2005). Therefore, students were screened for extra support for English that they might be getting besides regular classes at school such as after school English tutorial, and English conversation classes. Those students were further asked in details to ensure that extra support doesn't interfere with their responses on questionnaires. This step helped in controlling for threat of history, when students' response is influenced because of factors other than the treatment.

Table 3.2f: Summary Statistics for Respondents Extra Support for English

	Experimental		Control	
Extra English Support	N	%	N	%
Yes	3	5.9	2	3.8
No	48	94.1	50	96.2
Total	51	100.0	52	100.0

g. Number of meetings: Both the groups were met for the same number of sessions before the posttest1 and postest2 were given. Teaching methodology was manipulated or controlled as per the intervention plan because that is treated as independent variable in the study. The following table shows experiment schedule in both the groups in weeks.

Table 3.2g: Summary of Experiment Schedule in Two Groups

Week	Date	Experimental Group	Control Group
Time of the day		Period-1	Period-1
	24th Dec	**Pretest**	**Pretest**
W-1	5th Jan,	Session-1	
	7th Jan		Session-1
W-2	12th Jan	Session-2	
	14th Jan		Session-2
W-3	19th Jan	Session-3	
	21st Jan		Session-3
W-4	26th Jan	Session-4	
	28th Jan		Session-4
W-5	2nd Feb	Session-5	
	4th Feb		Session-5
W-6	9th Feb	Session-6	Session-6
	11th Feb	Session-7	Session-7
W-7	16th Feb	**Post test**	**Post test**
W-8	18th Feb	Withdrawn	
	23rd Feb		
W-9	25th Feb	Withdrawn	
	2nd March		
W-10	4th March	Withdrawn	
	9th March		
W-11	11th March	**Post test2**	**Post test2**

1 Session= 60 minutes

h. Learning contents: For pretest, posttest1, and postest2 responses, units chosen for both groups were similar so that the contents of material taught do not interfere with the responses. The details of the contents taught in both groups are presented below:

Table 3.2h: Summary of Teaching Contents for Experiment

Curriculum English language arts	Thai Ministry of Education
Course book	Step by Step, Macmillan publication, 2005 Ed.
Skills Focused	Listening, speaking, reading and writing
Unit Topic	Food and Partitives

i National test score: Students in both classes were screened for Thai national test, 2009 (NT) score of a year prior to experimentation. This is considered as a standardised test for Thai school across the nation. Thai ministry of education recommends at least 50% marks as a passing percentage. Therefore, any student with less than 50% achievement was not included in the study.

Table 3.2i: Summary of Respondents National Test Score in English

	Experimental		Control	
NT English score (2009)	N	%	N	%
Less than 50%	0	0	0	0
50- 60 %	31	60.8	33	63.5
60% - 70 %	19	37.3	17	32.7
> than70%	1	1.9	2	3.8
Total	51	100	52	100

j. Pretest Internal validity is considered fairly controlled if two groups have similar means and standard deviation on pretest (Gay & Airasian, 2003). In the present research scores on pretest contributed significantly in determining similarity between two groups and also, in measuring change in performance after the experiment. The following table shows MANOVA results at pretest between both the groups. It reveals no significant difference between both the groups, hence suggesting that both the groups are homogenous.

Table 3.2j: Multivariate Test of Significance on Pretest for Experimental and Control Group

		Value	F	P	η^2
Group	Wilks' Lambda	.984	.220	.980	.01

Experimental group n=51 Control group n=52

*p<.05

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3.3.2.2 Experimenter Effect

Teacher can vary in their interpersonal style or even in personal rapport in interacting with students. Hence students' feedback is likely to differ irrespective of the treatment effect. To control this effect, the teachers involved in the study were matched on several aspects such as gender, nationality, native language, age, and years of teaching experience, except on independent variable that was the teaching methodology with autonomy support which was applied as treatment in experimental group.

Table 3.3: Summary of Teacher's Information

	Teacher A [Mani Lou]	Teacher B [Abigail Luma]
Age	34 Yrs	37 Yrs
Gender	Female	Female
Nationality	Filipino	Filipino
Native tongue	Tagalog	Tagalog
English accent	American	American
Qualification	Biology, Eng Major	Journalism, Eng Major
Total No. of years teaching	11yrs	12.5 yrs

3.3.2.3 Experimental Mortality:

It is possible in experimental conditions that participants are present during the questionnaire completion and are absent during treatment period. Students were encouraged to attend classes during the experimentation period. Moreover, the experiment took place in natural settings; therefore, the attendance of the participants

was not a major issue. Teachers in both the groups reported almost similar attendance in all sessions.

Table 3.4: Summary of Students' Attendance in Both the Groups During Intervention

Week	Date	Exp Group N-52		Control Group N-51	
	24th Dec	**Pretest**	N-52	**Pretest**	N-51
W-1	5th Jan	Session-1	N-52		
	7th Jan			Session-1	N-51
W-2	12th Jan	Session-2	N-52		
	14th Jan			Session-2	N-50
W-3	19th Jan	Session-3	N-51		
	21st Jan			Session-3	N-51
W-4	26th Jan	Session-4	N-52		
	28th Jan			Session-4	N-51
W-5	2nd Feb	Session-5	N-50		
	4th Feb			Session-5	N-51
W-6	9th Feb	Session-6	N-52	Session-6	N-51
	11th Feb	Session-7	N-51	Session-7	N-51
W-7	16th Feb	**Post test**	N-52	**Post test**	N-51
W-8	18th Feb	With drawn	N-50		N-50
	23th Feb				
W-9	25th Feb	With drawn	N-52		N-51
	2nd March				
W-10	4th March	Withdrawn	N-52		N-50
	9th March				
W-11	11th March	**Post test2**	N-52		N-51

3.3.2.4 Subject Effect

Subject effect refers to participants' attitude developed in response to the research situation (Ary et al., 2005). It can be a potential threat to internal validity in education research or to research in similar settings like the present study. The participants change their responses on the basis of mere knowledge that they are participating in an experiment (also refers as Hawthorne effect) or react with increased enthusiasm just because the experimental treatment involves something new and different (also refers as novelty effect).

In order to reduce this effect, intervention period for experimental was extended for a longer period than it is suggested in SDT and teacher in experimentation group was also careful and implemented new methodology gradually. The longer and frequent sessions with TAS methodology helped students getting over the novelty factor (See table: 3.2h) Moreover the participants in both the groups were kept uninformed about the experimentation to reduce subject effect.

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3.3.2.5 Diffusion

It occurs when participants of the two groups interact with each other and treatment effects get disseminated between two groups and influence the results. This was the most difficult threat to control. Nevertheless, efforts were made with school administrator's assistance to avoid situation where students of both groups can interact such as school activities, break time library activity, buddy reading

program and school excursion. Also, it was ensured that there were no siblings in the two groups.

3.3.2.6 Maturation

The experimentation period lasted for 11 continuous weeks. It is unlikely that in 77 days of experimentation duration students could have undergone physical or biological changes to the extent that it affected the results. The factors that helped in determining the time frame for the experiment were the past literature, characteristics of self-reporting post-test and performance based questionnaires, literature review of other quasi experimental methodology based studies, and length of the topic taught. The studies that were conducted in the past to study the effects of TAS on students learning outcomes in laboratory settings were mostly limited to 10–20 minutes duration treatment (Flink et al., 1990; Reeve et al., 2002). Reeve and Jang (2006), in their study even validated hypothesised set of instructions as autonomy supportive or controlling on the basis of student perception (recorded on self reporting questionnaires) in a 10 min instructional sessions. Therefore, it provides evidence that a short but an intensive session with or without TAS can help student discern the difference in instructional methods. Moreover, several other studies that adopted quasi experimental design to study student perception determined their time frame on the basis of completion of unit (Ahmad, Shafie, & Janier 2007; Chao, Yang, & Chen 2005). Therefore, the time frame to perform this experiment in 10 sessions of 60 minutes each was considered appropriate. It was when the students had finished their unit and were already expecting unit assessment.

3.3.2.7 History

Students' response for the present study was largely dependent on their experience of teacher's autonomy support during English language classes. Special activities, other than regular English classes such as English week celebration, English language based competition, English camp which involves a variety of activity such as going out and watching movies or field work could have altered student's response on English class experience. However, during the experiment neither of the groups was involved in any such activities.

3.3.2.8 Selection-Maturation Interaction

The 11 week duration of the entire experimentation and data collection process was a continuous process. Also, the variables affecting experimentation settings such as classroom environment, subject taught, school session, and teacher were consistent throughout the period. Therefore, it suggests that it is less likely that subjects in experimentation would have matured at a different rate.

3.3.2.9 Pretesting

The instruments used in the present study are self-reporting questionnaire based on students past experience related to their class. The test were not performance or skills based test, therefore, giving repeated test are less likely to facilitate students response on test.

3.3.2.10 Instrumentation

Instruments used in the present study were similar for pretest, posttest1 and posttest2. Therefore, the probability of having a changed instrument or unreliability of instrument is less likely to occur.

3.3.3 Factors Affecting External Validity

Similar to internal validity threat, it is considered important to analyze and control potential external validity threats in order to increase generalizablity of results obtained. The following threats table discusses the external validity threats identified by Ary et al. (2005) and Gall et al (2002).

Table:3.5: External Validity Threat

(Ary et al., 2005; Gall et al, 2002).

External Validity Threats	Description
Selection-Treatment Interaction	Subjects are not selected randomly, which limits generalizablity.
Setting treatment Interaction	Artificiality or uniqueness of experimental settings limits generalizablity.
Operational definition	Operational definitions of variables influence the generalizablity of results.

3.3.4 External Validity Threats Control for the Present Study

The table above presents the external validity threats relevant to present study. Similar to internal validity threats, external validity threats that are more focused on generalizablity issue are of a concern to quasi experimental designs.

a. Selection-Treatment Interaction

The question of generalizing the results from experimental population to targeted or large number of people is worth some consideration. In order to generalize the findings, it is important to compare the two populations to determine if they are identical in critical aspects (Ary et al., 2005).

In the present study, experimental samples are drawn from a Thai government school, comprising local Thai citizens only. In Thailand total number of schools estimated in a survey by UNESCO (2005) was 11,5,18632, out of which 85% were public schools and rest were private school. Office of National Education Commission, 2005 [ONEC] projected ratio of elementary school students in public and private schools in Thailand by the end of year 2008 as 70:30. Therefore, it is evident that the experimental sample represents a large part of the targeted population. Public school in Thailand operates under ONEC and most of them follow nearly the same pattern for school structure, curriculum, instructional, and evaluation method under required codes by ministry of education Thailand UNESCO, 2005, (http://www.unesco.org/iiep/PDF/pubs/Thailand.pdf) Moreover, in such schools Thai language is the primary medium of instruction and English

proficiency level on an average is almost the same as reported by National test results (2007). The school fee for Thai public elementary school, which is monitored and controlled by ONEC, is much lower in comparison with Thai private schools (www.edthai.com/publication/edu2000/cost.pdf) Therefore, students in these schools comprised children largely from middle class Thai families and with parents and guardians from similar backgrounds. It is a tendency in Thailand that overseas educated parents and guardians from upper middle and higher social strata send their children to international schools which follows entirely different structure. Hence, the possibility of generalizing the finding of present study to students from Thai public school remains open.

b. Setting treatment Interaction

It refers to the artificial experimental settings, in present case class environment such as the noise, brightness and general backdrop of the classroom and student class time. All the factors can affect fatigue and attention level of the students; therefore affect responses (Ary et al., 2005). Since both the groups are part of the same school their classrooms were similar in all aspects. The Student- teacher meeting time for the both the groups were arranged in morning session to avoid fatigue factor influence the dependent factor.

c.Operational definition

Operational definition used for the variables measured in the present study is not strictly identified with SDT theory only such as operational definition of interest

within SDT is similar to four phases of interest development model by Hidi and Renniger (2006).

3.4 Sampling

Data collection using quasi experimental design in a school set up is a bit challenging in terms of how much autonomy does the experimenter get to work around with existing system. In case of present study the target school population had to be from a Thai public, therefore, the experimenter had wider option because the basic education plan in all Thai schools is controlled by Ministry if Education that follows a similar curriculum and administrative guidelines. An elementary Thai public school situated in the west of Bangkok, Samutprakaran district was chosen after being granted permission to run the experiment.

The sample for the present study was total of 103 students from 2 classes of grade 6 identified as *prathom suksa 6* in Thailand. Average age of the students who participated in the study ranged between 12 to 13 years.

The school comprises six sections of grade six identified as 6[1], 6[2], 6[3], 6[4], 6[5], 6[6]. Out of which two classes were randomly divided into experimental and control groups. More detailed about assignment to experimental and control group is explained later in procedure section.

3.4.1 Rationale for Sampling

Proposed population for sampling is considered appropriate after reviewing the followings points:

a)   Quasi experimental design requires a comprehensive intervention program for the groups involved in the study. It is not possible to carryout intervention program in several schools at the same time. Since treating students for an experiment is a sensitive matter and often complex enough to convince school or institutions for permission. Also, choosing population from a single school assures control of external validity threats.

b) The sampling population is 100% Thai and considering the literature review on Thai culture it is evident that the sample for present population fulfils the criteria of a collectivist society where people follow conjoint model of agency and drive satisfaction in harmonious relationship within group or groups (Markus & Kitayama, 2004). This provides the ideal population for the present study that aims to test relevance of TAS on Thai students' motivation.

c) It is endeavoured that the findings of the present study could be generalised to a larger population. The school chosen for experiment represents the school system, in terms of school structure, curriculum, teaching, assessment methodology, and administration, as most common in the country (UNESCO, 2005). According to the data gathered from students demographic information the average income of parents reported is between 10000 to 18000 baht a month. Considering data from NESBD (2008) it is concluded that the sample population of the school belongs to middle class strata of Thai society thus, reducing the possibility of interference from

other confounding variables (extra assistance after school or use of technology or interesting aids to learn the English language at home) in interpretation of results.

d) The present study requires its participants to recall their learning experience in English class and respond on self-reporting questionnaires. Qualitative literature in developmental psychology and Piaget's stage of pre-operational development suggests that students in lower primary grades are still at formative years and may have not developed memory and language skills to recall the past experiences and self-report on questionnaires (Heffernan, 2005). On the other hand, students (12- 18 years) entering lower secondary school are identified as on threshold of adolescence, a stage marked by drastic and multiple changes in cognitive, emotional, social, and biological growth (Adams & Berzonsky, 2003; Gullotta, Adams, and Markstorm, 2000). Students in middle school (8-12 years) are considered most stable and at a less dramatic stage of changes in life, therefore can be relied more for such experiments and self-reporting questionnaires (Collins, 1984; Knowles & Brown, 2000).

3.5 Data Collection Procedure

Data collection procedure for the present study lasted for 11 weeks. This duration includes giving pretest to both the groups prior to giving training to the teacher for intervention. This procedure ended with data collection on postest-1 which was after intervention and data collection on posttest2 which was after withdrawal of intervention.

3.5.1 Teacher's Sampling:

Experimenter effect is identified as one of major threats to quasi experimental design. Therefore, it was necessary to be cautious with selection of a teacher who would implement the intervention protocol for the present experiment. Following were the steps that were taken as a part of teacher selection.

a. Matching teachers on all variables except methodology: The school chosen for the experiment had six sections of grade-6 identified as 6[1], 6[2], 6[3], 6[4], 6[5], 6[6]. There were three teachers were teaching two sections each. In order to eliminate experimenter effect, it is recommended to have almost identical teacher (Gall et al., 2002). Therefore, one teacher who was a male and was also much younger than the other two teachers was eliminated, right in the beginning, from the study. The other two teachers that were left were equalized on all variables except for teaching methodology.

b. GCOS and PIS pretest differences: Teachers play a vital role in treatment procedure because they are responsible to induce treatment and manipulate independent variable among participants of treatment group. In an exhaustive study conducted by Reeve et al.(2004) it was hypothesized whether or not training on teacher autonomy support influence teacher's motivating style. Teachers in experimental group received guidance and information consistent with SDT on autonomy support and teachers in control group were not shared any substantial information on experimentation. Findings revealed trained teachers displayed significantly more autonomy supportive behaviors than did untrained or delayed

training group teachers. In another study Reeve (1998) concluded that self – determination theory identified three sources that influenced teachers motivating styles. First, it's a matter of personality, second, it is an interpersonal style composed of acquired skills, and third, motivating styles that varies according to social contexts. Self-determination theory also explains the factors that energies individual teachers behaviors as 'causality orientation', to undertake tasks such as teaching. If an individual indulges in a behavior for interest reasons, then an autonomy causality orientation is considered the cause of their behaviors. Therefore, it was considered appropriate to select and train teacher to participate in the present study on the basis of that literature.

Consistent with Reeve's (1998) the two teachers chosen for the experiment were assessed for their causality orientation for autonomy using general causality orientation scale (GCOS). The personality orientation is that scale range from autonomy supportive to control or impersonal. Later, Problem in School [PIS] questionnaire was given to check their motivating styles. Findings from Reeve's (1998) experiment on training teachers in TAS, showed positive correlation between teacher's causality orientation and interpersonal motivating styles. For the present study the findings from GCOS and PIS scale for selected teachers are showed in table 3.6

Table 3.6: Summary Statistics of Teachers for GCOS and PIS Scales

Scale	Teacher A	Teacher B
	Pretest	Pretest
	Mean	Mean
GCOS (Personality orientation)	.6	-.7
PIS (Motivating styles)	.2	-7.1

Therefore, for the present study, on the basis of responses given on questionnaire, only teacher A who had scored higher on personality orientation and motivating styles was considered appropriate for delivering TAS instructions to the experimental group. On the basis of research evidences this sort of sampling procedure assures that the teacher A whose personality orientation is inclined towards autonomy supportive is likely to use autonomy supportive motivating styles and will be able to expand her motivating styles consistent with TAS after training (Reeve, 1998).

3.5.2 Assignment to Control and Experimental Group

The sample school comprised six sections of grade six identified as 6[1], 6[2], 6[3], 6[4], 6[5], 6[6]. To be able choose two classes for experimental and control group out of total six classes was largely dependent on sampling of appropriate teacher to conduct the experiment. On completion of teachers' sampling procedure, it was discerned that teachers for experiment and control groups were left with two classes each. Therefore, each teacher was asked to a draw slip of paper from a box

with their class names mentioned on it. This way two classes were randomly assigned to experimental and control conditions (Watson, 1990). The figure below explains the group assignment process.

```
┌─────────────────────────────────────────────┐
│   1.   Eduard Mogoul      6 [1]    6 [4]      │
│   2.   Mani Lou Quitto    6 [2]    6 [6]      │
│                                               │
│   3.   Abigail Luma       6 [3]    6 [5]      │
└─────────────────────────────────────────────┘
```

After Teacher's sampling

```
┌────────────────────────────────┐          ┌────────────────────────────────┐
│ Experimental group teacher     │          │ Control group teacher          │
│                                │          │                                │
│ Mani Lou Quitto    6 [2]  6 [6]│          │ Abigail    6 [3]    6 [5]      │
└────────────────────────────────┘          └────────────────────────────────┘
```

Random assignment

```
┌────────────────────────────────┐          ┌────────────────────────────────┐
│ Experimental group teacher     │          │ Control group teacher          │
│                                │          │                                │
│ Mani Lou Quitto      6 [6]     │          │ Abigail    6 [3]               │
└────────────────────────────────┘          └────────────────────────────────┘
```
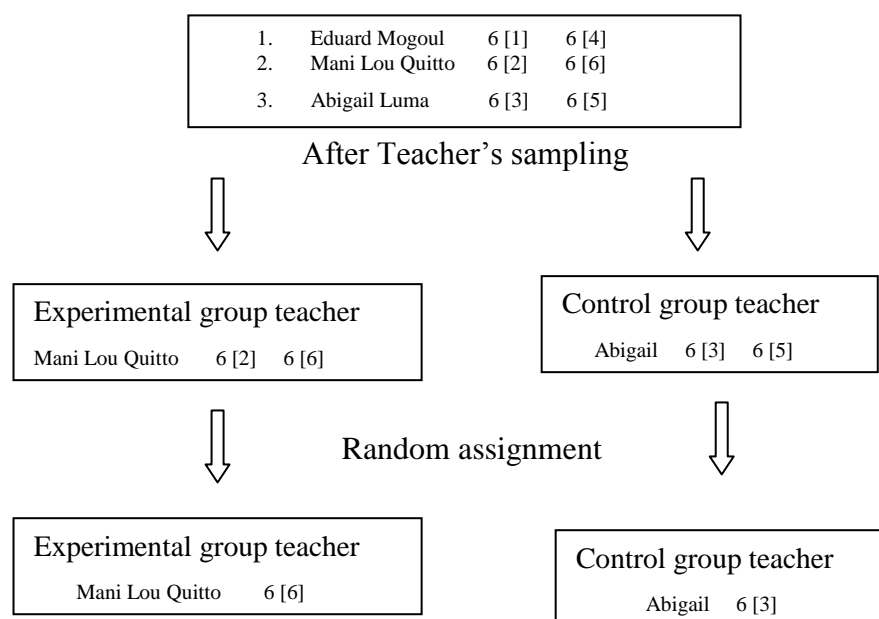
Figure 3.2: Class Assignments to Groups

3.5.3 Group Observation

Group observation in the present study has served as an important tool. In order to control the internal validity of the design which is implementation of intervention, both the groups were monitored using an observation sheet. Both the groups were observed for the same number of time at several stages for various reasons. The first observation was held in both the classes before the classes were assigned to experimental and control group. The first observation served as an information and evidence that the both the groups were practicing the same teaching

methodology and TAS was nonexistent. The second phase of observation served as a feedback of intervention that was applied in experimental group. At this stage, observation in control group assisted in examining if the threat called *John Henry effect* has occurred. It is a threat that occurs when participants or experimenters in control group view themselves as competitors to experimental group and change their behavior. Finally, the last stage of observation occurred when the treatment was withdrawn from experimental group. At that time both the groups were observed in a similar way to ensure that they were taught using the same methodology that teacher used in regular classes.

Rater's details

To ensure the validity of intervention, rater in the present study had an eminent role. Academic coordinator of the school was chosen to act as a rater because as a part of his job profile he is responsible for observing class teaching, as per school's schedule, for his subordinate teachers. In this way rater's presence was made nonintrusive for students and teachers in both the groups. The rater was briefed about the dimensions of teacher autonomy support in relation to observation sheet, but was not informed with details in regard to which classroom has been assignment as an experimental or control group to avoid observation bias. The observation sheet was adapted for the present study from a study conducted by Reeve et al.,(2007) and the motivating styles were also adapted from the previous studies that focused on TAS instructions based methodology (Reeve 2006; Reeve et al., 2004; Reeve & Jang 2006; Reeve et al., 1999). The following Table summarizes the number of

observation in experimental and control group during the experiment. The rater observed class sessions, for at least once a week, in both the groups.

Table 3.7: Group Observation Frequency Table

Week	Date	Experimental Group N-52	Control Group N-51
	Pre intervention	●	●
	24th Dec	**Pretest**	**Pretest**
W-1	5th Jan	●	
	7th Jan		●
W-2	12th Jan	●	
	14th Jan		●
W-3	19th Jan	●	
	21st Jan		●
W-4	26th Jan	●	
	28th Jan		●
W-5	2nd Feb	●	
	4th Feb		●
W-6	9th Feb	●	
	11th Feb		●
W-7	16th Feb	**Post test-1**	**Post test -1**
W-8	18th Feb	●	
	23th Feb		●
W-9	25th Feb	●	
	2nd March		●
W-10	4th March	●	
	9th March		●
W-11	11th March	**Post test-2**	**Post test-2**

● = observation

The following table presents the form that was used for observing practice of TAS in both experimental and control groups.

Table 3.8: Rater's Observation List for Teacher Autonomy Support

(Adapted from sources Reeve 2006, Reeve et al., 2004, Reeve & Jang 2006 and Reeve et al., 1999.)

Instruction/ behavior/ class environment	1 2 3 4 5 6 7

Seating arrangement

- Students sit close to teacher to be able to see, manipulate material.
- Student involve in conversation with peers and teacher
  rather than sitting alone passively.

Starter

- Teacher asks student preference, desire and interest.
  Such as: would you like to work in pair, group or

  individual, or which pattern do you want

  to start with?

- Providing rationale for learning or activity
  Such as: Explanatory statement such as "why is it

  important to do this…."

Teaching aids/activity

- Provide opportunity to students to choose and manipulate
- Allow student to work in their own way

Discussion

- Encouraging students to answer
- Allow students time for talking
- Time teacher listening

Such as: carefully and fully attending

the student's speech verbally or non verbal.

- Responses to student generated questions
  Such as: "Yes, you have a good point", "Yes, right

  that was the second one".

• Communicate perspective taking statement *Such as: "Yes, this is difficult", and "I know it is a sort of difficult one".*	

Assessment & assignments

- Giving formal or non threatening test
- offering hints

Such as: " it might be easier to hold like this",

- Offering encouragements

Such as: "almost", "You're close", and "You can do it".

Feedback

- Providing praise as informational feedback for improvement, performance and mastery

Such as: "Good job", and "That's great".

1= highly controlling	7=highly supportive

3.5.4 Evidence for Absence of TAS

a. Pre intervention Observation: Prior to beginning the intervention, it was essential to investigate to what extent these groups are practicing TAS in their English classroom. The investigation methods that the study relied on were Pre-intervention class observation and students perception for TAS in English classes. Both the classrooms that were chosen as experimental and control group were observed, before the intervention began, by a rater (school's primary academic coordinator) using observation sheet, shown in Table 3.8, as a measurement tool to investigate the degree of TAS being exercised in classrooms. The observation data is shown below in Table 16.

b. LCQ pretest for perceived autonomy support: Also, student responses on 'Learning climate questionnaire' LCQ, which informed about the degree of autonomy students perceived in their daily English class was helpful in reaching the conclusion that both the groups were taught in almost similar style. The responses on LCQ pre test are shown in Table: 4.11.

3.5.5 Collecting General Information

Once the classes were assigned groups for experimentation, general information about students was collected using a questionnaire and from data available at school. The information helped in assessing the background of participants, and controlling internal validity threats.

3.5.6 Pretest

Prior to teachers training and intervention process , students in both the groups, control and experimental, were given a pre test using Intrinsic motivation inventory (IMI) and Self-regulation questionnaire (SRQ) to record the perception of the English classes that they have attending. They also responded on LCQ to inform about their perception of TAS. The questionnaire was given in their usual English lesson period. Student took almost 40-60 minutes to finish the questionnaires. In order to have students response honestly, the test was administered by school's

coordinator instead of subject teacher. A female Thai teacher was always there to assist him. Students were assured confidentiality of their responses.

3.5.7 Teacher's Training

i. Overview of Training: The teacher chosen for the experiment received training for intervention on the basis of past literature on teachers training in TAS (Reeve, et al., 2004). While the other teacher in control group remains uninformed about this training. The overall training took three sessions out of which two sessions were on weekends at convenient places, the third and the last sessions were held during school time. Each session lasted for approximately 60-80 minutes. The first two training sessions followed a similar format with that of Reeve's et al. (2004). The training began with an introduction on self-determination theory including the different types of motivations. The second session gave a comprehensive account of various motivating styles consistent with teacher autonomy support in SDT and also explained on style for classroom instruction as controlling and autonomy supportive and its benefit. The session ended with discussion on queries, obstacles and support for intervention program at school. The teacher was also briefed about the control measures that she was supposed to undertake to control internal validity threat.

Session 1

Purpose: The goal of this session was to introduce teacher with basic tenets of the theory, different types of motivation regulatory style, and its application in education domain.

Techniques: One to one discussion, lecture, articles, handouts and power point presentation.

Contents: The session began with ice-breaking discussions and who was informed in brief about the whole experimentation process. Teacher was asked about her experiences of teaching Thai students. The teacher also shared the problems she experienced in motivating students and the techniques she used in motivating children. The researcher began with the introduction of self-determination theory and its basic tenets. Teacher was shown the development of motivation continuum as proposed by the theory using a power point presentation. There was a considerable discussion on how students regulate their learning behaviours. An overview of the application of SDT in various domains of human lives was given with detailed researched information on application of SDT in education realm. In the end the teacher was given handouts to read information on theory by herself. This session lasted for approximately 1 hour.

Session 2

Purpose: The objective of this session was to impart information about teacher autonomy support as a motivational technique, its application and benefits in educational setting

Techniques: One to one discussion, lecture, lesson plan, handouts, illustrations, power point, role plays, and follow up work.

Contents: Session 2 was conducted on the next day, right after session 1. As a warm up activity teacher was given a few illustrations by the researcher and she had to differentiate between controlling and autonomy supportive teaching strategies.

Later, the researcher revised 3 basic needs postulated by the theory with a special emphasis on need for autonomy. Teacher was presented with the operational definition of teacher autonomy support. A power point presentation was used to explain validated teachers behaviours as autonomy supportive teaching strategies.

A short break was taken. The second half of the session began with researcher showing a short role play, based on a sample lesson plan, for displaying teacher autonomy supportive strategies. A brainstorming session on benefits of teacher autonomy support was held with teacher's perspective and theory's perspective. The rest of this session was committed to viability, applicability of the theory. The session ended with instruction to teacher to think about obstacles she think she might come across in implementing autonomy supportive strategies. This session lasted for approximately 80 minutes.

Session 3

Purpose: The objective of this session was to discuss obstacle and check viability of TAS in practical situation.

Techniques: One to one discussion, lecture, question-answer session, class demonstration

Content: This session was held a day after session two in the school where experiment had to be conducted. This session was divided in three sub sessions. The first session was more on discussion on application and obstacles. The second sub session that lasted for 40 minutes was real life demonstration by teacher and last session was devoted to obstacles, and preparations to be made for real experimentations.

The first half of the session began with teacher explaining about her assignment that was assigned to her in previous sessions. Researcher then discussed teacher concern in comparison with cross-cultural controversy surrounding the theory in discussion session. Researched based arguments from both the sides were presented to teacher to understand the topic well. The second sub session began with teacher walking into a real classroom, for demonstration, with a lesson plan, provided by the researcher based on teacher autonomy supportive styles. The teaching session lasted for 40 minutes. After a break, the last session of the training began with overview on researches recommending teacher on observed class. The teacher asked questions about adjusting TAS motivating style into her regular classroom. The questions were mainly about seating arrangements and evaluation styles. Then the teacher was informed about sensitivities about experimental threats, with examples, that can jeopardise the study. In the end teacher responded on PIS & GSCOS questionnaire.

3.5.8 Validation of Training

The substance of the present study is concentrated in its experiment. Therefore, it was essential that the teacher who conducted the experiment internalise the training and expanded her motivating style. The following two criteria were employed to validate the training.

a. *GCOS & PIS post test questionnaire:* The teacher who was trained in TAS was given a post experimental PIS and GCOS instrument and the difference in pre-test and posttest score was computed to observe transformation in motivating style. The following table displays an increase in teacher's motivation style and personality orientation.

Table 3.9: Teachers GCOS and PIS Scales Summary

Scale	Teacher A	Teacher B
	Pretest	Posttest
	Mean	Mean
GCOS (Personality orientation)	.6	2.7
PIS (Motivating styles)	.2	6.9

b. *Class observation***:** Also, both the groups were observed after the training to check to what degree TAS is practiced after the training. The following table displays an increase in practice of TAS in experimental group and almost no change in control group.

Table 3.10: Teacher Autonomy Support Behaviours Observation Summary

	Pre	Obs 1	Obs 2	Obs 3	Obs 4	Obs 5	Obs 6	Obs 7	Obs 8	Obs 9	Obs 10
Control group	2.3	2.6	2.3	2.6	2.6	2.6	2.1	2.4	2.3	2.5	2.6
Exp group	2.1	5	5.4	5.8	6.1	6	5.7	6.1	6.1	5.7	5.6

Possible range 1-7

1= highly controlling 7=highly autonomy supportive

3.5.9 Intervention

In order to differentiate between treatments for experimental and control group, it is important to understand regular teaching style of the groups that are involved in the study. According to the class observation data, the regular teaching style practised in experimental and control groups was more inclined towards controlling type. The classroom seating arrangement was always static and teachers could only use a few teaching aids because the number of students in the classrooms were huge. However, in a few classes the teaching style varied from teacher to teacher on the basis of student orientation. The following section is the description of the class environment that was followed throughout the study in control group.

i.   Control group:

a) Teacher sticks to the regular class seating arrangement that prefers to have students sit separately or in rows according to their heights or names in alphabetical order. Teacher does not make extra effort to alter the original seating arrangement.

b) To begin the lesson, teacher spends most of the time talking and explaining the learning contents. Teacher monopolizes the use of learning/teaching aids by holding them most of the time. Teacher initiates activity or learning process without spending much time in acknowledging the relevance of the activity.

c) During discussions teacher tells the answer or suggests a solution in a very short period of time by lessening the opportunity for students to participate. Teacher usually sticks to her own ways of doing things thus creating a more restricted and structured learning environment.

d) To evaluate and assess students understanding, teacher relies on controlling strategies. Teacher often presents students with formal tests and while students are working on it teacher rarely provides them with any hint and creates a very strict testing environment by not giving frequent feedback. On accomplishment of a task, teacher only recognizes the work of successful students and provides them with tangible rewards such as stars or points on class charts. For students who do not fare well, teacher shows verbal disapprovals. Also, the class performance is assessed mainly on the basis of written tests and their score.

ii Experimental group: The intervention which was a manipulation of independent variable was held in a natural classroom setting, in a regular school schedule and without giving any formal knowledge of it to the students. The treatment procedure was adjusted into the regular English language art 'lesson plan' format of each day. Those lessons focus on all four skills such as listening, reading, speaking and writing on the scheduled topic. Sample of a lesson plan can be seen in appendix E.

a) Prior to begin class, the teacher changes the class seating arrangement from a regular arrangement into a way where students had the opportunity to sit nearer to the teacher. This way they could access the teacher and the teaching aids that she brought to the class in an easier way. Also, the arrangement gave opportunity to students to be able to interact easily with their peers and get involved in discussions.

b) To begin with the lesson teacher warmly greets the student and exchanges pleasantries. Teacher provides students with opportunity to suggest a starter or have them choose the way they would like to begin the activity.

c) In case of an activity that is uninteresting or high in degree of difficulty or very new to the student, teacher conveys rationale behind doing that activity or learning a particular thing. Teacher also highlights the importance of doing a particular activity to let them realize their personal goals and interests.

d) Teacher brings a variety of teaching aids into the classroom. She provides each student with an opportunity to choose, manipulate and work on their own with teaching resources.

e) During class discussion, teacher encourages student to participate and provide them with an opportunity to think and contribute to the discussion. Teacher allows students to voice their opinion on discussion matter by listening to them attentively and responding verbally or non-verbally, actively acknowledging their contributions. Teacher also encourages student by responding in a positive way and agreeing with their perspective regarding the activity.

f) To assess their learning at the end of the lesson teacher offers open ended questions or informal quiz or test. While student do their assessments, teacher provides hints as encouragement to make the classroom environment friendlier. She encourages student and provides opportunity for students to try and accomplish the tasks.

g) While student accomplish the task, teacher provides constant feedback with encouraging words. On completion of tasks, teacher praises them and gives inputs for improvement and mastery.

3.5.10 Posttest1

At the end of intervention program, both the groups were given a posttest using Intrinsic Motivation Inventory (IMI) and self-regulation questionnaire (SRQ) to respond on the English classes that they have been attending during the experimentation period. They also responded on Learning Climate Questionnaire (LCQ) to inform about the kind of TAS they received during that period. The

questionnaire was given in their usual English lesson period just after the intervention finished. Student took almost 40-60 minutes to finish the questionnaires. In order to have students response honestly, the test was administered by school's coordinator instead of subject teacher. A female Thai teacher was always there to assist him. Students were assured confidentiality of their responses.

3.5.11 Posttest2

Two weeks after the treatment was withdrawn both the groups were given another posttest on the same questionnaire to respond on the English classes they had taken in last two weeks, since the intervention was withdrawn. Students also responded on Learning Climate Questionnaire (LCQ) to inform about the degree of TAS they had felt in classes after intervention. The questionnaire was given in their usual English lesson period. Student took almost 40-60 minutes to finish the questionnaires. In order to have students response honestly, the test was administered by school's coordinator instead of subject teacher. A female Thai teacher was always there to assist him. Students were assured confidentiality of their responses.

3.6 Instrumentation

Questionnaires chosen to study the variables in the present study have been used widely in studies conducted within SDT. Although the validity and reliability of proposed questionnaires has been established and checked in other studies, this was the first attempt when questionnaire were used with Thai students. It is essential to check validity and reliability of instruments when used in a different culture (Triandis, 1976; Grunert & Scherhorn, 1990).The instruments used in the present study were not translated in the Thai language. The teachers and raters involved in the study, who used the instruments, are non-Thai and English is either their first language or second language. Therefore, keeping the original language was the best option. The face validity of other instruments that were used with the students suggests fairly easier level of English language used in them through opinions collected from bilingual teachers and lecturers in Thai school and colleges. Moreover, when the entire study revolves around participant's response on English classes, it was considered appropriate to collect responses in English language. Therefore, a pilot study was required to examine the internal consistency and construct validity of the proposed instruments using Cronbach's alpha internal consistency reliability test and factor analysis.

Table 3.11: Summary of Instruments in the Present Study

	Name of instruments	No. of Items
A.	Instruments for teachers	
i	Problems in Schools Inventory (PIS)	32
ii	General Causality Orientation (GCOS)	36
iii	Teachers General Information	10
B.	Instrument for Class Observation	
i	Raters Scale	11
C.	Instrument for Respondents	
	Learning Climate Questionnaire (LCQ)	6
	Intrinsic Motivation Inventory (IMI)	22
	Self-Regulation Questionnaire (SRQ)	15
	General Information	11

3.6.1 Problems in Schools Inventory (PIS): Every teacher or an individual in a position of authority motivates subordinate using interpersonal style such as autonomy supportive or controlling. PIS has been designed and validated by Deci, Schwartz, Sheinman, and Ryan (1981) to assess school teacher's orientation towards their own motivating style. It is composed of eight vignettes, each followed by four behavioral options for dealing with the problem posed in each vignette. Each option represents Highly Autonomy Supportive (HA), Moderately Autonomy Supportive (MA), Moderately Controlling (MC), Highly Controlling (HC) motivating style. The alpha coefficients of internal consistently of four subscales were .73, .71, .73, and .80

by Deci, et al (1981). Respondents rate the degree of appropriateness on seven point likert scale ranging from 1 = very inappropriate, 4 = moderately appropriate, 7 = very appropriate, for each four option of eight vignettes. Thus, there are 32 items in all to response. This questionnaire was used in English language as a pretest for teachers sampling and as a posttest after TAS training. The questionnaire has been used successfully with elementary school teachers in the past (Deci, 1981; Reeve, 1999).

3.6.2 General Causality Orientation Scale (GCOS): Causality orientations within SDT are conceptualised as enduring aspects of humans that characterise the source of imitation and regulation. The GCOS (Deci & Ryan, 1985) is designed to assess three different motivational orientations; autonomy, control and impersonal in an individual. The scale has been shown to be reliable, with Cronbach alpha of about 0.75 and a test-retest coefficient of 0.74 over two months. It is consisted of twelve vignettes, each with three options to response, depending on an individual's orientation towards autonomy, control and impersonal. Respondents responded on total of 36 items on seven point likert scale ranging from 1 = very unlikely 4= moderately likely, 7= very likely, for the option that is typical for them. This questionnaire was used in English language as a pretest for teachers sampling.

3.6.3 General Information Questionnaire for Teachers: This questionnaire was used to gather general information about teachers in order to match them on variables that can interfere with internal validity as experimenter effect. There were ten items to answer in this

questionnaire were teacher's gender, age, major qualification, number of years teaching experience, English accent.

3.6.4 General Information Questionnaire for Students: This questionnaire was used to gather general information about participants in order to match them on variables that can interfere with independent variable. Items to answer were name. age, gender, race, family income, parent's education, number of years learning English language, attending weekend or evening classes and recent National Test score.

3.6.5 Learning Climate Questionnaire (LCQ): Autonomy support within SDT is refers to a learning environment where teachers facilitate congruence by identifying and nurturing students' needs interests and preferences (Reeve, 2006). The focus of the study is to analyse the classroom environment which can vary in degree of autonomy support. LCQ is a questionnaire designed for the purpose to access the degree to which target individuals such as students, employees, perceive people in authority such as teacher, manager, to be autonomy supportive. LCQ yields a score on seven point likert scale which indicates the degree to which teachers are perceived to be autonomy supportive by students. For the present study, a short five-item version is used to assess the degree to which the students perceive their teachers to be autonomy supportive. A higher score on scale represents a higher level of autonomy support. The scale (LCQ) have been used successfully in learning settings (Black & Deci, 2000), the alpha coefficient of internal consistently of LCQ is reported virtually above 0.90. In the present study the scale was used prior to

intervention (classroom without TAS) as a pretest and after intervention (classroom with TAS) as a post test and as a posttest2 after the intervention is withdrawn, in order to examine student's perception for their teacher to be autonomy supportive. For the posttest1 that will be given immediately after the intervention ends, the verbs in item phrases are changed into past tense.

3.6.6 Intrinsic Motivation Inventory (IMI): It is described as a multidimensional measurement device to assess participants' experience related to target activity. It consists of several sub scales that are used separately in many studies (Ryan, Connell & Plant, 1990; Deci, Egahari, Patrick & Leone, 1994). For the present study this self–report instrument will be used to assess student's interest, effort, pressure and relatedness. The item details are mentioned below in sub scales. Mc Auley, Duncan and Tammen (1989) conducted a study to examine the validity of IMI. The general criteria for inclusion of items on subscales have been a factor loading of at least 0.6 on the appropriate subscale, and no cross loadings above 0.4. The same criteria were used for inclusion of items in the present study based on exploratory factor analysis.

The order of the items in chosen sub scales were retained as original. However, it is mentioned that order effects of item presentation and inclusion or exclusion of sub scales have no impact on other parts of it. It is also suggested that IMI items can be modified to fit specific purpose without affecting its reliability or validity. Therefore, the word "activity" in original scale was replaced by a phrase "English class". In order to control response set, acquiescence is suggested which involves occasional switching of response alternative between positive to negative.

However, at the same time, simplicity of item wording is given equal importance where wordings of items are changed to appear less stuffy, complex and esoteric to be able to use with targeted population (Robinson, Shaver & Wrightsman, 1991). In case of present study, some negative worded items were rephrased to be positive to avoid ambiguity in questionnaire and help students responding in same direction. Recently, a well published SDT researcher Nicolas Connault (2011) recommended avoiding use of negatively worded items since they add unwanted variance to scales. In the present study this scale was used prior to invention as a pretest and after intervention as a posttest1 and on withdrawal of intervention as postest2.

Interest: Interest is defined as a psychological state that is characterized by an affective component of positive emotion and a cognitive component of concentration. This subscale of intrinsic motivation to measure interest involves seven items to be reported on seven points likert scale ranging from 1= *not at all true* to 7= *very true*. In order to measure a psychological state of mind characterised by positive emotion for an activity the scale includes items like "*I enjoyed doing this activity very much*". For the present study item 3 and item 4 were rephrased into positive statement

Effort: Effort is defined as a cognitive effort student implies to accomplish an activity. This subscale of intrinsic motivation to measure effort involves five items originally to be reported on seven points likert scale ranging from 1= not *at all true* to *7= very true.* In order to measure cognitive effort for learning activity the scale included items such as "*I put a lot of effort to do this*". Item 2, which was a negative

statement, was reversed and it came out similar to item 3, therefore, item 3 was deleted and finally this sub-scale was left with four items in total. Original item 5 that was negatively worded was also rephrased into positive statement.

Pressure: Pressure is defined as an emotional state where a student feels anxious and stressed to fulfil the assigned task This subscale of intrinsic motivation to measure pressure felt by students during the activity involves five items to be reported on seven points likert scale ranging from "1 = *not at all true* to "7= *very true*. In order to measure an emotional state of anxiousness and stress the scale includes items such as "*I felt very tensed while doing this activity".* For the present study Item 1 and Item 3 were rephrased from negative statements to positive statements.

Relatedness: Relatedness refers to the feeling of connectedness and belongingness between the two. This subscale of intrinsic motivation involves eight items to be reported on seven points likert scale ranging from "1= not *at all true* to 7 = *very true* In order to measure belongingness between teacher and student the scale includes items such as "*I felt really distance to this person".* For the present study Item 1 was rephrased into a positive statement from a negative statement. Original Item 3 when reversed from a negative statement sounded similar to original Item 6. Therefore, only Item 3 was retained, and original Item 6 was deleted. Similarly, original Item 4 was retained, and Item 5 was deleted. These changes left total of 6 Items in the scale in the end.

3.6.7 Self-regulation Questionnaire–Academics (SRQ-A): SRQ for academic domain assess individual difference for the types of motivation or regulation. Self-regulatory styles (external, introjected, identified and integrated) as mentioned in SDT, represents degree of self-determination for each type of regulation.

The standard scale presents four subscales: external regulation, introjected regulation, identified regulation and integrated regulation. In the original scale the total numbers of response item in four scales are 32 and are mixed together to response on 4 point scale ranging from *very true* to *not at all true*. It is suggested that score of each subscale can be applied for result analysis. For the present study, only items for external and identified regulation were provided to the participants and this scale was also presented using seven point likert scale. The details of these two subscales are presented in next section. In the present study the scale was used prior to invention as a pretest, after intervention as a posttest1 and after withdrawal of intervention as a posttest2.

The validity and reliability of this instrument has been tested in western (Ryan & Connell, 1989) and eastern samples (D'Ailly, 2003). Alpha reliability of these sub scale ranges from .75 to .88. Also these subscales have been successfully used in previous research among Asians samples (Yamauchi & Tanaka, 1998). SRQ academics was specially developed for students in late elementary and middle school.

External regulation*:* External regulation refers to that type of regulation when one undertakes the task under the influence of external contingencies such as to receive rewards, avoid punishment or to fulfil deadlines. It is a sub scale of SRQ (A), consisted of seven response items for four statements to be responded on seven points likert–type scale. Each response ranges from 1 = *very true* to 7 = *not at all true.* A sample item statement is "*why I do my homework?"* response to this statement is: because *"I'll get in trouble".* In the present study, responses for "External regulation" were used to assess participants' external regulation for academic values such as doing homework, and learning new things

Based on EFA result in the pilot test, one item that cross loaded was deleted for final experiment. The item was "*why I do my homework?"* response to this statement *2. "I want to understand the subject".*

Identified regulation: Similar to the above, it is another subscale of SRQ (A).There are total 7 response items for four statements to be responded on seven points likert –type scale. Each response ranges from *very true* to *not at all true.* Identified regulation refers to one of the forms of regulatory styles proposed by SDT as where a person reflects conscious valuing or personal importance of his or her behaviour and brings actions into congruence with one's values and needs In the present study, responses for "Identified regulation" were used to assess participants' internalization for academic values such as doing home work, learning new things and performing well. The item statement and response read like this "*why I do my homework?"* because *"I want to understand the subject".*

3.7 Data Analysis

Data analysis for the present study involved two stages. Firstly, in order to test the robustness of the instruments, data collected during pilot study was analysed using exploratory factor analysis (EFA) for validity check, and cronbach alpha was calculated for each instrument to check reliability for internal consistency. The other part of this stage focused on descriptive statistics that included means and standard deviations of the variables examined in the study. The second stage was final study which involved the similar procedure of testing reliability and validity of the instruments used in the study. In order to test hypothesis of the present study, Multivariate analysis of variance (MANOVA) was used as a main analysis to study group difference after pretest, postest and postest2 between and within experimental and control group. Pearson's r was used to check correlation among all variables.

3.8 Summary

This chapter discusses the methodology and provides details about the research design chosen for the current study. It describes the internal and external validity threats to quasi experimental design. A major part of this chapter explains measures taken to control validity threats.

Another section gives information on sampling, teacher training and intervention. Comprehensive details on data collection procedure are explained in

steps. Instrumentation section describes the nature and purpose of the instruments to be used in the present study.

In the next chapter, the findings of pilot and final study are reported. The sequence of the report on findings follows that of the research questions.

CHAPTER 4: DATA ANALYSIS AND FINDINGS

4.1 Introduction

The first part of this chapter focuses on findings of pilot study conducted to validate the instruments: intrinsic motivation inventory (IMI), self-regulation questionnaire (SRQ), and learning climate questionnaire (LCQ) in Thai cultural context. The second section begins with data screening procedures of the final study data and presents descriptive statistics, internal consistency reliability and exploratory factor analysis (EFA) findings of the instrument. The second part of this section focuses on each research question and hypothesis testing through multivariate and univariate analysis between groups and within groups. The last section of this chapter focuses on correlational analysis of all variables.

4.2 Pilot study

The instruments, IMI, SRQ (A), and LCQ used in the present study are well validated instruments and have been widely used with elementary students from varied cultures in past studies (Ryan & Deci, 2000a; Deci, Eghrari, Patrick, & Leone, 1994; Black & Deci, 2000). Chapter 3 discusses the psychometric properties and other details about these instruments. A pilot study for the present research was conducted to check the reliability and validity of items of all the three instruments

used in the study .The secondary aim to conduct the pilot study was to screen the content validity and suitability of the instruments in terms of difficulties that student may come across while responding on questionnaires such as the format of the questionnaire, instrument's wording, and ability to use the Likert type scale. Measure of Cronbach alpha was used to assess internal consistency reliability of all the instruments. The instruments were used in the original language i.e., English, but were slightly adapted for language (tenses) for different experimental condition. As discussed previously it was considered appropriate to re-phrase the negative items into positive statement in the scales to avoid ambiguity in response rhythm. This process also resulted in deletion of items from a few scales. For instance, item 2 in effort scale, "I didn't try very hard to do well at this activity" when rephrased into positive statement was changed to "I tried very hard on this activity" which is very similar to item 3 in effort scale. Therefore, only one item of these two was retained. The items for the final study were chosen or altered on the basis of result analysis from pilot study.

4.2.1 Sample for Pilot Study

A total of 130 students, 67 males (51.5%) and 62 females (47.7%) of four sections of grade six from a Thai public school took part in this pilot study. Students were hundred percent ethnic Thai with an average age of 12 years. The demographic features of samples, lessons delivered during experiment and teachers teaching were

similar to those of target population standards that were planned to be used in main study

4.2.2 Pilot Data Collection Procedure

Data for pilot study were collected in the month of October, 2009, in two days' time. The questionnaires were administered by school's academic coordinator during English language classes. The questionnaires were read aloud by the administrator and he also recorded the questions and problems that students came across while administrating the questionnaires. The students responded anonymously on all the scales keeping their English language class and teachers in mind.

4.2.3 Results of Pilot Study

Descriptive statistics and reliability results were computed for all the instruments using SPSS version 16.0. Table 4.1 summarizes item number, item means, standard deviations, alphas, skewness and kurtosis value of each scale. Item mean and standard deviation for each scale was calculated by dividing means and standard deviation with the number of items in the scale. In order to measure reliability, Cronbach's Alpha was used to examine internal consistency of items of all instruments. Alpha coefficient ranges in value 0 to 1. An alpha value close to 1

assures higher reliability coefficient of the item and reduces impact of measurement error on the test scores (Streiner & Norman, 2003). In the present pilot study the alpha values ranged from .78 to .95 for all scales. Values of skewness and kurtosis were used to interpret normality of data. Tabachnick and Fidell (2007), suggest acceptable value for skewness and kurtosis within -2.00 and +2.00. In this analysis, the skewness values ranged from lowest .26 to highest .91 and the kurtosis values ranged from lowest .49 to highest 1.56 for all scales.

Table 4.1: Summary Statistics of Descriptive and Reliability Analysis of all Scales in Pilot Study

Scale	Items	M	SD	Alpha	Skewness	Kurtosis
Interest	7	3.3	1.66	.88	.50	-1.0
Effort	4	3.2	1.74	.82	.56	-1.0
Pressure	5	5.0	1.79	.83	-.91	-.17
Relatedness	6	3.6	1.56	.89	.26	-.68
PAS	6	3.8	.95	.78	.69	.49
External regulation	9	3.7	1.94	.95	.27	-1.56
Identified regulation	7	3.6	1.87	.93	.37	-1.49

n=105 PAS: Perceived autonomy support

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4.2.4 Exploratory Factor Analysis

An exploratory factor analysis was conducted on pilot data of all scales because this was the first time when these instruments were used with Thai students. The objective behind conducting this analysis was to examine the interrelationship of all latent construct under study and also to check if the extracted factors agree with their original and theoretical form. Table 4.1 suggested a normal distribution of data; therefore maximum likelihood extraction method was applied to extract factors on all scales. Since the instruments used are very close to its original form, and the variables were theoretical driven, the original factor solution based on 7 subscales was asked for each instrument. Also, because the items in scales have some correlation, an oblique, varimax rotation method was applied and pattern matrix was examined for factor loading (Tabachnick & Fidell, 2007; Costello & Osborne, 2009).

Table 4.2: Factor Loadings for Exploratory Factor Analysis with Maximum Likelihood and Direct Oblimin Rotation for Intrinsic Motivation Inventory

	Factors Loadings			
Items	Factor 1	Factor 2	Factor 3	Factor 4
	Interest	Pressure	Effort	Relatedness
Interest6	.85			
Interest7	.73			
Interest1	.68			
Interest4	.65			
Interest5	.53			
Interest3	.48			
Interest2	.45			
Presure2		.71		
Presure1		.68		
Presure4		.68		
Presure5		.55		
Presure3		.45		
Related5			.77	
Related4			.76	
Related3			.75	
Related6			.72	
Related2			.67	
Related1			.57	
Effort1				.62
Effort3				.56
Effort2				.54
Effort4				.40
Total Eigen values	10.06	2.12	1.25	1.13
Percentage of variance explained	43.76	7.71	3.90	2.83
KMO	.981			

Bartlett's Test of Sphericity	1.858
df	231
Total variance explained	58.22

*p<.001; n=105
 Loadings less than .40 were suppressed

The factor extraction analysis of Intrinsic Motivation Inventory provided a 4 factor solution with factors loading from .40 to .87. The factor loadings of all variables are also consistent with the psychometric properties of the original scale which suggest general criteria for excluding the item on cross loading of 0.40 and above (Mc Auley et al., 1989). The Kaiser- Mayer- Olkin (KMO) measure of sampling adequacy was .91, well above the recommended value of .60 (Tabachnick & Fidell, 2007), lending proof for sampling adequacy. Bartlett's test of sphericity was significant at p<.001 with degree of freedom value of 231, hence, assured that R matrix is not an identity matrix. Also the four factors reported eigen value above 1 and a total variance of 58.22%. Communalities values for these factors ranged from .22 to .80. Therefore, it appeared appropriate to retain all the items in the scale for the final study.

Table 4.3: Factor Loadings for Exploratory Factor Analysis with Maximum Likelihood and Direct Oblimin Rotation for Self-regulation Questionnaire (A) Inventory

Items	Factor 1 External Regulation	Factor 2 Identified Regulation
HQ1E	.93	
TW1E	.90	
CW3E	.83	
TW2E	.78	
HW1E	.74	
HQ4E	.70	
HW3E	.67	
TW4E	.63	
HW2 Cross loaded	**.56**	
CW1E	.55	
TW3		.92
HQ3		.88
HQ2		.85
CW4		.76
CW2		.60
HW4		.45
Total Eigen values	10.35	1.47
Percentage of variance explained	62.96	7.53
KMO	.925	
Bartlett's Test of Sphericity	2.403	
df	120	
Total variance explained	70.49	

*p<.001; N=105
Loadings less than .40 were suppressed
HW= Homework; CW= Classwork; HQ=Hard question; TW=Try well

The above table presents factor loading of Self-regulation Questionnaire (A) inventory. A two factor solution was asked for external regulation, represented with letter "E" and identified regulation, represented with letter "I". A similar item inclusion criterion as in IMI, no cross loading over 0.40, was followed based on the original scale's psychometric properties. The factor loading ranged from .55 to .93. However, item HW2 of identified regulation cross loaded with .56 on external regulation was excluded in final study. Besides this, the scale reported KMO of .92 with 120 degree of freedom and significant Bartlett's test of sphericity. Also the 2 factors reported eigen value above 1 and a total variance of 70.4%. Communalities values for these factors ranged from .43 to .92. Therefore, it was decided to include all the items in the present study and only one cross loaded item was deleted from the main study questionnaire.

Table 4.4: Factor Loadings for Exploratory Factor Analysis with Maximum Likelihood and Direct Oblimin Rotation for Learning Climate Questionnaire Inventory (LCQ)

	Factor 1
Items	LCQ
LCQ3	.75
LCQ1	.72
LCQ4	.65
LCQ5	.65
LCQ2	.45
LCQ6	.40
Total Eigen values	2.91
Percentage of variance explained	38.91
KMO	.769
Bartlett's Test of Sphericity	217.13
df	15
Total variance explained	38.91

*p<.001; N=105
Loadings less than .40 were suppressed
LCQ= Learning Climate Questionnaire.

The above table shows one factor solution for minimum of .4 to maximum of .75 factor loading for perception of teacher autonomy support, LCQ scale. The other statistics reports KMO value of .76 with degree of freedom of 15 and significant Bartlett's test of sphericity at p<.001. The total variance explained for this scale is 38.91 % and communalities between all items ranged from .54 to .72. Therefore, All the items of this instrument were retained for the final study.

4.3 Main Study

4.3.1 Profile of Respondents

A total of 103 students participated in the main study for the present research. Out of which 47 (45.6 %) respondents were males and 56 (54.3%) were females. The participants came from two sections of grade 6 of a Thai public school. As described earlier in chapter 3, figure 3.2. The detailed sampling procedure for teacher led researcher to choose these two sections out of total of six sections of grade-6 and later these two sections were assigned to experimental and control group. The following table presents the profile of respondents for the present study.

Table 4.5: Summary of Respondent's Profile

	Category	Experimental Group		Control Group	
		N	%	N	%
Gender	Male	23	45.1	24	46.2
	Female	28	54.9	28	53.8
Age	11 years	0	0	1	1.9
	12 years	48	94.1	47	90.4
	13years	3	5.9	4	7.7
Ethnicity	Ethnic Thai	51	100	51	98
	Other than Thai	0	0	1	2
Socio economic (In Thai Baht)	Lower class	0	0	0	0
	Middle class	50	98	51	98.1
	Higher class	1	2	2	1.9
Years learning English	2 years or less	0	0	0	0
	3 years	0	0	0	0
	4 years	14	27.5	16	30.8
	5years or more	37	72.5	36	69.2
Extra English support	Yes	3	5.9	2	3.8
	No	48	94.1	50	96.2
National test score	Less than 50%	0	0	0	0
	50% - 60%	31	60.8	33	63.5
	60%-70%	19	37.3	17	32.7
	70% & above	1	1.9	2	3.8

The experimental group consisted of total of 51 participants in which 45.1% (23) were males and 54.9% (24) were females. The majority of participants in experimental group i.e., 94% (48) belonged to 12 years age group and rest 5.9 % (3) were 13 years of age. There were a total of 52 participants in control group out of which 46.2% (24) were males and 53.8% (28) were females. Close to experimental group figure, 90.4% (47) participants were 12 years of age and 7.7% (4) were of 13 years of age. Thus, numbers of cases in each group were almost same and case to Dependent Variables ratio was considered more than satisfactory for MANOVA assumption. Table 4.5 shows similar statistics of the both the groups on other dimensions such as family income, parents qualification, national test score, number of years learning English , extra support for English classes and ethnicity.

4.3.2 Data Screening

The best practices in multivariate statistics recommend a proper screening of data prior to performing the main analysis. A series of issues to be considered for data screening are discussed below as recommended by Tabachnick and Fidell (2007). The main analysis of present research relies on MANOVA statistics; therefore, these screening steps simultaneously specify the details of assumption testing for performing MANOVA.

4.3.2.1 Accuracy of Data Input

Frequency command in SPSS was used to check accuracy of data. All the values on continuous variable (7 point likert scale) were within range. Descriptive statistics suggested plausible means and standard deviations. There was no out-of-range value when checked against data for discrete variable (on demographic questionnaire).

4.3.2.2 Missing Data

On completion of the experiment, score for three tests for each group were compiled in separate data set as pretest, posttest1, and posttest2. It was relatively easy to check for any missing cases since groups were formed from intact classrooms. It was found that in all tests in both the groups the response rate was 100% (103 participants).

4.3.3 Assumptions for Multivariate Analysis:

Statistical procedure for performing MANOVA requires some serious consideration. Violation of these assumptions can mislead the final analysis. The issues regarding MANOVA assumptions as identified by Tabachnick and Fidell's (2007) are: unequal sample size, multivariate normality, univariate outliers,

multivariate outliers, multicollinearity and singularity, linearity, and homogeneity of covariance,

4.3.3.1 Unequal Sample Size

MANOVA requires sufficient number of sample sizes in each cell to ensure adequate power. It is considered necessary to have more cases than dependent variable in every cell or else for analysis homogeneity of covariance, cells become singular and the assumption remains untestable. Also, a dissatisfactory cases-to-dependent variable ratio is capable of lowering the power of analysis because of reduced degree of freedom for error. In the present study, the groups are made from intact classroom; therefore, this condition satisfied equal cases to dependent variable ratio in all sets of tests.

4.3.3.2 Multivariate Normality

Normality for multivariate implies that the sampling distribution of means of the various dependent variables in each cell and all linear combination of them are normally distributed. The following table displays the index of skewness and kurtosis values that were generated to check the normality of data collected on pretest. However, it is recommended for grouped data analysis that normality must be checked separately for each group, prior to main analysis (Tabachnick & Fidell,

2007). Therefore, in the main findings section, descriptive statistics is presented with the values of skewness and kurtosis prior to discussing main analysis for each Research Question.

Table 4.6: Normality Check for all Scales on Pretest score

Scale	No. of items	Skewness	Kurtosis
Interest	7	1.17	.05
Effort	4	1.41	.83
Pressure	5	.98	.19
Relatedness	6	1.08	.29
PAS	6	1.39	1.18
External	9	.98	.17
Identified	6	.68	.72

N=103
PAS: Perceived autonomy support

The above table explain the values generated for skewness and kurtosis of all the scales used in the present study. The ideal values for skewness and Kurtosis for a perfect bell curve are +1.00 and -1.00; however, Tabachnick and Fidell (2007) suggest acceptable value for skewness and kurtosis within-2.00 and +2.00. The Kurtosis value in above table ranges from.05. to 1.18. Whereas, the skewness value reported ranges from .98 to 1.41.

4.3.3.3 Univariate Outliers

A univariate outlier is a case with extreme value on one variable that can have deleterious effect on statistical findings of various kinds. Cases with

standardized score larger than ±3.29 (p<.001) are considered as potential outliers (Tabachnick & Fidell, 2007). In the present study, a separate z score was calculated for each scale on all three tests. In all the analysis, z score value for all items was within ±3.29 for all 103 cases. Therefore, no univariate outlier was detected.

4.3.3.4 Multivariate Outliers

A multivariate outlier is a case who has a strange combination of value over multiple variables. In this study Mahalanobis distance values at p<.001 were calculated through regression analysis for all scales separately in each test. Any case with a Mahalanobis distance value greater than the upper critical value of chi-square distribution with 7 degrees of freedom (number of variables), 24.32, was considered as a multivariate outlier (Tabachnick & Fidell, 2007). None of the cases in three tests reported higher value then the critical value of 24.32.

4.3.3.5 Multicollinearity and Singularity

Variance inflation factor (VIF) and Tolerance value was calculated to check linearity and multicollinearity of the data. A tolerance value > .1 or the VIF value above 10 suggests multicollinearity (Cohen, Manion & Morrison, 2003). Table 4.6 demonstrates VIF and tolerance value of all the scales for three tests that are within proposed ranges. Also, the correlation between all independent variables in table

ranged between r= .15, (p< .05) to r= .53, (p <.05). There was no value exceeding

r=.90; hence, suggesting no evidence of multicollinearity and singularity in data.

Table 4.7: Tolerance and VIF Value of all Scales in Pretest, Postest-1 and Postetest2

Independent Variable	Tolerance	VIF
Interest (pretest)	.48	2.04
Effort (pretest)	.60	1.64
Pressure (pretest)	.58	1.72
Relatedness (pretest)	.50	1.96
Perceived autonomy support (pretest)	.59	1.69
External regulation (pretest)	.59	1.68
Identified regulation (pretest)	.56	1.76
Interest (posttest1)	.29	3.36
Effort (posttest1)	.20	5.00
Pressure (posttest1)	.37	2.67
Relatedness (posttest1)	.12	7.83
Perceived autonomy support (posttest1)	.12	7.85
External regulation (posttest1)	.25	3.94
Identified regulation (posttest1)	.23	4.29
Interest (posttest2)	.20	4.96
Effort (posttest2)	.28	3.56
Pressure (posttest2)	.47	2.10
Relatedness (posttest2)	.29	3.42
Perceived autonomy support (posttest2)	.17	5.64
External regulation (posttest2)	.28	3.50

n=103

4.3.3.6 Linearity

MANOVA assumes linear relationship among all pairs of dependent variables (DVs) in each cell. Deviation from linearity is likely to reduce the power of the statistics. In group analysis, with multiple variables, all pairs of variables are to be examined separately for bivariate scatter plot in each test. However, in the present study when there are numerous pairs (63 pairs of variable); it is recommended that researcher look at the skewness statistics to screen the pairs (Tabachnick & Fidell, 2007). On that screening (descriptive statistics of all tests) all DVs in each group had a reasonably balanced distribution and there were none that departed from linearity.

4.3.3.7 Homogeneity of Covariance

The test of homogeneity of covariance was conducted prior to the multivariate analysis of variance (MANOVA) for testing the group differences. SPSS generates Box's M statistics at $p < .001$ to check if there is any significant difference Details on Box's M statistics are given in the relevant sub sections that report the results for the multivariate analysis of variance (MANOVA).

Therefore, prior to running the main analysis, all assumptions check for MANOVA such as sample size, multivariate normality, univariate outliers,

multivariate outliers, multicollinearity and singularity, linearity, and homogeneity of covariance were performed and were found to be satisfactory.

4.3.4 Reliability and Descriptive Analysis for Scales

Cronbach's Alpha was used to examine internal consistency of items of all the three instruments used in the main study in order to check consistency of responses. The alpha value for scales ranged between minimum .89 to maximum .92.

Table 4.8: Summary Statistics for IMI, SRQ (A), and LCQ

Scale	No. of items	Alpha	Item Mean	SD
Interest	7	.92	2.13	1.24
Effort	4	.90	2.40	1.6
Pressure	5	.89	5.51	1.40
Relatedness	6	.93	2.70	1.72
PAS	6	.91	2.28	1.28
External	9	.90	5.43	1.35
Identified	6	.90	2.63	1.54

n=103
PAS: Perceived autonomy support

4.3.5 Exploratory Factor Analysis

In order to investigate the constructs measured in the present study more accurately, an exploratory factor analysis was conducted to eliminate the items that have factor loading less than .40 or cross load on other items. The criteria for elimination of factors were also based on the psychometric properties of the original instruments. A single factor analysis was conducted for all the seven scales used in the study. Considering the normal distribution of data maximum likelihood method was applied as an extraction method and direct oblique rotation method was chosen since there is some correlation among all the variables (Costello & Osborne, 2005). On the basis of original scale, a seven factor solution was asked.

Table 4.9: Factor Loadings for Exploratory Factor Analysis with Maximum Likelihood and Direct Oblimin Rotation for IMI, SRQ (A) and LCQ

Items	Factor Loadings						
	Interest Factor 1	Related Factor 2	LCQ Factor 3	Effort Factor 4	External Factor 5	Pressure Factor 6	Identified Factor 7
Interest2	.84						
Interest1	.78						
Interest4	.73						
Interest5	.71						
Interest3	.71						
Interest6	.66						
Interest7	.56						
Related6		.86					
Related4		.78					

Related5	.76				
Related2	.76				
Related3	.73				
Related1	.69				
LCQ1		.83			
LCQ5		.82			
LCQ3		.75			
LCQ2		.74			
LCQ4		.72			
LCQ6		.69			
Effort1			.84		
Effort2			.81		
Effort4			.79		
Effort3			.77		
CW1E				-.79	
HW2E				-.76	
TW1E				-.76	
HQ1E				-.75	
HW1E				-.69	
TW4E				-.65	
TW2E				-.64	
HQ4E				-.58	
CW3E				-.56	
Presure2					.83
Presure5					.79
Presure3					.74
Presure1					.71
Presure4					.67
HQ2					.72
CW4					.70
HW3					.70
HQ3					.68
TW3					.55

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CW2							.45
Total Eigen values	13.51	4.47	3.30	2.53	2.46	2.06	1.78
Percentageof variance explained	30.42	9.10	6.90	5.09	5.49	4.13	3.38
KMO	.815						
Bartlett's Test of Sphericity	3.575						
Df	903						
Total variance explained	64.54						

Loadings less than .40 were suppressed
HW= Homework ;CW= Class work; HQ=Hard question's=Try well, LCQ=Learning Climate Questionnaire;SRQ=Self-regulation Questionnaire

Table 4.9 presents a clear seven factor solution for the constructs used in the present study with items loading not less than .40 on common factor and no cross loading on other factors. All items were loaded on its expected factor as per the original instruments. Table 4.5 suggests normal distribution of data; therefore maximum likelihood extraction method was applied to extract factors. Since the items in scales have some correlation, direct Oblimin rotation was applied and pattern matrix was examined for factor loading (Tabachnick & Fidell, 2007; Costello & Osborne, 2009). All seven factors in total explained 64% of total variance and also each factor reported eigen values above 1. This rotation converged in ten iterations. KMO value was .81 well above the recommended value of .6 (Tabachnick & Fidell 2007), providing evidence for sampling adequacy. Bartlett's test of sphericity was significant at $p<.001$ with 903 degree of freedom, assuring that correlation matrix is not an identity matrix. Communalities values for all items ranged from .64 to .91.

Therefore, exploratory factor analysis was considered as evidence for the validity of the instruments used in the study.

4.3.6 Correlation With Perceived Autonomy Support (PAS)

Research Question 1: Are there significant relationship between interest, effort, pressure, relatedness, external and identified regulation with perceived autonomy support at pretest, posttest1 and posttest2 level.

Parallel to Research Question 1 the following hypothesis were postulated:

H1a: There is a significant positive correlation between interest and perceived autonomy support at pretest.

H1b: There is a significant positive correlation between effort and perceived autonomy support at pretest.

H1c: There is a significant negative correlation between pressure and perceived autonomy support at pretest.

H1d: There is a significant positive correlation between relatedness and perceived autonomy support at pretest.

H1e: There is a significant negative correlation between external regulation and perceived autonomy support at pretest.

H1f: There is a significant positive correlation between identified regulation and perceived autonomy support at pretest.

H1g: There is a significant positive correlation between interest and perceived autonomy support at posttest1.

H1h: There is a significant positive correlation between effort and perceived autonomy support at posttest1.

H1i: There is a significant negative correlation between pressure and perceived autonomy support at posttest1.

H1j: There is a significant positive correlation between relatedness and perceived autonomy support at posttest1.

H1k: There is a significant negative correlation between external regulation and perceived autonomy support at posttest1.

H1l: There is a significant positive correlation between identified regulation and perceived autonomy support at posttest1.

H1m: There is a significant positive correlation between interest and perceived autonomy support at posttest2.

H1n: There is a significant positive correlation between effort and perceived autonomy support at posttest2.

H1o: There is a significant negative correlation between pressure and perceived autonomy support at posttest2.

H1p: There is a significant positive correlation between relatedness and perceived autonomy support at posttest2.

H1q: There is a significant negative correlation between external regulation and perceived autonomy support at posttest2.

H1r: There is a significant positive correlation between identified regulation and perceived autonomy support at posttest2.

Pearson's 7x7 correlation matrix was generated using spss-16 for pretest, posttest1 and postets2 in order to determine the relationship between interest, effort, pressure, relatedness, external and identified regulation with perceived autonomy support at pretest, postest1, and postest2 level?

Table 4.10: Correlation Between all Variables with Perceived Autonomy Support at Pretest, Posttest1 and Postest2

PAS /Variables	No treatment	Treatment	Withdrawal
	Pretest	Postest1	Postest2
Interest	.41*	.74*	.82*
Effort	.18	.81*	.77*
Pressure	-.37*	-.64*	.-48*
Relatedness	.35*	.89*	.75*
External	-.33*	-.76*	-.65*
Identified	.41*	.79*	.79*

* Correlation is significant at the 0.05 level.
  7 point likert scale

The direction of the relationship of variables interest, effort, pressure, and relatedness, external and identified regulation with perceived autonomy support was consistent with the findings of previous literature (Reeve et al., 2004; Assor et al., 2005). Variable interest showed significant positive correlation with PAS at pretest (r=.41, p<.05), postest1 (r=.74, p <.05) and posttest2 (r=.82, p<.05), therefore, H1a, H1g, and H1m were accepted. Variable effort's positive correlation with PAS was significant at postest1 (r=.81, p<.05) and postest2 (r-.77, p<.05), however, at pretest

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the correlation was positive but found to be non significant (r= .18. p<.05), therefore, H1b was rejected and H1h and H1n were accepted. Variable pressure consistently showed significant negative correlation at pretest (r= -.37, p<.05), posttest1 (r= -.64, p<.05) and posttest2 (r= -.48, p<.05), therefore, H1c, H1i, and H1o were accepted. Relatedness was significantly positively correlated with TAS in pretest (r=.35, p<.05), posttest1(r=.89, p<.05), and posttest2 (r=.75, p<.05), therefore, H1d, H1j, and H1p were accepted. Variable external regulation was found to be significantly negatively correlated with PAS in pretest (r= -.33, p<.05), posttest1(r= -.76, p<.05), and posttest2 (r= -.65, p<.05), therefore, H1e, H1k, and H1q were accepted. Variable identified regulation showed significant positive correlation with PAS at pretest (r=.41, p<.05), postest1 (r=.79, p <.05) and posttest2 (r=.79, p<.05), therefore, H1f, H1l, and H1r were accepted.

4.4 Multivariate Analysis of Variance (MANOVA)

On the basis of research design with multiple variables, and more than one group analysis, the present study relied on MANOVA as main analysis in order to study group difference that should have occurred as a result of intervention. MANOVA in this condition was deemed appropriate to capture any significant difference that have occurred within and between groups as an interaction of multiple correlated dependent variables; it also helped in protecting against inflated type1 error (Tabachnick & Fidell, 2007). MANOVA is sensitive to various

assumptions. Those assumption and their findings were found to be satisfactory (see section 4.3.3).

4.4.1 MANOVA: Prior to Intervention

4.4.1.1 Descriptive Statistic of Experimental and Control Group for Pretest

The first order of analysis began with checking the assumption that both the groups, experimental and control represent a homogenous population. Following Table 4.9 shows descriptive statistics and normal distribution of data with value of skewness and kurtosis.

Table 4.11: Descriptive Statistics of Experimental and Control Group for Item Means on all Variables in Pretest.

		Experimental Group n=51				Control Group n=52			
	# of items	Item mean	SD	Skew ness	Kurto sis	Item mean	SD	Skew ness	Kurto sis
Interest	7	2.1	1.0	1.35	1.17	2.1	1.4	1.10	.62
Effort	4	2.4	1.7	1.20	.28	2.3	1.5	1.70	1.83
Pressure	5	5.4	1.4	.80	.53	5.5	1.3	1.20	.35
Relatedness	6	2.8	1.5	1.07	.04	2.6	1.8	1.15	.39
PAS	6	2.4	.91	1.26	1.73	2.1	1.5	1.50	.76
External	9	5.4	1.2	1.30	1.04	5.4	1.4	.79	.89
Identified	6	2.7	1.5	.32	1.42	2.4	1.5	1.06	.18

PAS: Perceived autonomy support

Item mean for above scales are obtained by dividing the composite mean with the number of items in the scale. Value of skewness, for experimental group in pretest, ranges from .32 to 1.35 and kurtosis from .28 to 1.73. In control group value of skewness ranges from .79 to 1.70 and kurtosis from .18 to 1.83.

4.4.1.2 Between Group Differences at the Pretest

A between group MANOVA was performed on seven dependent variables interest, effort, pressure, relatedness, perceived autonomy support, external regulation and internal regulation for experimental and control group on pre-test in order to examine if there was any significance difference between two groups. Assumptions prior to running a MANOVA analyses were met as suggested by Tabachnick and Fidell (2007).The sample size for both the groups were almost similar. As explained in section 4.3.3 a standardized z score was performed to detect univariate outliers and mahalanobis distance was calculated to detect multivariate outlier. There was no evidence of presence of outliers. Also the results for of multicollinearity and linearity were satisfactory as VIF and tolerance values were within acceptable ranges (see Table 4.7). Box's M statistics suggested equality of covariance across groups at alpha level $p<.001$.

Table 4.12: Multivariate Test of Significance on Pretest for Experimental and Control Group

		Value	F	P	η^2
Group	Wilks' Lambda	.984	.220	.980	.01

Experimental group n=51   Control group n= 52

Wilks' lambda statistics was generated using SPSS. The omnibus multivariate results presented no significant difference (Wilks' λ = .984, F (7, 95) = .220, p = .980) between the two groups on all seven variables at pretest level. Therefore, it was assumed that both the groups came from a homogenous population.

4.4.2 MANOVA: Post Intervention

Research Question 2: Is there any significant effect of TAS on student interest, effort, pressure, relatedness, perceived autonomy support, external and identified regulation in experimental group?

Parallel to Research question 2, the following hypotheses were postulated

Ho2a: There is no significant effect of TAS on students' interest in learning in experimental group.

Ho2b: There is no significant effect of TAS on students' effort in learning in experimental group.

Ho2c: There is no significant effect of TAS on pressure felt by the students during learning in experimental group.

Ho2d: There is no significant effect of TAS on students'-teacher relationship in experimental group.

Ho2e: There is no significant effect of TAS on students' perceived autonomy support in experimental group.

Ho2f: There is no significant effect of TAS on student's external regulation for learning in experimental group.

Ho2g: There is no significant effect of TAS on students' identified regulation for learning in experimental group.

4.4.2.1 Descriptive Statistic of Experimental and Control Group for Posttest1

Analysis for research question 1 involved two step procedures. The first step was to examine the mean difference between experimental and control group on posttest1 (between group), the second was to examine the gain score, i.e., difference between pretest and posttest1, separately of experimental and control group (within group). The following table presents descriptive statistics for experimental group and control group on posttest1.

Table 4.13: Descriptive Statistics of Experimental and Control Group for Item Means on all Variables in Posttest1

Scale	#	Experimental Group n=51				Control Group n=52			
		Item mean	SD	Skew Ness	Kurt osis	Item mean	SD	Skew ness	Kurt osis
Interest	7	5.5	1.1	1.07	.74	2.3	1.3	1.13	.17
Effort	4	5.5	1.0	.51	.99	2.4	1.2	1.25	.37
Pressure	5	2.5	.86	.69	.08	5.3	1.5	.88	.39
Relatedness	6	5.4	1.0	1.27	.80	2.1	.95	1.37	1.32
PAS	6	5.5	.90	.11	.72	2.0	1.0	1.47	.94
External	9	2.8	1.2	.38	1.30	5.3	1.0	1.05	.56
Identified	6	5.5	1.4	1.22	.61	2.8	1.5	1.01	.19

PAS: Perceived autonomy support
Rating scale: 7-point likert scale

Item mean and standard deviation for all scales in posttest1 were obtained by dividing the composite mean with the number of items in the scale. Value of skewness, for experimental group in posttest1, ranged from .11 to 1.27 and value of kurtosis ranged from .08 to 1.30. Value of skewness, in control group, ranged from .88 to 1.47 and value for kurtosis ranged from .17 to 1.32.

4.4.2.2 Between Group Differences at the Posttest1

In order to examine the mean difference on dependent variables of experimental and control group a between group MANOVA was conducted on all

variables. Assumption for conducting MANOVA such as screening for univariate and multivariate outliers was satisfactory. There was also no evidence of multicollinearity and singularity and data was normally distributed (See section 4.3.3). However, Box's M test statistics was found to be significant at p<.000 (significant at p< .001). But if the Box's M test is significant at p<.001, but the sample size is equal in cells, then the test is considered robust (Tabachnick & Fidell, 2007). According to Hair, Anderson, Tatham and Black (2006), "... a violation of Box's M assumption has minimal impact if the groups are of approximately equal size" (p.409), i.e., largest group divided by smallest group size is <1.5. The fact that the sample size for the present study i.e. experimental group: 51; control group: 52, is almost equal and larger group divided by the smaller group is < 1.5, hence, made it reasonable to ignore the test.

Table 4.14: Multivariate Test of Significance on Posttest1 for Experimental and Control group.

		Value	F	P	η^2
Group	Wilks' Lambda	.130	90.58	.000	.87

Experimental group n=51 Control group n= 52

Wilks' omnibus statistics for variable interest, effort, pressure, relatedness, perceived autonomy support, external and indentified regulation revealed a significant difference (Wilks' λ = .130, F (7, 95) = 90.58, p =.000, η^2 =.87) between

experimental and control group on posttest1. Given the significance of the overall test, the univariate F results were examined for main effect.

Table 4.15: Univariate Test of Significance on Posttest1 for Experimental and Control Group.

	Dependent Variables	F	P	η2
Group	Interest	162.86	.000	.61
	Effort	181.72	.000	.64
	Pressure	124.14	.000	.55
	Relatedness	254.09	.000	.71
	PAS	326.57	.000	.76
	External	116.91	.000	.53
	Identified	77.18	.000	.43

Experimental group n=51 Control group n= 52
PAS: Perceived autonomy support
*p< .007 (adjusted alpha as per Bonferroni procedure)

In order to examine significant F statistics a Bonferroni type of adjustment was made for inflated Type 1 error (Tabachnick & Fidell, 2007). Assuming that all dependent variables have equal weight of importance, a new alpha value was calculated simply by dividing the alpha that was set earlier (in this case, α = .05) by the total number of test, resulting in an adjusted alpha value of α=.007. Therefore, only results with p less than .007 were considered as indicating significant group differences. Univariate F statistics for dimensions of intrinsic motivation inventory indicated a significant mean difference between experimental and control group on posttest1 with F value for interest (F (1, 101) = 162.86, p=.000, η2 =.61), effort (F (1, 101) = 181.72, p=.000, η2 =.64), pressure (F (1, 101) = 24.14, p=.000, η2 =.55),

relatedness (F (1, 101) = 254.09, p=.000, η2 =.71). Students in experimental group (with TAS) reported higher interest (M=5.5 SD=1.1), more effort (M=5.5 SD=1.0), higher relatedness (M=5.4 SD=1.0), than students in control group (without TAS) interest (M=2.3 SD=1.3), effort (M=2.4 SD=1.2), relatedness (M=2.1 SD=.95). Also, students in experimental group reported less pressure (M=2.5 SD=.86) than students in control group (M=5.3 SD=1.5). Means of experimental and control groups on dimensions of self-regulation were also found significantly different on posttest1 with external regulation (F (1, 101) =116.91, p= .000, η2 =.53), and identified regulation F (1, 101) = 77.18, p=.000, η2 =.43). Students in experimental group reported higher identified regulation (M=5.5 SD=1.4) than students in control group (M=2.8 SD=1.5) and reported lower external regulation (M=2.8 SD=1.2) than students in control group (M=5.3 SD=1.0).Students' perception of autonomy support on LCQ scale was also found significantly different between experimental and control group on posttest1 with F (1, 101) = 326.57, p=.000, η2 =.76). Student in experimental group perceived higher autonomy support (M=5.5 SD=.90), than students in control group (M=2.0 SD=1.0). Hence it shows that the effect of TAS intervention, that lasted for 6 weeks (6 hours), were significant on all dependent variables understudied.

4.4.2.3 Group and Gender Interaction at the Posttest1

SDT does not propose teacher autonomy support effectiveness for a specific gender, however, a 2x2 factorial MANOVA was performed to see if significant

mean differences between pretest and posttest1 of experimental and control group occurred as a result of any gender interaction between groups. The following table present omnibus results for gender and group interaction.

Table 4.16: Multivariate 2x2 Test of Significance for Control Group and Experimental Group for Posttest1 Mean Differences.

		Value	F	P	η^2
Group*Gender	Wilks'	.974	.361	.923	.02

Experimental group n =51 Control group n=52

The 2x2 multivariate results reveal no significant gender interaction between groups on effects of TAS (Wilks' λ = .974, F= (7, 93) = .361, p =.923) on students interest, efforts, pressure, relatedness, perceived autonomy support external and internal regulation in experimental and control group.

4.4.2.4 Descriptive Statistics of Experimental Group on Gained Score between Pretest and Posttest1.

The following is second step for answering research question 1. It was analysis of gained mean score (mean difference between pretest and posttest1) of all variables within experimental group in order examine effect of TAS. The analysis of gain scores provides unbiased results of true change in a much wider array of research design (Oakes & Feldman, 2001). The following table presents item means

of pretest and posttest1 score and their difference on all variables in experimental

group.

Table 4.17: Summary of Mean Differences of Pretest and Postest1 of Experimental Group

Dependent Variable	Mean	SD	Mean Difference (*posttest1-pretest*)
Pre Interest	2.1	1.0	3.4
Post1 Interest	5.5	1.1	
Pre Effort	2.4	1.7	3.1
Post1 Effort	5.5	1.0	
Pre Pressure	5.4	1.0	- 2.9
Post1 Pressure	2.5	.86	
Pre Relatedness	2.8	1.5	2.6
Post1Relatedness	5.4	1.0	
Pre PAS	2.4	.91	3.1
Post1 PAS	5.5	.90	
Pre External	5.4	1.2	-2.6
Post1 External	2.8	1.2	
Pre Identified	2.7	1.5	2.8
Post1 Identified	5.5	1.4	

Note: n=51
PAS: Perceived autonomy support
Rating scale: 7-point likert scale

The above table reveals increase (positive) in mean of all variable and

variable pressure and external regulation show decreased (negative) score in

posttest1 as a result of TAS intervention.

4.4.2.5 Within Group differences at the Pretest and Posttest1 for Experimental Group

In order to check significant effect of these mean differences a within group MANOVA was performed. The following table shows multivariate significance statistics.

Table 4.18: Multivariate Test of Significance for Experimental Group Pretest and Posttest1 Mean Differences.

		Value	F	P	η2
Experimental Group	Wilks'	.103	54.709	.000	.89

Experimental group n=51

Multivariate analysis of differences between means of pretest and posttest1 in experimental revealed a significant omnibus effect (Wilks' λ = .103, F (7, 44.) = 54.709, p=.000). Following the significant omnibus results, univariate analysis of these differences is discussed below in Table 4.19 for main effect.

Table 4.19: Univariate Test of Significance on Pretest and Posttest1 for Experimental Group.

	Dependent Variables	F	P	η2
Experimental Group	Interest	212.52	.000	.81
	Effort	101.41	.000	.67
	Pressure	128.65	.000	.72
	Relatedness	78.27	.000	.62
	PAS	268.43	.000	.84
	External	102.86	.000	.67
	Identified	58.65	.000	.54

Experimental group n=51
PAS: Perceived autonomy supp
*p< .007 (adjusted alpha as per Bonferroni procedure)

Univariate F statistics for dimensions of intrinsic motivation inventory indicated a significant mean difference between pretest and posttest1 of experimental on newly adjusted alpha value of .007 with F value for interest ($F_{(1, 51)}$ = 212.52, p=.000, η2 =.81), effort ($F_{(1, 51)}$ = 101.41, p=.000, η2 =.67), pressure ($F_{(1, 51)}$ = 128.65, p=.000 , η2 =.72), relatedness ($F_{(1, 51)}$ = 78.27, p=.000, η2 =.62). Students of experimental group, in posttest1 i.e., after intervention reported significantly higher interest (M=5.5 SD=1.1), more effort (M=5.5 SD=1.0), higher relatedness (M=5.4 SD=1.0), than in the pretest, i.e., without TAS intervention interest (M=2.1 SD=1.0), effort (M=2.4 SD=1.7), relatedness (M=2.8 SD=1.5). Also, students reported less pressure in posttest1 (M=2.5 SD=.86) than in pretest (M=5.4 SD=1.0). Similarly, mean differences between pretest and posttest1 of experimental group on dimensions of self-regulation were also found significant at alpha .007 with external regulation ($F_{(1, 51)}$ = 102.86, p=.000, η2 =.67), and identified regulation ($F_{(1, 51)}$

= 58.65, p=.000, η2 =.54). Students in experimental group, after intervention reported higher identified regulation (M=5.5 SD=1.4) than during the pretest (M=2.7 SD=1.5) and reported lower external regulation (M=2.8 SD=1.2) than in pretest (M=5.4 SD=1.2).Students' perception of autonomy support on LCQ scale was also found significantly different between pretest and posttest1 with (F (1, 51) = 268.43, p=.000, η2 =.84). Student in experimental group reported higher perceived autonomy support (M=5.5 SD=.90) in posttest1, than in pretest (M=2.0 SD=1.0). This part of analysis provides evidence in support of previous analysis that effects of TAS were significant on all dependent variables after intervention of six weeks. Therefore, Ho2a to Ho2g were rejected.

4.4.2.6 Within Group Differences at the Pretest and Posttest1 for Control Group

In order to substantiate the findings for significant effect of TAS, a multivariate analysis on mean difference between- pretest and posttest1 of controlled group was performed.

Table 4.20: Multivariate Test of Significance for Control Group Pretest and Posttest1 Mean Differences

		Value	F	P	η2
Control Group	Wilks'	.788	1.72	.127	.21
n=52					

The above table reveals a non significant omnibus difference between pretest and posttest1 of control group Wilks' λ = .788, F= (7, 45.) = 1.727, p = .127).

The first part of analysis compared mean difference between experimental and control group of all variables on posttest1 score. It was found that the experimental group that had undergone intervention of TAS showed significant difference on all variables in comparison to control group. The second part of analysis focused on gained score of experimental group and control group separately. Experimental group showed significant increase in mean after intervention, whereas control group did not show any significant difference between means of pretest and posttest1 on all variables. Findings of significant mean difference between control and experimental group at posttest1 provided the evidence that intervention in experimental group brought significant difference between the two groups, but in order to validate this assumption it was necessary to investigate the gained score with the two groups. This analysis extended stronger support in favour of effects of TAS since only experimental group showed significant difference between means of pretest and postetest1. Hence, it was considered appropriate to reject Ho2a to Ho2g and conclude that TAS has significant effect on students' interest, effort, pressure, relatedness, perceived autonomy support, external and internal regulation.

4.4.2.7 Within Group Gender Based Differences at the Pretest and Posttest1 for Experimental Group

Research Question 3: Is there any significant gender based difference between means of pretest and posttest1 of experimental group on student interest, effort, pressure, relatedness, perceived autonomy support, external and identified regulation?

On the basis of Research Question 3 following hypothesis were postulated.

Ho3a: There is no significant gender difference on students' interest in experimental group on posttest1

Ho3b: There is no significant gender difference on students' effort in experimental group on posttest1

Ho3c: There is no significant gender difference on pressure in experimental group on posttest1

Ho3d: There is no significant gender difference on student-teacher relationship in experimental group on posttest1

Ho3e: There is no significant gender difference on students' perceived autonomy support in experimental group on posttest1

Ho3f: There is no significant gender difference on students' external regulation in experimental group on posttest1

Ho3g: There is no significant gender difference on students' identified regulation in experimental group on posttest1

Since significant mean difference were reported between pretest and posttest1 of experimental group, a gender based MANOVA was performed to see effect of

gender on difference in experimental group. Box's M statistics suggested equality of covariance across both groups in experimental group at alpha level p<.001.

Table 4.21: Multivariate Gender Based Test of Significance for Experimental Group on Pretest and Posttest1.

		Value	F	P	η_2
Gender	Wilks'	.841	1.15	.346	.159

n =51

The analysis revealed that there was no significant gender difference Wilks' λ = .841, F= (7, 43) = 1.15, p = .346) on means of pretest and posttest1 in experimental group. Therefore, it can be concluded that the significant mean differences did not occur as a result of gender preference and Ho3a to Ho3g were accepted.

4.4.3 MANOVA: On Withdrawal of Intervention

Research Question 4: Is there any significant effect on student interest, effort, pressure, relatedness, perceived autonomy support, external and identified regulation when TAS is withdrawn from experimental group?

Parallel to Research Question 4, the following hypothesis were postulated.

Ho4a: There is no significant effect on students' interest in learning when TAS is withdrawn from experimental group on posttest1.

Ho4b: There is no significant effect on students' effort in learning when TAS is withdrawn from experimental group.

Ho4c: There is no significant effect on pressure felt by the students during learning when TAS is withdrawn from experimental group.

Ho4d: There is no significant effect on students'-teacher relatedness when the TAS is withdrawn from experimental group.

Ho4e: There is no significant effect on students' perceived autonomy support when TAS is withdrawn from experimental group.

Ho4f: There is no significant effect on student's external regulation when the TAS is withdrawn from experimental group.

Ho4g: There is no significant effect on students' identified regulation when the treatment is withdrawn from experimental group.

4.4.3.1 Descriptive Statistic of Experimental and Control Group for Posttest2

A second set of data that was collected as a posttest2 after the TAS intervention was withdrawn from experimental group. Within group MANOVA was performed to study the significant difference between means of posttest1 and posttest2 of experimental group. Prior to that assumption for MANOVA were verified. As explained in section 5.1. Standardized z score analysis was performed to detect univariate outliers and mahalanobis distance was calculated to detect multivariate outlier for posttest2 data. There were no evidence of presence of outliers. Also the results for of multicollinearity and linearity were satisfactory as

VIF and tolerance values were within acceptable ranges see Table 4.1. The following table display descriptive statistics and skewness and kurtosis for posttest2 of control and experimental group.

Table 4.22: Descriptive Statistics of Experimental and Control Group for Item Means on all Variables in Posttest2

Scale	# of items	Experimental Group n=51				Control Group n=52			
		Item mean	SD	Skew ness	Kurt osis	Item mean	SD	Skew ness	Kurt osis
Interest	7	5.1	.99	.38	.14	2.3	1.3	1.31	.36
Effort	4	4.8	1.3	.34	.25	2.3	1.0	1.53	1.78
Pressure	5	3.0	1.5	.03	1.18	5.0	1.4	1.02	.33
Relatedness	6	4.3	1.3	.36	.40	2.4	1.3	1.40	1.30
PAS	6	4.4	.97	-.56	.93	2.2	1.1	1.38	.83
External	9	2.7	1.0	.41	.62	5.5	1.0	1.05	.56
Identified	6	5.5	.93	.11	.96	2.7	1.3	1.15	.55

PAS: Perceived autonomy support
Rating scale: 7-point likert scale

Item means and standard deviations were calculated by dividing the composite means with total number of items. Value of skewness ranged from .03 to .56 and value for Kurtosis ranged from .14 to 1.18 for experimental group. In control group, value of skewness ranged from 1 to 1.56 and value for Kurtosis ranged from

.33 to 1.78 which are considerably acceptable evidence for normality (Tabachnick & Fidell; 2007).

4.4.3.2. Descriptive Statistics of Experimental Group on Gained Score between Posttest1 and Posttest2

Prior to running within group MANOVA, descriptive statistics for postest1 and postest2 for gained mean score is presented below.

Table 4.23: Summary of Mean Difference of Postest1 and Posttest2 of Experimental Group

Dependent Variable	Mean	SD	Mean Difference (*posttest1-posttest2*)
Post1 Interest	5.5	.99	-.40
Post2 Interest	5.1	1.0	
Post1 Effort	5.5	1.0	-.70
Post2 Effort	4.8	1.3	
Post1 Pressure	2.5	.86	.50
Post2 Pressure	3.0	1.5	
Post1 Relatedness	5.4	1.0	-1.10
Post2 Relatedness	4.3	1.3	
Post1 PAS	5.6	.90	-1.20
Post2PAS	4.4	.97	
Post1 External	2.8	1.2	-.10
Post2 External	2.7	1.0	
Post1 identified	5.5	1.4	0
Post2 identified	5.5	.93	

Note: n=51
PAS: Perceived autonomy support
Rating scale: 7-point likert scale

Mean difference for interest, effort, relatedness, perceived autonomy support and external regulation is reported in negative which means a decrease in magnitude. Whereas pressure shows a positive value that signifies an increase in magnitude upon the withdrawal of TAS. The following table display MANOVA findings for mean difference between posttest1 and posttest2 of experimental group in order to examine if the differences are significant.

4.4.3.3 Within Group Differences at the Posttest1 and Posttest2 for Experimental Group

Group difference within experimental group at posttest1 and posttest3 were generated.

Table 4.24: Multivariate Test of Significance for Mean Differences of Experimental Group on Posttest1 and Posttest2

		Value	F	P	η^2
Experimental group	Wilks'	.37	10.49	.000	.62
n =51					

The above analysis revealed an overall significant F test for mean difference of combined variable on posttest2 of experimental group (Wilks' $\lambda = .37$, F (7, 44) = 10.49, p=.000, η^2=.62). Given the significance of the overall test, the univariate main effects were examined. The following table 4.24 shows univariate analysis results.

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Table 4.25: Univariate Test of Significance for Mean Differences on Posttest1 and Posttest2 for Experimental Group.

	Dependent Variables	F	P	η2
Experimental Group	Interest	2.01	.162	.03
	Effort	9.47	.003	.15
	Pressure	7.86	.007	.13
	Relatedness	15.15	.000	.23
	PAS	36.19	.000	.42
	External	.326	.571	.00
	Identified	.012	.914	.00

n=51
PAS: Perceived autonomy support
*p< .007 (adjusted alpha as per Bonferroni procedure)

Univariate significant main effects were observed at adjusted alpha of .007 which was calculated using Bonferroni procedure (pre set alpha= .05 divided by number of tests) in order to avoid inflated Type 1 error (Tabachnick & Fidell, 2007). Univariate significant main effects were observed for effort (F (1, 50) = 9.47, p=.003, η2 = .15), relatedness (F (1, 50) =15.15, p=000, η2 = .23 and, perceived autonomy support (F (1, 50) =36.19, p=.000, η2 = .42). Students in experimental group in posttest2 (after withdrawal of TAS) reported less effort (M=4.8 SD=1.3), less relatedness (M=4.3 SD=1.3), and less PAS (M=4.4 SD=.97), than in posttest1 effort (M=5.5 SD=1.0), relatedness (M=5.4 SD=1.0) and PAS (M=5.6 SD=9.0). Therefore, we were able to reject Ho4b, Ho4d, and Ho4e considering the fact that withdrawal of TAS has significant effect on student's effort, relatedness, and perceived autonomy support, accept Ho4a, Ho4c, Ho4f and Ho4g since no significant effects were observed on students interest, pressure , external and identified regulation..

4.4.3.4 Within Group Gender Based Differences at the Posttest1 and Posttest2 for Experimental Group

Research Question 5: Is there any significant gender difference on student interest, effort, pressure, relatedness, perceived autonomy support, external and internal regulation when TAS support is withdrawn from experimental group?

Parallel to Research Question 5, the following were postulated.

Ho5a: There is no significant gender difference on students' interest in learning when TAS is withdrawn from experimental group.

Ho5b: There is no significant gender difference on students' effort in learning when TAS is withdrawn from experimental group.

Ho5c: There is no significant gender difference on pressure felt by the students during learning when TAS is withdrawn from experimental group.

Ho5d: There is no significant gender difference on students'-teacher relatedness when the TAS is withdrawn from experimental group.

Ho5e: There is no significant gender difference on students' perceived autonomy support when TAS is withdrawn from experimental group.

Ho5f: There is no significant gender difference on student's external regulation when the TAS is withdrawn from experimental group.

Ho5g: There is no significant gender difference on students' identified regulation when the treatment is withdrawn from experimental group.

Since there is a significant difference between the means of posttest1 and posttest2 of experimental group, it was considered appropriate to investigate if there was any gender difference or if TAS is more effective for a particular gender. Box's M statistics suggested equality of covariance across both groups in experimental group at alpha level $p<.001$. Following table shows multivariate analysis of posttest1 and posttest2 on gender differences.

Table 4.26: Multivariate Test of Significance for Gender Differences of Experimental Group on Posttest2.

		Value	F	P	$\eta 2$
Gender	Wilks'	.760	1.94	.086	.24

Experimental group n =51 Control group n=52

The multivariate omnibus analysis shows that there is no significant gender based differences between means of posttest1 and posttest2 in experimental group. Wilks' $\lambda = .760$, F= (7, 43) = 1.94, p =.086). Therefore, we were able to accept Ho5a to Ho5g.

4.4.3.5 Within Group Differences at the Posttest1 and Posttest2 for Control Group

Table 4.27: Multivariate Test of Significance for Control Group Posttest1 and Posttest2 Mean Differences.

		Value	F	P	$\eta 2$
Control Group	Wilks'	.842	1.20	.318	.15

n=52

However, there were no withdrawal effects to be studied in control group, but in order to check internal consistency of experimental design it was appropriate to examine if control group has any significant difference on responses on posttest2 on all variables. Hence, a multivariate analysis was executed within control group on gained scores between posttest1 and posttest2. Control group on posttest2. Assumptions for MANOVA were screened and were found to be satisfactory. MANOVA findings did not display any significant difference between the means of postests-1 and posttest2 (Wilks' λ = .842, F= (7, 45) = .318, p = .318).

4.5 Summary

This chapter focuses on data analysis and presents findings to answer each research questions. The data collection process involved two stages. The first stage was the pilot study where data was collected in order to check validity and reliability of the instruments chosen for the study.

The second stage was the main study where data was collected in quasi experimental conditions over a period of 11 weeks. Prior to week-1, before intervention began for the experiment, data was collected on pretest from both, experimental and control group. At week 7, when the intervention ended, data was collected from both the groups on posttest1 After week 7, the intervention was withdrawn from the experiment group for 3 weeks, therefore at week 11; data was collected on posttest2 from both the groups.

Data analysis on pretest score involved examination of reliability and validity of the instruments. The instruments in this analysis were found to be valid and reliable in accordance to the psychometric properties of the original instruments.

The first analysis focused on Research Question 1 to examine the correlation between all variables with perceived autonomy support (PAS) in pretest, postest1 and postest2.

Following is the summary of hypothesis for Research Question 1.

No	Hypothesis	Status
H1a:	There is a significant positive correlation between interest and perceived autonomy support at pretest.	Accepted
H1b	There is a significant positive correlation between effort and perceived autonomy support at pretest.	Rejected
H1c	There is a significant negative correlation between pressure and perceived autonomy support at pretest.	Accepted

H1d	There is a significant positive correlation between relatedness and perceived autonomy support at pretest.	Accepted
H1e	There is a significant negative correlation between external regulation and perceived autonomy support at pretest.	Accepted
H1f	There is a significant positive correlation between identified regulation and perceived autonomy support at pretest.	Accepted
H1g	There is a significant positive correlation between interest and perceived autonomy support at posttest1.	Accepted
H1h	There is a significant positive correlation between effort and perceived autonomy support at posttest1.	Accepted
H1i	There is a significant negative correlation between pressure and perceived autonomy support at posttest1.	Accepted
H1j	There is a significant positive correlation between relatedness and perceived autonomy support at posttest1	Accepted
H1k	There is a significant negative correlation between external regulation and perceived autonomy support at posttest1.	Accepted
H1l	There is a significant positive correlation between identified regulation and perceived autonomy support at posttest1.	Accepted

H1m	There is a significant positive correlation between interest and perceived autonomy support at posttest2.	Accepted
H1n	There is a significant positive correlation between effort and perceived autonomy support at posttest2.	Accepted
H1o	There is a significant negative correlation between pressure and perceived autonomy support at posttest2.	Accepted
H1p	There is a significant positive correlation between relatedness and perceived autonomy support at posttest2.	Accepted
H1q	There is a significant negative correlation between external regulation and perceived autonomy support at posttest2.	Accepted
H1r	There is a significant positive correlation between identified regulation and perceived autonomy support at posttest2.	Accepted

MANOVA was chosen as a major analysis keeping multiple dependent variables in mind and in order to be able to compare means of two groups and multiple variables in experimental and withdrawal conditions. The analysis began with data screening and checking assumption for performing MANOVA.

The first analysis of MANOVA reported that the two groups came from a homogenous population since there were no significant mean difference was found between the groups on combination of all variables.

In order to answer research question-1, which focused on investigating the effects of teacher autonomy support (TAS) on student interest, effort, pressure, relatedness, and perceived autonomy support, external and identified regulation, three analyses were performed. First, a between group MANOVA was carried out on posttest1 data for both the groups. The data showed a significant difference between means of control group and experimental as result of intervention.

To examine the effect of teacher autonomy support (TAS) further in experimental group, a within group MANOVA was performed on pretest and posttest1 mean difference. Gained score of pretest and posttest1 demonstrated a significant difference between all variables of experimental group.

In order to further substantiate findings on TAS effects, a within group MANOVA was also performed on control group posttest1 data, where no treatment was induced. Difference between the mean of pretest and posttest1 were found to be insignificant in control group. Therefore, the researcher was able to reject Ho2a-Ho2g since the results revealed significant effect of TAS on students' interest, effort, pressure, and relatedness, perceived autonomy support, external and identified regulation in experimental group where TAS intervention took place. The following is a summary of hypothesis for Research Question 2.

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No	Hypothesis	Status
Ho2a	There is no significant effect of TAS on students' interest in learning in experimental group	Rejected
Ho2b	There is no significant effect of TAS on students' effort in learning in experimental group	Rejected
Ho2c	There is no significant effect of TAS on pressure felt by the students during learning in experimental group	Rejected
Ho2d	There is no significant effect of TAS on students'-teacher relationship in experimental group	Rejected
Ho2e	There is no significant effect of TAS on students' perceived autonomy support in experimental group	Rejected
Ho2f	There is no significant effect of TAS on student's external regulation for learning in experimental group.	Rejected
Ho2g	There is no effect of TAS on students' identified regulation for learning in experimental group.	Rejected

Research Question 3 focused on investigating if there were any gender based difference on TAS effects on variables understudied in experimental group. A within group MANOVA was performed to examine the gender difference for observed mean differences within the experimental group. The results in this analysis showed no significant gender based difference. Therefore, the researcher was able to accept the Ho3a-Ho3g. Following is the summary of hypothesis for this research question.

No	Hypothesis	Status
Ho3a:	There is no significant gender difference on students' interest in experimental group on posttest1	Accepted
Ho3b	There is no significant gender difference on students' effort in learning in experimental group on posttest1.	Accepted
Ho3c	There is no significant gender difference on pressure felt by the students during learning in experimental group on posttest1.	Accepted
Ho3d	There is no significant gender difference on students'-teacher relationship in experimental group on posttest1.	Accepted
Ho3e	There is no significant gender difference on students' perceived autonomy support in experimental group on posttest1.	Accepted
Ho3f	There is no significant gender difference on student's external regulation for learning in experimental group on posttest1.	Accepted
Ho3g	There is no significant gender difference on students' identified regulation for learning in experimental group on posttest1.	Accepted

Research question 4 of the experiment focused on examining the effect on student's interest, effort, pressure, and relatedness, perceived autonomy support, external and identified regulation when TAS was withdrawn from the experiment

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group. A within group MANOVA was performed on mean differences of posttest1 and posttest2 of experimental group to investigate the effects. The results revealed that there was a significant difference between the means of posttest1 and posttest2 of experimental group. Univariate statistics revealed main effect for variable effort, relatedness and perceived autonomy support. Difference between means of posttest1 and posttest2 of control group did not show any significant differences. Following is the summary of hypothesis for Research Question 4.

No	Hypothesis	Status
Ho4a	There is no effect on students' interest in learning when TAS is withdrawn.	Accepted
Ho4b	There is no effect on students' effort in learning when TAS is withdrawn.	**Rejected**
Ho4c	There is no effect on pressure felt by the students during learning when TAS is withdrawn.	Accepted
Ho4d	There is no effect on students'-teacher relatedness when the TAS is withdrawn.	**Rejected**
Ho4e	There is no effect on students' perceived autonomy support when TAS is withdrawn.	**Rejected**
Ho4f	There is no effect on student's external regulation when the TAS is withdrawn.	Accepted
Ho4g	There is no effect on students' identified regulation when the treatment is withdrawn.	Accepted

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The next part of the analysis examined Research Question 5 on gender differences for the effects that were observed in experimental group, on withdrawal of TAS. The multivariate results showed no significant gender difference for the observed differences in experimental group on posttest2. Following is the summary of hypothesis for this question:

No	Hypothesis	Status
Ho5a	There is no significant gender difference on students' interest in learning when TAS is withdrawn from experimental group.	Accepted
Ho5b	There is no significant gender difference on students' effort in learning when TAS is withdrawn from experimental group.	Accepted
Ho5c	There is no significant gender difference on pressure felt by the students during learning when TAS is withdrawn from experimental group.	Accepted
Ho5d	There is no significant gender difference on students'-teacher relatedness when the TAS is withdrawn from experimental group.	Accepted
Ho5e	There is no significant gender difference on students' perceived autonomy support when TAS is withdrawn from experimental group.	Accepted

Ho5f	There is no significant gender difference on student's external regulation when the TAS is withdrawn from experimental group.	Accepted
Ho5g	There is no significant gender difference on students' identified regulation when the treatment is withdrawn from experimental group.	Accepted

In all, the chapter focuses on analysis of pilot and final study data to answer all the research questions and test hypotheses. The next chapter that follows discusses the findings of present research with reference to theoretical and previous literature in the field of self-determination and other relevant motivational theories. The chapter also discusses practical and theoretical implication of the findings of the present study.

CHAPTER 5: DISCUSSION, IMPLICATION AND RECOMMENDATION

5.1 Introduction

The present research had focused on studying the effects of teacher autonomy support on student's interest, effort, pressure, relatedness, and perceived autonomy support, external and identified regulation in quasi experimental and withdrawal conditions. Data for the study was collected in three stages i.e., at pre- intervention, post-intervention and withdrawal of intervention. In addition, this study also looked into gender difference on effects of teacher autonomy support.

This chapter begins by summarizing the research questions and findings. It proceeds to discuss each aspect of the findings in light of past research and the SDT literature. In another section, this chapter discusses the implication of the findings, limitations of the study and recommendation for future research.

5.2 Overview of Research and Findings

Teacher autonomy support (TAS) has gained wide popularity among educators for its benefits in improving students' school functioning. Throughout the world many educators and educational institutions, including the Thai Ministry of Education, have promoted the implementation of TAS in classroom settings. On the other hand, criticisms from cultural relativists have raised questions about the

universal relevance of the autonomy construct, especially in the Asian classroom context. A review of the literature on Thai motivation found no information available on the effects of TAS on Thai students. Also, TAS, which over a period of time has developed into a structural teaching methodology, has never been tested in natural settings for its effects. Hence, the present research endeavours to test the effect of TAS on Thai students' motivation in a natural classroom setting using quasi experimental non-equivalent group design. Students were divided into experimental and control groups. The experimental group underwent treatment in seven sessions, each session lasting for about 60 minutes. The objectives of this study were to study the effects of TAS on students' interest, effort, pressure, and relatedness, and external and identified regulation.

Before discussing the findings, a brief review of the research questions and the findings is presented.

Research Question 1: What is the correlation between the variables of interest, effort, pressure, relatedness, and external and identified regulation with perceived autonomy support at pre-test, postest1, and postest2 level?

There was a significant positive correlation of interest, relatedness and identified regulation with perceived autonomy support at pre-test, posttest1 and postest2. The variable effort showed significant positive correlation at posttest1 and postest2 with PAS, but it failed to show significant positive correlation at pre-test.

Pressure and external regulation showed significant negative correlation with PAS at pre-test, posttest1 and posttest2.

Research Question 2: Is there any significant effect of TAS on student interest, effort, pressure, relatedness, perceived autonomy support, external and identified regulation in the experimental group?

The results in chapter-4 revealed that there was a significant effect of TAS on students' interest, effort, pressure, and relatedness, perceived autonomy support external and identified regulation. Three types of MANOVA analyses were performed to examine the effect of teacher autonomy support. The first analysis was a between-group comparison. Mean difference of posttest1 of experimental group and control group were compared. The result revealed a significant mean difference between the two groups.

In the second analysis, the effect was measured within the experimental group by comparing gained score for pre-test (before TAS intervention) and posttest1 (after intervention). It was revealed that students in the experimental group showed significant difference on all dependent variables after undergoing the treatment of teacher autonomy support.

In order to further substantiate the findings; within group analysis was performed for the control group on means of pre-test and posttest1 to see if they show any difference on mean even without TAS intervention. The result revealed

that there was no significant difference between the means of pre-test and posttest1 of control group.

Research Question 3: Is there any significant gender based difference between means of pre-test and posttest1 of the experimental group on student interest, effort, pressure, relatedness, perceived autonomy support, external and identified regulation?

Statistically, it was apparent that TAS has significant effects on students' interest, effort, pressure, and relatedness, perceived autonomy support, external and identified regulation. In the event that the methodology was favourable for a particular gender, gender interaction was examined between the experimental and control group for the difference observed. Since the experimental group reported a significant difference on all dependent variables, gender differences were investigated as well. Findings for gender based interaction between groups and gender difference within the experimental group confirmed that the difference in mean did not occur because of gender.

Research Question 4: Is there any significant effect on student interest, effort, pressure, relatedness, perceived autonomy support, external and internal regulation when TAS is withdrawn from the experimental group?

In the present study the quasi experimental pre-test and posttest1 research design was incorporated with a single subject design which involved measuring of variables after the withdrawal of treatment. The findings after withdrawal of

intervention from the experimental group revealed a significant omnibus difference on students' interest, effort, pressure, relatedness, perceived autonomy support, external and identified regulation. A significant difference was observed on variable effort, relatedness and perceived autonomy support.

Research Question 5: Is there any significant gender difference on student interest, effort, pressure, relatedness, perceived autonomy support, external and internal regulation when TAS support is withdrawn from the experimental group?

For similar reasons as those given for research question 3, analysis was carried out for any gender based difference that might have occurred as a result of the withdrawal of treatment. The results for gender difference for the variable that reported significant difference on mean, were found to be non significant.

5.3 Relationship between Variables with Perceived Autonomy Support

The results of the relationship of all variables with PAS in pre-test, postest1 and postest2 of the present study have been consistent with theoretical expectations and previous research (Reeve et al.,2003; Misserandino, 1996; Reeve, 2002, Reeve et al., 2004). In the present study, interest, effort, relatedness and identified regulation were found to be positively correlated with student perceived autonomy support at pre-test, posttest1 and posttest2. Pressure and external regulation, consistent with the findings in Assor et al., (2005), were negatively

correlated with perceived autonomy support at pre-test, posttest1 and posttest2. The learning climate of a classroom has a huge impact on a student's daily motivation. Classrooms can either thwart or support students' motivation. Therefore if students perceive their learning climate to be autonomy supportive, they report positive functioning such as high interest, effort, relatedness and identified regulation, and less pressure and external regulation (Reeve, 2006). If the students' learning climate is strictly controlled and they experience a sense of having less choices, students report high pressure, high external regulation and low interest, effort and relatedness. Hence, a higher autonomy support a learning climate which is associated with higher interest, higher effort, higher relatedness, higher identified regulation and less pressure and external regulation (Reeve & Jang, 2006). Autonomy supportive behaviours identify and nurture students' inner motivational resources, such as providing a rationale or fostering relevance for learning, and it helps students in the process of identified regulation (Assor et al., 2002). In an autonomy supportive classroom, teachers facilitate learning by asking questions, involving students in discussions, and acknowledging their perspective. When this happens, students report high effort, high interest in learning matter, and lower anxiety pressure (Black & Deci, 2000). Relatedness is also identified as a correlate of autonomy support. In a classroom when teachers allow pupils to act according to their personal interests and values, then in turn, students experience an honest and caring relationship with their teacher (Vansteenkiste et al., 2006)

5.4 Effects of Teacher Autonomy Support

The primary goal of this study was to examine the role of teacher autonomy support on student learning motivation. The secondary objective was to look into the cultural relevance of autonomy support in the Thai context. Within the SDT framework, a variety of studies have been conducted to examine the effects of TAS on student learning motivation and school functioning (Reeve & Jang 2006; Patrick, Skinner, & Connell, 1993). The present study examined the effects of TAS on students' interest, effort, pressure, relatedness, external regulation, identified regulation and perceived autonomy support. A quasi experimental design was chosen to study the effect of TAS on an experimental group. Based upon the principles of self-determination theory and the recommendations from the literature on TAS, a comprehensive treatment session was developed for implementation in the experimental group. The treatment incorporated the pedagogy that emphasised on learners' autonomy in a classroom environment. Student seating arrangements were created in a way such that they could establish effective communication with their teacher. During the teaching session, the teacher would frequently invite student opinions and acknowledged their perspectives. Students were given the opportunity to manipulate learning aids and finish activities at their preferred pace. Teachers made use of non-controlling language and used non-threatening ways to assess students' learning. The section below discusses the variables that were studied to investigate the effects and relevance of TAS.

5.4.1 Interest after Intervention

Before discussing the 'interest' variable, we must go back to revise how interest is operationalised in the context of the present study. Interest is defined as a psychological state characterized by an affective component of emotion and cognitive component of concentration (Hidi & Renninger, 2006). Interest is said to play an important role in student motivation and learning, and it helps individuals to select and retain information (Urdan & Turner, 2005). This fact has led to the need to examine several factors and conditions that influence interest. In a classroom situation, the surrounding context and quality of interaction with the environment are considered to be responsible for arousing a state of interest (Bergin, 1999; Sansone & Thoman, 2005).

In the present study, students in both experimental and control groups reported a lack of interest in the pre-test because the classroom environment was less flexible, more controlling and did not facilitate positive and active interaction with the environment (Reeve & Jang, 2006). The experimental conditions that were created in the present research were largely about manipulating the structured and controlled class environment into an autonomy supportive one. As a result, students in the experimental group who were exposed to TAS reported a higher level of interest in the posttest1 on the given task and class activity.

The factors that might have contributed significantly to the heightened state of interest in the experimental group during treatment were the teachers who provided

choice and opportunities for students to manipulate learning aids, allowing students to work at their own pace, providing relevance for learning, giving praise as feedback, and acknowledging student perspectives. The results for the 'interest' variable are found to be consistent with the findings in past research, confirming the positive effect of teacher autonomy support on student interest (Reeve, 2002; Ryan & Deci, 2000b; Hidi & Renniger, 2006; Urdan & Turner, 2005). Most of these studies have highlighted the role of situational factors or *interestingness* of the situation for provoking the state of interest. The interest theory claims that the psychological state of interest is triggered automatically when contents are perceived as relevant to one's individual interest (see Tsai et al., 2008). In the educational context, conducive and flexible classrooms that give opportunity to students to work at their own pace are capable of arousing interest and heightened concentration. In the context of the present study, an ideal autonomy supportive environment was created when contents to be learned were perceived as relevant by students, when the teacher did not set deadlines, and acknowledged students' perspective. Hence, the situation was favourable for arousing interest in students in the experimental group (Reeve, Bolt, & Cai, 1999; Reeve & Jang, 2006; Williams & Deci, 1996).

5.4.2 Interest on Withdrawal of Intervention

The above section discusses the characteristics of the variable 'interest' and the conditions that facilitate it. In the present research, the multivariate analysis of all variables showed an omnibus significant effect on the combination of all variables,

but 'interest' failed to show any significant main effect when the treatment was withdrawn. These findings deserve consideration before one can reach any conclusion, since there is no evidence available in favour or against these findings within the SDT or related literature on how interest will be affected when autonomy support is withdrawn. If one analyzes the issue from a theoretical perspective, these findings are inconsistent with other empirical research studies which suggest that absence of autonomy support in a classroom environment is likely to hamper student interest. However, the extensive literature available on developmental phases and types of interest by Hidi and Renninger (2006) would seem to suggest that interest is a unique motivational variable which comprises both affective and cognitive components as separate but interactive systems. According to them, every human being has a potential for interest but the contents in the environment define the direction of interest and contributes to its development. The first phase of interest development is described as a triggered situation, whereby interest can be evoked by the environment. In a TAS support context, teachers providing relevance for learning and the opportunity to manipulate learning aids can be regarded as the factors responsible for triggering situational interest. The second stage of interest development refers to maintained situational interest which occurs subsequent to a triggered situational state. This stage is weak form of internalised interest, and is not usually supported by external factors (Renninger & Hidi, 2000). Learning environment that supports meaningful and personally involving activities can contribute to the maintenance of this form of interest. On the basis of past knowledge and value, the student develops individual interest which is self-generated interest and the result of interest acquired in past activities.

The subsequent and the last stage of interest development is identified as a well-developed individual interest which becomes part of one's personality as a trait for a particular activity, content or subject. In a recent study, Tsai et al., (2008) investigated the role of situational (classroom context) and individual factors on interest. The study revealed that if within a period of time an individual develops interest in a certain activity or subject, it is likely to continue as a function of the prior experience of the individual's interest. This prior experience of the individual is said to be responsible for triggering a prolonged state of interest among learners. In the present study, students had shown a significant increase in interest when TAS was introduced in the class. It is likely that the state of interest continued even after the withdrawal of TAS, this being the result of the individual interest being developed on the basis of prior experience associated with a specific subject.

5.4.3 Effort after Intervention

Effort in the present study is defined as how hard a student tries cognitively or how focused one's attention was to accomplish a task or to learn an activity (Reeve et al., 2002). Within SDT, autonomy support to an individual can help facilitate effort for a task. In the classroom context, when students experience a sense of autonomy for taking initiatives, and when their perspective is acknowledged by their teachers, they tend to develop stronger effort belief and try hard for better outcomes (Reeve, 2002, Reeve et al., 1999).

In the present study, students in the experimental group showed a significant increase in their effort from pre-test (without TAS) to posttest1 (with TAS) condition. The findings are consistent with the results of the above mentioned research within SDT, namely that TAS facilitates effort belief among students. It is likely that during TAS treatment, when the teacher provided hints, gave positive feedback, and praised students, they in turn tried hard and focused attention to accomplish their task or learn the lesson. Also, a study by Reeve et al., (2002) highlighted that when a teacher provides a reason to students for making an effort, which is similar to the impact of TAS in providing a rationale to students for learning, students can easily identify with the activity, and invest more effort. Moreover, TAS practices do not limit the opportunities for students to exert effort; it is an interactive process that motivates students in expending efforts in more than one way.

5.4.4 Effort on Withdrawal of Intervention

As discussed above, identifying with the importance of an activity is an essential component for someone to put in more effort and try harder (Reeve et al., 2002). In the present study, when TAS was withdrawn, students reported significantly less effort as compared to their level of effort in autonomy supportive conditions. It is likely that under the TAS withdrawal condition, when the teacher did not provide a rationale to students for doing an activity, they failed to identify

with the importance of doing the task and invested less effort. Therefore, these results were consistent with those found in Reeve et al., (2006) and Legault, et al., (2006). They pointed out that when the teacher did not facilitate the identification of the importance of doing a task for students, or when teacher did not provide praise and feedback, students tend to expend less effort on that activity.

5.4.5 Pressure after Intervention

Pressure in the present study is described as an emotional state where a student feels anxious and stressed to fulfil the assigned task (Black & Deci, 2000). Ryan and colleagues (Ryan et al., 1990) in their study examined how emotions play an indispensable role in student learning. In autonomy supportive classroom when a teacher is more flexible, and refrains from using controlling language, and setting deadlines; does not utter directives, or give threatening evaluation, he/she is able to create a more relaxed environment for learners to have a better academic outcome. In contrast, students experience a feeling increased pressure and tension in controlled conditions (Levesque, et al. 2008). In the present study students in both groups reported higher pressure in the pre-test condition when they perceived their classroom environment and instructions as controlling. On the other hand, in posttest1, students in the experimental group reported significantly less pressure during the activity. During the treatment the teacher was successful in creating an anxiety free environment for students by expanding her motivating style and supporting students' need for autonomy, providing them with many choices,

evaluating students through informal and non -threatening tests. The results in this analysis were similar to the findings in the past which suggested that children are capable of distinguishing between autonomy support and controlling behaviours of the teacher. Controlling behaviours refer to not letting student work at their own pace, giving directives and not allowing students to voice their opinion (Assor & Kaplan, 2001; Assor, Kaplan, & Roth, 2002). Therefore, it is evident that in the postest1 condition, flexible teaching supported students' autonomy, hence, lessened the emotion of feeling pressured.

5.4.6 Pressure on Withdrawal of Intervention

Students' feelings of being pressured are viewed as a situational response. According to Assor et al., (2005) the feeling of pressure has an adaptive reaction to the immediate situation. This implies that if students perceive their learning environment as controlling and rigid, they tend to feel pressured, and anxious in fulfilling that task. Consistent with these empirical beliefs, students in the present research reported feeling more pressured in postest 2 as compared to posttest1; however not so significantly pressured, when the teacher withdrew her autonomy support. Since, the TAS withdrawal design is used for the first time within SDT, it is difficult to seek consistency for non- significant results for variable pressure. However, the literature on the role of emotions in student learning provides an explanation for this result. Emotion theorists have long argued that emotions,

specifically the emotion of interest plays a significant role in the process of learning (Weiss & Beal, 2005). It is emphasised that affective variables are coherently interconnected with each other. Therefore, a task that heightens emotion of interest is likely to lessen the feeling of pressure among learners and vice versa. Ryan, Connell and Plant (1990) in their study to investigate students' emotion in non-directed learning revealed that the interest factor plays a major role in influencing other emotions during the process of learning.

In posttest2, students in the experimental group displayed non-significant difference on the interest variable in the TAS withdrawal condition as a result of prior experience. It is plausible that as a result of the continued state of interest, students did not display significant difference on the pressure variable on posttest2.

5.4.7 Relatedness after Intervention

Relatedness in the present research context is defined as a feeling of connectedness and belongingness between the teacher and students. In general, the need for relatedness involves a need to feel connected, respected, and understood. Therefore, 'relatedness' develops and flourishes in a classroom context that facilitates autonomy support by acknowledging student perspective, provides opportunities for initiative, and provides choice (Miserandino, 1996).

In the present study, students in both groups reported a lower relatedness scale at pre-test. That was the period when they failed to create a bond of mutual

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respect or understanding for the common purpose of teaching and learning. Whereas, during the intervention, when the teacher, instead of directing students towards learning, assisted students in learning, provided them a rationale to undertake learning, and acknowledged their perspective in an autonomy supportive way. Students were able to form a bond with the teacher and reported a significantly higher relatedness scale. These findings were consistent with other research (Bao & Lam, 2008) which had suggested that an autonomy supportive environment or interaction would result in positive relatedness between persons.

The findings have also contributed to the prevalent debates on whether autonomy and relatedness are compatible with each other in a collectivist society. These findings together with other similar studies (Vansteenkiste et al., 2006 b; Bao & Lam, 2008; Patrick et al., 2007; Hodging, Koestner & Duncun, 1996) have contradicted the cross-cultural perspective that suggests that pursuit of autonomy will interfere with relationship building in a society where personal bonds are valued, but uniqueness and being autonomous is discouraged. Instead, it was observed that when a teacher is considerate, respects student perspective, and does not issue directives, students feel connected and are able to identify with the teacher's goal for them to perform well academically.

5.4.8 Relatedness on Withdrawal of Intervention

Autonomy support reflects the need to feel volitional in one's actions which is also identified as one of the basic psychological needs for positive functioning and optimal psychological growth of human beings (Ryan & Deci, 2006). La Guardia et al., (2000) in their investigation on the role of emotional reliance on a relationship revealed that there is substantial variability in emotional reliance across a relationship. Therefore, the kind of emotion one experiences in a relationship is likely to affect the relationship bond. It is evident from other findings in the present research that the controlling environment is likely to create negative emotions such as pressure, and lack of interest, and consequently the student teacher relatedness suffers. In the present study, in posttest2 when the autonomy support was withdrawn, students failed to perceive their teacher as being supportive of their opinions or understanding their perspective in the classroom situation. Hence, they reported a significantly lower rating on the relatedness scale when the TAS treatment was withdrawn.

5.4.9 Perceived Autonomy Support after Intervention

Perceived autonomy support in the present study refers to the learning climate of the classroom which was formed by manipulating teacher autonomy support in different experimental conditions. One of the most important tenets of SDT is the quality of social context that facilitates human motivation. The perceived autonomy

support construct in classroom contexts measures the degree to which the social context is autonomy supportive for students (Ryan & Deci, 2006). In an autonomy supportive environment, students are given the opportunity to learn at their own pace, and communicate with their teachers effectively. The teacher establishes a good rapport with students by acknowledging their perspective on learning, providing them the opportunity to contribute in class discussion, and manipulate teaching aids. An autonomy supportive teacher also refrains from using controlling language, and giving threatening assessments. The primary purpose in measuring this construct in several studies was because scores on this construct are very sensitive to experimental manipulation (Reeve & Jang, 2006). Students' response on other variables were understudied largely because of the quality of their response on this construct. If students are exposed to an autonomy supportive environment, they are likely to report a higher score on perception in the autonomy support scale.

In the present study, students in both the groups reported a lower perception of autonomy support at pre-test, whereas the experimental group reported a significantly higher perception of autonomy support after intervention, as compared to the control group. The purpose of intervention was to manipulate the classroom context into a more autonomy supportive one. Findings on this construct also presents validation of treatment in experimental conditions.

5.4.10 Perceived Autonomy Support on Withdrawal of Intervention

As was said earlier, the response on the perceived autonomy support scale is highly sensitive to the classroom environment as perceived by the students, and it also represents the social context in which students are interacting. In the experimental group, when the autonomy support intervention of the teacher was withdrawn, students could not relate the present experience of autonomy support as they could in previous sessions. In general, this is seen as students developing the ability to decipher the difference between social contexts that are controlling or autonomy supportive (Reeve & Jang, 2006). Hence, they reported a significantly low perception of autonomy support in posttest2. Since this construct serves a dual purpose, it was evident through the LCQ score that the withdrawal session was appropriate.

5.5 Self-regulation Techniques Overview

A substantial part of the SDT is explained through the self-determination continuum in figure 2.1 which shows the regulatory styles on motivation continuum. External regulation and identified regulation are the two regulatory styles that were examined in the present study because their characteristics are identifiable with students and school functioning. Developing self-regulation of activity in school context is beneficial for better school functioning and learning outcome specially when the contents taught are not interesting enough (Ryan & Deci, 2002).

5.5.1 External Regulation after Intervention

External regulation refers to doing an activity for external contingencies such as rewards, punishments, and expectations. It consists of the least degree of volition (Ryan & Deci, 2000a). On the basis of the past research reviewed extensively in chapter two, it is evident that a controlling environment encourages external regulation. That is a stage where students learn or accomplish a task in a compelling situation without having internalized its importance. They undertake an activity in order to avoid punishments or receive tangible rewards (Deci, Ryan & William, 1996). Consistent with this belief, students in the experimental and control group scored higher on external regulation in pre-test because the original state of these classrooms was considered to be controlling, a place where the teacher did not create an autonomy supportive environment for learning. Contrary to that previous state of affairs, after intervention, when teachers created an autonomy supportive environment for the students by conveying the rationale for learning, providing feedback, and praise as a reward; students were able to develop a positive perception of learning, and identify with their learning goals. Therefore, students in the experimental group reported significantly lower on external regulation.

5.5.2 Identified Regulation after Intervention

Identified regulation refers to one of the forms of regulatory styles proposed by SDT as where a person reflects conscious valuing or personal importance of his or

her behaviour and brings actions into congruence with one's values and needs (Ryan & Deci, 2000b). In autonomy supportive teaching, teachers when presenting uninteresting task to children, if provided a rationale to students which are relevant and parallel to their personal values and needs, students are able to identify with those task and regulate their behaviour accordingly (Reeve at.al, 2002). Contrary to these conditions, if teachers rely on controlling language and tangible rewards students are less likely to identify with the task for its intrinsic value.

In the present study, students in both groups reported lower on indentified regulation on pretest, perhaps because they got involved in the task more for external reason such as getting rewards or avoiding punishments. Whereas, in treatment condition, when teacher facilitated teacher autonomy support in experimental group, acknowledged students' perspective, and explained to them the relevance of indulging in class task, students over a period of time were able to value their learning process and reported higher on identified regulation.

5.5.3 External and Identified Regulation on Withdrawal of Intervention

As discussed above, the concept of regulatory process and its continuum is significantly important for self-determined actions. Also, the development of various stages of self-regulation is largely dependent on environmental and social contextual factors (Ryan & Deci, 2006). Therefore, it is understood that autonomy supportive

environment promotes better form of regulation (identified) and controlling environment promotes weaker form of regulation (external). But, in case of the present study, upon withdrawal of TAS from the experimental group, students did not report any significant difference on external or identified regulation scale. As said earlier, there is an absence of studies within SDT theory that throw light onto change in student's regulation styles that might occur after withdrawal of autonomy supportive intervention. Therefore, there is no study with which findings of the present study could be compared with for consistency. However, by looking deeper into relevant self-regulation literature, the self-regulation continuum it is known that when individuals regulate their behaviours as a reaction to their environment, they tend to assimilate those values within their personality and learn to identify with them. It is described as a process through which nonintrinsically motivated behaviour can turn into intrinsically motivated one. Moreover, it suggests that this change develops through stages and comes into effect over a period of time (Ryan & Deci, 2000a). As in case of the present study, when students were exposed to autonomy supportive environment, they were facilitated towards changing their regulation style to a stronger one for self-determined actions. Comparing the results of posttest1 with pretest response on both the kinds of regulation, it is evident that the teacher was able to convince students that learning in class, doing homework or making effort can harmoniously co-exist with student's personal inclination. It is evident that by the time intervention period ended, students had identified and assimilated the value for learning in that class. Hence, reported less on external regulation and higher on indentified regulation in posttest1. In the second part of the study when teacher autonomy support was withdrawn, students were still

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accustomed to previous regulatory style which they had gained in past weeks. Since, change in regulation is related to personality and inner-self; it is not easier to see significant effect as on emotion or states of mind. Such a phenomenon seems plausible and reconciles with literature on self-regulation, but further work must be required to see if these findings are replicable.

5.6 Gender Based Differences

One of the prominent features that SDT proposes is the three basic psychological needs as essential nutriments for every human being, irrespective of their race, culture and gender (Ryan & Deci, 2006). However, similar to controversy over cultural relevance of SDT theory, many researchers have challenged the relevance of SDT theory on the basis of gender (Iyengar & DeVoe, 2003; Jordon, 1997). They have postulated that autonomy is primarily a male concept and is not relevant for females' psychological functioning. Therefore, it was interesting to examine in the present study that if males and females have different pattern on effects of TAS.

In the present study, following the TAS treatment, when the difference between experimental and control group were examined for gender interaction, the results were found to be non-significant. Also, mean difference within experimental group did not show any significant gender based difference. Specifically, non-significant difference on variable interest is consistent with findings of Tsai et al.,

(2008) study which showed that there was no significant difference on interest experience of boys and girls of autonomy supportive instructions. Similar to the present study, all students reported similar interest experience in their lesson.

Effort belief among students is considered to be affected by several factors in classroom interaction and learning process (Midgley & Urdan, 1995). Support for autonomy which also strengthens students' competency beliefs, and provides a reason to try has been said to affect boys and girls in a similar way to make effort for learning (Reeve et al., 2002). Results from the present study revealed that males and females were equally sensitive to TAS for showing effort in learning.

Looking at the variable pressure, some studies have reported that females are likely to feel more anxious and pressured as compare to their male counterpart, especially in complex subjects such as maths (Greshem, 2007). However, the present study revealed no significant difference between genders on feeling pressure. These are consistent with findings of Assor et al. (2005) which revealed that controlled teaching strategies have similar effect on boys and girls, as both the genders reported negative emotion of anxiety and pressure in equal magnitude.

The findings of present study inform us that if teachers support autonomy in classroom teaching, they are able to create a better bond of relatedness between themselves and students. Considering the differences between emotions of males and females, it is understood that females are able to create a stronger bond of relationship as compared to boys, and boys have rockier relationship with their

teachers (Goodenow, 1993). Furrer and Skinner (2003) found out that girls felt significantly more related with their teachers than boys. But analysis for the variable relatedness across gender in present study revealed that there was no significant difference between males and females on relationship bond with the teacher. SDT has described need for relatedness as one of the three basic psychological needs which is fundamental for every human being irrespective of their gender and even age. These findings were consistent with other researches who have found that TAS is capable of creating relatedness of similar magnitude among boys and girls (Deci et al. 2006)

Teacher's behaviour and instructional methodology has a great impact on students and it influences their perception about that learning environment. Assor and his colleagues (Assor et al., 2002), in their study have also revealed children and early adolescence are capable of distinguishing between teachers' behaviour as autonomy supportive and controlling irrespective of their genders. Consistent with this research, present research also did not reveal any gender based difference on perception of autonomy support.

TAS in the present study is presented as a combination of several factors together that were created by teacher as an intervention. Also, it is evident from several discussions within this study that TAS practice collectively assists in the development of self-regulation of an individual. However, there is a belief that suggests "praise as a feedback", which is an integral part of TAS, can be threatening for females as it challenges their competence belief and works as an extrinsic

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motivation (Henderlong, & Lepper; 2000). However, gender based analysis for the present study did not show any significant difference between both genders, on regulation techniques i.e., external and identified regulation.

5.7 Implication of the Findings

Despite several limitations of the study, the findings and critical review of the literature are thought to have made constructive contribution to the theory and its practices in real life classroom. SDT is a comparatively young theory and since its origin, it has been evolving with major and minor contributions from researchers of a variety of domains. This part of the chapter focuses on the theoretical and practical implications that the findings of this study have on the theory itself and for individuals who are directly or indirectly involved with it. The section below discusses in detail the methodological, cross-cultural and instrumentation aspects as major theortical implications

5.7.1 Theoretical Implication

5.7.1.1 Methodology

SDT came into existence more than thirty five years ago by propounding three basic psychological needs as essential for human functioning. The theory was put to

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test in various domains of human life, and it proved of great substance for education domain.

A series of researches (Reeve 1998; 2006; Reeve et al., 1999; Vansteenkiste, et al. 2006) has highlighted positive effects of autonomy support on students learning and school functioning. In fact, as the theory has evolved, application of TAS in classroom setting has taken a concrete form. TAS now consists of a set of validated instructions that have emerged from empirical findings (Assor et al., 2002, Reeve, 2006, Reeve & Jang, 2006, Flink et al., 1990). Those instructions and their effects on academic outcome and school functioning have been tested in various laboratory and artificial conditions, but it has been recommended in several researches to examine the effects of TAS in a natural classroom setting that consists of real teachers and students (Vansteenkiste et al., 2005; Reeve & Jang, 2006).

The present research makes substantial methodological contribution to SDT theory by studying TAS in a quasi-experimental setting. Examination of autonomy supportive teaching in natural classroom settings has lent more credibility to theorized applications of TAS into practical situation. The treatment procedure of the present study provides a comprehensive framework of TAS as students' centred pedagogy and support for teachers to expand their motivating styles. However, many more replication of this design would be required to further refine the ways that are required to apply TAS as a part of regular teaching style or incorporate autonomy supportive styles in basic school curriculum. The present research may serve as a direction for those who would like to implement TAS in natural classroom settings.

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5.7.1.2 Cross Cultural

As discussed earlier in chapter two that the construct of autonomy within SDT has gained much popularity under cross-cultural controversy. The core of controversy suggests that autonomy is a western value and is not significant for eastern culture. However, numerous researches that were conducted to test the relevance of autonomy support in educational settings with Asian samples (Bao & Lam, 2008 ; Vansteenkiste et al., 2005, Hang, 2008) have obtained significant results in favour of the theory that proclaims autonomy support significant for all human beings irrespective of their culture and gender. The present study, in the best knowledge of the researcher, is the first of its kind to examine the effect of autonomy support with Thai samples. The findings of this study has contributed significantly to cross-cultural issue surrounding the SDT, by testing application of teacher autonomy with the sample that represents a core value of a collectivist society as per Markus and Kitayama's (1991) cultural model. When cultural norms are accepted or internalised, they are identified as willing conformity and when an individual needs those norms to fit in the society, they are identified as coerced norms (Chirkov et al., 2005). The present findings reiterate the claim assumed by SDT that culturally defined values are easily internalised by individual and they facilitate in making actions self-determined. It was earlier discussed in chapter two that Thai students working in accordance with hierarchy and upholding respectable value for their teachers did not imply that the flourish or feel motivated to learn in controlling conditions. The result of present study suggests that if teachers create dynamic class environment and have students work in accordance with their emerging interest and

integrated value, he/she can help them fulfil their need for autonomy, thus producing self-determined actions. It is evident that Thai students learning motivation increases when they perceive their learning context as autonomy supportive and flexible. Students reported higher interest, higher effort, better relatedness and less pressure in autonomy supportive classroom settings. They were also better able to identify with school values. Therefore, the value of autonomy was proven to be equally critical for Thai students' motivation as it is for students in western culture

5.7.1.3 Validation of Questionnaires

This was the first time when instruments proposed by SDT such as subscales of intrinsic motivation inventory (IMI), interest, effort, pressure and relatedness, subscale of self-regulatory questionnaire (SRQ) and learning climate questionnaire (LCQ) were used with Thai students in Thai school settings. The validation process of the instruments went through exploratory actor analysis (EFA) using SPSS (version 16.0). Cronbach alpha was generated to check the reliability of the instruments for all the tests involved in the study. Based on the findings, all the instruments with slight adaptations for experimental purposes are proven to be reliable and validated to be used in Thai elementary school settings. However, in order to have more evidence against psychometric properties of these scales a replication of this study in similar setting is advised.

5.7.2 Practical Implication

In terms of practical implication, the findings from this research have made substantial contributions in Thai educational settings. The following section explains each practical contribution in detail.

5.7.2.1 For Learning, Motivation and Education Reform in Thailand

With regard to education reforms in National Education Act (1999) of Thailand, as discussed in chapter three, section 2.4.1, it is explained that Thai education ministry has made consistent effort to bring reforms in teaching and learning under learning reforms in order to better motivate the students for learning. Further, chapter three discusses the challenges that Thai education ministry has faced in implementing those reforms at school level in Thailand. One of the challenges was the absence of any literature that informs effects of learner centered or active pedagogy, which involves supporting autonomy in Thai classroom context. Therefore, not only the findings of the present study but the treatment intervention of teacher autonomy support will contribute insightful information on teaching and learning process of Thai students. The findings may reinstate the rationale of reforms, introduced by the Thai government, to schools by explaining the difference on school functioning that students show as a result of an active pedagogy in classrooms. The present study will help advance

understanding of motivation at Thai elementary school level in a by considering the motivational constructs and teachers will be able to focus on their education practices in a more meaningful way based on the needs of their students.

5.7.2.2 For Teachers on TAS Techniques

Motivating students and sustaining motivation to learn and perform in educational setting is largely dependent on the environment that teachers create (Reeve, 2006). The present research with the support of its findings provides substantial information for teachers in Thailand on the concept of autonomy support, on classroom implication of TAS and its benefits in classroom context. Teachers would be informed of the role and need of autonomy support in students' lives and school functioning.

The details of implementation of TAS support in classroom settings in the present study, which consisted of numerous steps that a regular teacher would go through in a regular class, also furnishes teachers with ways to enhance autonomy support, modify their teaching styles and expand their motivating styles while teaching in a classroom. Teachers can easily adopt this because autonomy support is an interpersonal style composed of acquired skills (Reeve, 1998). Teachers would also be informed of the fact that TAS will also enhance their interpersonal relationship and produce developmental benefit for students (Reeve & Jang, 2006).

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5.7.2.3 For School Policy Makers

In a comparative study between German and American universities, Levesque and colleagues (Levesque, et al., 2004) highlighted the fact that education institutes are largely responsible for encouraging teachers to adopt a certain teaching pedagogy or instructional philosophy. Implementing autonomy support in class may not be solely dependent on teacher factor; it is the school policy that influences the degree of support a teacher can extend in classroom. In order to support autonomy in classroom teachers need flexible and creative curriculums to support activities that involve students' participation. Furthermore, assessment reporting, usually required by school management, has to be non-threatening.

The conditions that pressurize teachers to increase students' performance indirectly pressurize teachers to use controlling strategies in classrooms (Flink et al., 1990). The findings and experimental settings of the present study may inform school policy makers about the feasibility of implementing TAS in regular classroom setting. Benefits on student's academic outcomes as a result of TAS may encourage school policy makers to orient teachers for TAS to help them expand their motivating styles and also, produce academic curriculum, student's assessment and school setting that promote autonomy support. Moreover, insights from the literature and findings of the present study can inform a new focus for teacher development program at school level.

5.7.2.4 For Culturally Biased Teaching

The findings of the present study make an important contribution to the debate on the cultural universality of autonomy. The findings reiterate the claims made by SDT that autonomy is equally important for student academic motivation in collectivist cultures (Bao & Lam, 2008). Several researches, specially, researches in English as Second Language, have focused on the issue of 'autonomy' which is not encouraged in Asian classrooms by several western educators and even local educators (Littlewood, 2000) as a result of cultural bias. The general belief among educators is that Asian students do not have an idea on how to exercise autonomy in their personal and academic lives. This leads to culturally laden teaching methodologies by several foreign and local educators among schools in Asia which undermine students need for autonomy (Littlewood, 1999). The findings of the present study extend evidence for significance of autonomy support and its academic benefits in Asian classroom settings. It is expected that findings of the present study that highlight benefits of TAS on students' functioning will help several educators to expand their present teaching style into a more autonomy supportive style.

5.8 Limitations

In order to guide future researches and replication of the similar design, the researcher has highlighted the limitation of the present research and has also made

those limitations as recommendation for future researchers. The following section discusses the limitations of the present study in details.

5.8.1 On Research Design

Research design chosen for the present study is an extension to the knowledge and application of the theory in classroom setting. Quasi experimental design is considered very close to pure experimental design and if this design is administered with all precautions, its findings are considered reliable (Ary et al., 2005). However, the design has its limitation with various kinds of internal and external validity threats. These threat, if not controlled can jeopardize the results (Gay & Airasian, 2003). Chapter three of this research explains in detail about the procedure that were undertaken in order to keep those threats controlled. However, controlling the threats in a rigorous way would have been similar to creating laboratory conditions and deteriorating the quasi experimental design. Therefore, prior to replicating this research one must consider the potential threats that can be associated with this type of research design.

5.8.2 On Intervention Instructions

As discussed earlier, TAS intervention used in the present study are a combination of several validated instructions from past studies. Several studies have examined a variety of TAS behaviors for a variety of effects on students learning.

For example, Assor et al., (2005), focused on only one specific TAS behavior of giving rationale for learning and studied the effect on student's engagement. The present study analyzes combination of TAS instruction on student motivation. There is a possibility that students might react differently if those TAS behaviors were examined separately. Katz, Assor, Kanat, Maymon and Meyer (2006) study focused on TAS behavior of giving feedback. The findings revealed that giving regular feedback was perceived as controlling by females with moderate level of interest in activity. Therefore, a replication with same set of instructions but delivered individually can seek more interesting result on a variety of other tasks other than only English language classes.

5.8.3 Generalization of Findings

This limitation relates to the generalization of the results. Participants in the present study were sampled from two grades of a Thai public school. Although such schools are most common in the country and represent common student population, replication of the present results in samples of different ages and different cultural backgrounds would extend more evidence in favour of self-determination theory that autonomy support is universally beneficial for all individuals.

5.9 Recommendations

One of the major recommendations for future researches is on the type of data collection. The present study obtained data from students' self-reports. Some relations may therefore be overestimated due to bias and shared variance. Further research, keeping limitation of self-report measure in mind may study the effects of TAS on students' motivation using qualitative data from multiple sources of information such as students and teachers interviews, class observation on students' participation and focus group after intervention in order to gain in depth knowledge on effects of intervention. Also, other variables such as student drop, student engagement and academic achievement of students can be measured as an effect of autonomy supportive class.

5.10 Conclusion

The objective of the present research stems from the Thai National Education Reform (1999) that emphasizes on learner's autonomy-based teaching under the section "learning reforms". Reviewing the progress on implementation of reforms through various sources such as national reports, studies and surveys (Fry, 2002b, Atagi, 2002) we are informed that bringing a significant change in classroom teaching methodologies or convincing teachers to expand or modify their teaching methodology was certainly challenging in a situation when there is not much

information available that informs why and how autonomy supportive teaching would be beneficial for Thai students' academic outcome and school functioning. One of the main reasons behind absence of this type of study is largely a cultural bias for motivational strategies that were initiated in the west. This is the common point where objective of present research met similar interest with SDT. The theory proposes need for autonomy, competence, and relatedness as basic psychological needs that are essential to all human beings for healthy psychological functioning. Most importantly, support of autonomy in classroom setting has reported several benefits for students learning outcome and other aspects of school functioning, but at the same time this construct has remained a center for criticism for universal relevance of concept of autonomy.

In such conditions, when Thailand's education intends to move on towards more autonomy supportive teaching, the present research, despite its imperfection, expects to contribute significantly to Thai education and SDT cross-cultural issue.

Students of Grade-6 of a Thai public school underwent an intensive treatment under quasi experimental design. The treatment consisted of cautiously planned autonomy supportive combination of theoretically driven sets behaviours for 7 week duration in English language classes. The teacher who administered the intervention was chosen for intervention and thoroughly trained on the basis instructions driven from past studies within the theory. In order to strengthen the quasi experimental design and to be able to examine the effect of intervention more accurately, single subject design was also incorporated with existing design. This helped the researcher

to compare students response on two baseline's one at pre-intervention and another on withdrawal on intervention.

Student reported their response on self-report questionnaires on theoretically driven variables on pre intervention, on post intervention and on withdrawal of intervention. The results from MANOVA analysis showed significant difference after intervention on student interest, effort, pressure, relatedness, perception of autonomy support and identified and external regulation within experimental group and also with the other group that was not exposed to the treatment. Correlation analysis also revealed theoretically expected relationship among variables. On withdrawal of intervention after 4 weeks' time, student in the experimental group showed significant difference on effort, pressure, relatedness and perceived autonomy support. The variables on which students failed to show any effect were investigated separately for other factors that might have influenced the responses.

Overall, the study yields favourable implication for practical application of the TAS teaching strategies in natural classroom settings. It gives valuable suggestion to teachers who are faced with regular problem of not having motivated student. Seeing successful application of TAS with initial support and proper training in a Thai public school classroom, teachers may be informed that involving children's perspective, allowing them to learn at their own pace, providing them a rationale for learning , offering praise as feedback, not using directive, and not give threatening test is not that difficult task. Moreover, the study informs that teachers are able to establish a healthy rapport and even capable of strengthening their

interpersonal relationship with students if they extended autonomy supportive in classroom. Also, students would show more interest, expand better effort, feel less pressured while learning. Teacher by their autonomy supportive strategies may help students in internalizing the value of school and learning. For school tasks and assignments that are not interesting for students to persist with and exert effort, teachers with autonomy support may assist in identifying with school values and importance of learning to make those uninteresting tasks interesting.

Besides this, the theory being tested within Thai education context, increase cross-cultural boundaries for SDT and extends evidence for its universal application irrespective of a culture like Thailand which is dominated by Buddhist philosophy of subservience and collectivism.

The present research signifies the beginning of trend towards this direction. It is necessary to have further replication of this design in similar settings to gather more evidences to support reliability of these findings.

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Appendix A: School's Consent Letter

_____

[*Date*]

Dear Principal
School
Bangkok
Thailand

I am a doctorate student from Universiti Utara Malaysia, Sintok, Malaysia. I am conducting a research study on effects of teacher autonomy support on Thai student's motivation. I would like to include your school in my research study because it fits the criterion for the population required for the present study. The study will take place in usual classroom during regular English classes in selected classes. However, the teacher selected for the study will be trained and asked to implement the new methodology to be tested for the study.

Participation by your school in the present study will benefit Thai education system in identifying the right approach for Thai student's motivation. The research data will be made available only to the persons in school and conducting the research. No reference will be made in oral or written reports that could link your school to the research.

I look forward to working with your school.

If there are any questions at any time about the study or the procedures, please me any time at the given number.

Respectfully
Amrita Kaur

Appendix B: Instruments for Teachers

Instruction: Please fill in the information below.

----
1. Name of teacher:

----
2. Gender:

----
3. Age:

----
4. Nationality:

----
5. Mother tongue:

----
6. Spoken English accent:

----
7. Qualifications:

----
8. Teacher subject:

----
9. Years teaching experience:

----
10. Years teaching Thai- elementary students:

Appendix C: Problem in Schools Questionnaire

Teacher's name: Sex: Age:

Nationality: Major qualification: Teaching exp in yrs:

_____

Instructions: Read and tick

_____

A.   Jim, an employee for several years, has generally done work on a par with others in his branch. However, for the past couple of weeks he has appeared preoccupied and listless. The work he has done is good but he has made fewer calls than usual. The most appropriate thing for Jim's supervisor to do is:

     1.   Impress upon Jim that it is really important to keep up with his work for his own good.

     2.   Talk to Jim and try to help him work out the cause of his listlessness.

     3.   Warn him that if he continues to work at a slower rate, some negative action might be taken.

     4.   Let him see how his productivity compares with that of his co-workers and encourage him to catch up.

B.   Nancy, one of your employees, has been going to night school working toward her degree. She has been working hard at it, doing extremely well and is proud of her accomplishments. However, you are concerned, because she is very hard to work with whenever the pressure at school is high. You decide the best thing to do is:

     5.   Ask her to talk out how she plans to handle the situation.

     6.   Tell her that she ought to watch the balance between work and school and suggest she put more of her energies into her job.

     7.   Point out how other working "students" have handled the problem and see if that helps her handle the situation better.

     8.   Insist that she cut down on the studying or take fewer courses; you can't allow it to interfere with work.

C.   One of the work teams in another branch has been doing more poorly than the other groups all year. The appropriate way for that manager to handle the situation would be to:

      9.   Tell them that performance has to improve and offer them tangible incentives to improve.

     10.   Let them know how the other teams are performing so they will be motivated to do as well.

     11.   Have some discussions with the team as a whole and facilitate their devising some solutions for improving output.

     12.   Keep a record of each individual's productivity and emphasize that it is an important performance index.

D.   For some time Jack's down times have been at a steady, average level. You suspect however that he could do better. A useful approach might be to:

     13.   Encourage Jack to talk about his performance and whether there are ways to improve.

     14.   Stress to Jack that he should do better, and that he won't get ahead if he continues at his current level.

     15.   Go over your evaluation with him and point out his relative standing with others.

     16.   Watch him more closely; praise him for increased output, and point out whenever he falls behind.

E.   Recent changes in the operation have resulted in a heavier work load for all the employees. Barbara, the manager, had hoped the situation would be temporary, but today she learned that her branch would need to continue to work with the reduced staff for an indefinite period. Barbara should:

17.   Point out that her employees will keep their own jobs only if they can remain productive at the current rate; and then watch their output carefully.

18.   Explain the situation and see if they have suggestions about how they could meet the current demands.

19.   Tell all of her employees that they should keep trying because it is to their advantage to do so.

20.   Encourage her employees to keep up with the work load by pointing out that people are doing it adequately in other branches.

F.   There is one assignment in your territory which is regarded by all as the worst. It involves a regular visit to an unpleasant building to work on equipment that is typically abused. It has been given to the employee with the least seniority. However, Dave, the man currently assigned to this job has been doing it for sometime, as no one new has been hired. While he is generally very cooperative and satisfied in other respects, Dave seems to be increasingly resentful about this job, in part because it's an object of jokes and chiding from his peers. Dave's manager might:

21.   Let him know that the other people at his level also have to put up with unpleasant aspects of their jobs, and give him a few examples of these.

22.   Be clear with him that it is his responsibility and be sure he continues to do it.

23.   Talk to him about the job, see if he can work through some of his feelings about it and the jokes that get directed at him.

24.   Point out that the job is fairly assigned based upon seniority, and that such a system works for Dave's own good as well as others'.

G. Harry, who manages the parts department, seems to be creating something of a bottleneck. Important parts are often "on order" and not in stock, and he often is slow in meeting short notice demands and "emergency" situations. The best thing for his supervisor to do is:

25. Emphasize how important it is for him to keep up with orders and emphasize that he should meet ongoing demands.

26. Let him know how other people in comparable positions are managing to keep up, so he can think about it. This might help him figure out how to better keep up.

27. Insist that the orders be done within a specified time limit, and check to be sure he is meeting the deadlines.

28. Find out from Harry what he thinks is wrong and see if you can help him figure out how to better organize his operation.

H. One of the customers has let you know that he is not very satisfied with the attitude of his service representative. The thing for you to do might be:

29. Raise the matter with your subordinate to see what has been going on for him in dealing with that customer.

30. Point out that customer satisfaction is important and that he should work on relating better to the customer.

31. Show him some ways that others relate to their customers so he can compare his own style to others.

32. Tell him to see to it that the customer is more satisfied and let him know you will be checking up on him.

_____

Appendix D: General Causality Orientation Scale

_____

Teacher's name: Sex: Age:

Nationality: Major qualification: Teaching exp in yrs:

_____

Instruction: These items pertain to a series of hypothetical sketches. Each sketch describes an incident and lists three ways of responding to it. Please read each sketch, imagine yourself in that situation, and then consider each of the possible responses. Think of each response option in terms of how likely it is that you would respond that way. (We all respond in a variety of ways to situations, and probably most or all responses are at least slightly likely for you.) If it is very unlikely that you would respond the way described in a given response, you should circle answer 1 or 2. If it is moderately likely, you would select a number in the mid range, and if it is very likely that you would respond as described, you would circle answer 6 or 7.

_____

1. You have been offered a new position in a company where you have worked for some time. The first question that is likely to come to mind is:

a) What if I can't live up to the new responsibility?

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

b) Will I make more at this position?

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

c) I wonder if the new work will be interesting.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

2. You have a school-age daughter. On parents' night the teacher tells you that your daughter is doing poorly and doesn't seem involved in the work. You are likely to:

a) Talk it over with your daughter to understand further the problem

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

b) Scold her and hope she does better.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

c) Make sure she does the assignments, because she should be working harder.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

3. You had a job interview several weeks ago. In the mail you received a form letter which states that the position has been filled. It is likely that you might think:

a) It's not what you know, but who you know.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

b) I'm probably not good enough for the job.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

c) Somehow they didn't see my qualifications as matching their needs.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

4. You are a plant supervisor and have been charged with the task of allotting coffee breaks to three workers who cannot all break at once. You would likely handle this by:

a) Telling the three workers the situation and having them work with you on

the schedule.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

b) Simply assigning times that each can break to avoid any problems.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

c) Find out from someone in authority what to do or do what was done

 in the past.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

5. A close (same-sex) friend of yours has been moody lately, and a couple of times has become very angry with you over "nothing." You might:

a) Share your observations with him/her and try to find out what is going on

for him/her.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

b) Ignore it because there's not much you can do about it any way.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

c) Tell him/her that you're willing to spend time together if and only if he/she makes more effort to control him/herself.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

6**. You have just received the results of a test you took, and you discovered**

   that you did very poorly. Your initial reaction is likely to be:

a) "I can't do anything right," and feel sad.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

b) "I wonder how it is I did so poorly," and feel disappointed.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

c) "That stupid test doesn't show anything," and feel angry.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

7. You have been invited to a large party where you know very few people. As you look forward to the evening, you would likely expect that:

a) You'll try to fit in with whatever is happening in order to have a good time and not look bad.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

b) You'll find some people with whom you can relate.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

c) You'll probably feel somewhat isolated and unnoticed.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

8. You are asked to plan a picnic for yourself and your fellow employees. Your style for approaching this project could most likely be characterized as:

a) Take charge: that is, you would make most of the major decisions yourself.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

b) Follow precedent: you're not really up to the task so you'd do it the way it's been done before.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

c) Seek participation: get inputs from others who want to make them before you make the final plans.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

9. Recently a position opened up at your place of work that could have meant a promotion for you. However, a person you work with was offered the job rather than you. In evaluating the situation, you're likely to think:

a) You didn't really expect the job; you frequently get passed over.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

b) The other person probably "did the right things" politically to get the job.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

c) You would probably take a look at factors in your own performance that led you to be passed over.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

10. You are embarking on a new career. The most important consideration is likely to be:

a) Whether you can do the work without getting in over your head

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

b) How interested you are in that kind of work.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

c) Whether there are good possibilities for advancement.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

11. A woman who works for you has generally done an adequate job. However, for the past two weeks her work has not been up to par and she appears to be less actively interested in her work. Your reaction is likely to be:

a) Tell her that her work is below what is expected and that she should start working harder.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

b) Ask her about the problem and let her know you are available to help work it out.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

c) It's hard to know what to do to get her straightened out.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

12. Your company has promoted you to a position in a city far from your present location. As you think about the move you would probably:

a) Feel interested in the new challenge and a little nervous at the same time.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

b) Feel excited about the higher status and salary that is involved.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

c) Feel stressed and anxious about the upcoming changes.

1	2	3	4	5	6	7
Very unlikely			Moderately likely			Very likely

_____

Appendix E: Students Background Information

Instructions: Circle your answer

_____

1. Student's name:
----

2. Grade & Section:
----

3. Gender: Male: Female:
----

4. Age: 10 Yrs   11 Yrs   12 Yrs
----

5. No. of years
 learning English: 2 Yrs or less   3 Yrs   4 Yrs   5Yrs   or more
----

6. Do you attend extra
English classes outside school: Yes: No:
----

7. Recent score in
English national test: Less than 50%:   50% and more:
----

8. Ethnicity: Thai: Any other (explain):
----

9. Mother's
 qualification: Secondary or less   High secondary   Bachelors   Masters &>
----

10. Fathers
  qualification: Secondary or less   High secondary   Bachelors   Masters & >
----
11. Family income: 10k or less   10k-20k   20k-30k   30k or more
----

Appendix F: Intrinsic Motivation Inventory

_____

Student Name: _____   Grade: _____

Date: _____   No: _____
_____

Instructions: Read the following statements; please indicate how true it is for your English language class in school.

_____

Interest

		1 Not at all true	2	3	4 Somewhat true	5	6	7 Very true
1.	I enjoy my English class very much.							
2.	My English class is fun.							
3.	My English class is not boring.							
4.	My English class holds my attention.							
5.	I would describe my English class as very interesting.							
6.	I think my English class is quite enjoyable.							
7.	While in English class, I think about how much I enjoy it.							

Effort

		1 Not at all true	2	3	4 Somewhat true	5	6	7 Very true
1.	I put a lot of effort in English class.							
2.	I try very hard to do well in English class.							
3	It is important for me to do well in English class.							
4	I put lots of energy in English class.							

Pressure

		1 Not at all true	2	3	4 Somewhat true	5	6	7 Very true
1.	I feel nervous in English class.							
2.	I feel very tense in English class.							
3.	I don't feel very relaxed in English class.							
4.	I feel worried in English class.							
5.	I feel pressured in English class.							

Relatedness

		1 Not at all true	2	3	4 Somew hat true	5	6	7 Very true
1.	I feel friendly to my English teacher.							
2.	I think my English teacher and I can be friends.							
3.	I feel like I can really trust my English teacher.							
4.	I would like to interact with my English teacher more often.							
5.	It is likely that my English teacher and I could become friends if we interacted a lot.							
6.	I feel close to my English teacher.							

_____

Appendix G: Self-Regulation Questionnaire

_____

Student Name: _____   Grade: ____
Date: _____   No: ____
_____

Instructions: Please evaluate the reasons for doing the following for your English language class.

_____

A.	**Why do I do my English Homework?**	1 Not at all true	2	3	4 Somewhat true	5	6	7 Very true
1.	Because I'll get in trouble if I don't.							
2.	Because that's what I'm supposed to do.							
3.	Because it's important to me to do my homework.							
B.	**Why do I work on my English class work?**	1 Not at all true	2	3	4 Somewhat true	5	6	7 Very true
1.	So that the teacher won't yell at me.							
2.	Because I want to learn new things.							
3.	Because that's the rule.							
4.	Because it's important to me to work on my class work.							
C.	**Why do I try to answer hard questions in English class?**	1 Not at all true	2	3	4 Somewhat true	5	6	7 Very true
1.	Because that's what I'm supposed to do.							
2.	To find out if I'm right or wrong.							

		1 Not at all true	2	3	4 Somewhat true	5	6	7 Very true
3.	Because it's important to me to try to answer hard questions in class.							
4.	Because I want the teacher to say nice things about me.							
D.	**Why do I try to do well in English class?**	1 Not at all true	2	3	4 Somewhat true	5	6	7 Very true
1.	Because that's what I'm supposed to do.							
2.	Because I will get in trouble if I don't do well.							
3.	Because it's important to me to try to do well in school.							
4.	Because I might get a reward if I do well.							

_____

Appendix H: Learning Climate Questionnaire

Student Name: _____   Grade: _____

Date :   _____   No: _____

_____

Instruction: Read the following statements; please indicate how true it is for your English language class

_____

		1 Not all true	2	3	4 Somewhat true	5	6	7 Very true
1.	I feel that my teacher provides me choices and options.							
2.	I feel my teacher understands me.							
3.	My teacher gives me confidence do well in the class.							
4.	My teacher encouraged me to ask questions.							
5.	My teacher listens to how I would like to learn.							
6.	My teacher tries to understand how I see things before suggesting a new way to do things.							

_____

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Appendix I: Instrument for Class Observation

Rater's observation list for teacher autonomy support

Adapted from sources Reeve 2006, Reeve et al., 2004, Reeve & Jang 2006 and Reeve et al., 1999.

_____

Teacher: Classroom:

School: No of student

Day/date/hour   Observed by:

_____

	1	2	3	4	5	6	7
Seating arrangement							
• Students sit close to teacher to be able to see, manipulate material.							
• Student involve in conversation with peers and teacher rather than sitting alone passively.							
Starter							
• Teacher asks student preference, desire and interest. *Such as: would you like to work in pair, group or individual, or which pattern do you want to start with?*							
• Providing rationale for learning or activity Such as: *Explanatory statement such as "why is it important to do this…."*							
Teaching aids/activity							
• Provide opportunity to students to choose and manipulate**.**							
• Allow student to work in their own way							
Discussion							
• Encouraging students to answer							
• Allow students time for talking							
• Teacher takes time listening Such as: carefully and fully attending the							

student's speech verbally or non verbal.							
• Responses to student generated questions *Such as: "Yes, you have a good point", "Yes, right that was the second one".*							
• Communicate perspective taking statement *Such as: "Yes, this is difficult", and "I know it is a sort of difficult one".*							
Assessment & assignments							
• Giving formal or non threatening test							
• Offering hints *Such as: "it might be easier to hold like this".*							
• Offering encouragements *Such as: "almost", "You're close", and "You can do it".*							
Feedback							
• Providing praise as informational feedback for improvement, performance and mastery *Such as: "Good job", and "That's great".*							

Lesson plan

_____

Topic: Food and Partitives   **Grade**: 6
Date: Duration: 60 minutes

_____

Objective: At the end of the lesson the students will be able to:

1. Name food
2. Learn to name containers
3. Associate food name with their partitives name.
4. Understand the meaning and communicate information about Food and their partitives.

Vocabulary: bottle, bowl, glass, dish, jar, cup, box, ketchup, jam, soup, cereal, chocolate, icecream, milk, water, juice, can, slice, fizzy drink, a cartoon, yoghurt, bread

Teaching Aids required: Real objects as examples
                            Vocabulary flashcard of food and containers
                            Worksheets

Seating arrangement
Look suggested slides. It is preferable that they sit in a way they are able to communicate with teachers and peers and able to manipulate teaching aids.

Warm up
Greeting: Good morning.
            How are you today?
            How many of you ate breakfast this morning? [Breakfast: Aahaanchao].
            Can you name a few things that you had?
            Write large letter on board
            Well done!!

Ice breaking *(Give them a rationale):* Role play restaurant. Teacher visits a foreign country. There she orders food using inappropriate partitives and wrong language. She herself plays role of a waiter who keep offering wrong food to her. She ends up hungry all day!!

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Ask students preference for activity:
- Would you like learn about food or containers?
- Ask the students what they had for breakfast, lunch and dinner.
- What foods do you like and dislike to eat?

Activities

Containers [Partitives]

Step 1: Teacher Introduce Flash cards of containers
Step 2: Teacher calls out 7 students outside. Teacher hands over a flashcard to each of them. Students hold the flash card up *(Students manipulate teaching aids)* and teacher associate the action to each flash card and students repeat the action and word.
Step 3: Teacher does the action student say the word/ Teacher say the word and student do the action. Do it fast as a game.
Step 4: Stick the pictures on the board. Teacher asks volunteers to give the different containers, "David, give me the (bowl)."(Continue until all containers are mentioned). Ask students to repeat the words several times.

Food
Step 1: Teacher Introduce Flash cards of food
Step 2 : Teacher calls out other 8 children outside. Teacher hands over a flashcard to each of them. Students hold the flash card up *(Students manipulate teaching aids)* and teacher associate the action to each flash card and students repeat the action and word.
Step 3: Teacher does the action student say the word/ Teacher say the word and student do the action. Do it fast as a game.
Step 4: Divide the class into teams and ask them to stand at the back of the classroom. When the teacher name a food, one member of each team hurries to the board to get the picture and say the name of the food aloud.

Real Objects
Step 1: Teacher shows the real objects and let student repeat egg: "A bottle of ketchup"
Step 2: Teacher distributes the sample to each row/group each groups chooses a way to say the sentence in any emotion sad, angry, happy, rest of the group repeats the same. Make sure all of them have different emotions.
Step 3: If possible bring them back in group and repeat the 8 things using the same emotion one more time.
Step 4: Give each student chooses the items, such as a bottle of water, a can of fizzy drink, 2 pieces of cake, a jar of jam, and so on. Name each item and ask the students to stand up, show the item and put it on teacher's desk. Then cover the items and ask students to name as many as they can remember.

Discussion (**Non** *threatening assessment)*

Teacher picks up any containers and any food and try to match in a wrong way. Ask students if it's correct or not? E.g.: A jar of bread. Is it ok ? Oops!! Ask correct answer. [*Say encouraging words, provide praise, Listen to students calmly*]

Matching*: (Allow them time to express; Non threatening assessment)*

Step 1: Divide the class in two groups. Put all the food flash card upside down. One student from each team comes and turn one flash card of food and run and stick to the container it belonged *(Yes you are close, give hints, you can do it,).*
Step 2: Ask students to assemble a class cookbook. Each student can be responsible for one page on which there is a drawing of the dish and a list of ingredients for making it.

Presentation
Step 1**:** Teacher shows a role play.
Step 2: Teacher leave flash cards and real object sample on each table.
 Step 3: Student work on their own by picking up any flash card in their own groups or rows. E.g.: Student 1: What did you buy at big-c ?
              Student 2: I bought a bottle of ketchup at big-c
Hint : This can played as a hiding game.
Step 4: Read the dialogue aloud for the students to repeat.   Then give each student several pictures of foods. Ask them to walk around the room, offering the pictures and asking, "Would you like (a slice of bread)?" Prompt the answer, "Yes, please. I'd like a slice of bread" or No, thank you. I don't want any bread.

Table work (*Non threatening assessment)*
Teacher distributes worksheets of fill in the blanks to work in group. Teacher walks around *(**Teacher give hints; allow Student work in group at their own pace**)* and assist students in finishing.