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Academic Achievement as a Function of Frequency of Testing and Level of Motivation

By

Ghina Nassab

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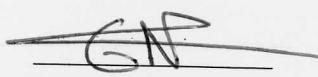

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Ghina Nassab

Approved by:

Dr. Daoud Tawil, Ph.D., Advisor

Daisy S. Warren

Dr. Daisy Warren, Ph.D., Reader

Hanine Hout

Dr. Hanine Hout, Ed.D., Reader

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Abstract

The present study reviewed Research on the impact of classroom testing frequency, and examined the effects of frequent testing on student's motivation at the elementary level. Participants were six grade elementary level students in two Lebanese Private schools, which are similar in many aspects but differ in their testing procedures as one uses the frequent testing technique while the other uses the non-frequent way of testing. The instrument used to collect data was the 20-item Academic Motivation Scale (AMS) questionnaire, which is designed to assess the extent to which an individual's academic motivation is intrinsically or extrinsically driven. Data was collected then analyzed using t-tests and correlations. The results indicated that frequently tested students had higher extrinsic motivation and higher school grades than non-frequently tested students.

Academic Achievement as a Function of Frequency of Testing and Level of Motivation

Introduction

This study is a report of a study that explores testing as a factor that elicits or sustains academic achievement. The study was based primarily on a questionnaire that was answered by the sixth grade students in two private schools. Results are theoretically explained by the self-determination theory. This study has implications for successful educational outcomes such as learning, achievement, continued motivation, commitment, performance, increased skills and maximal chances for school completion. The first chapter of the dissertation presents the background of the study, specifies the problem of the study, describes its significance and presents an overview of the methodology used. The chapter concludes by noting the delimitations of the study defining some special terms used.

Background of the Study

Motivation is a critical issue in education. According to specialists in the field, motivation can be defined as a "value and desire for learning" (Wlodkowski and Jaynes, 1990). For this reason many studies stressed the importance of motivation for learning and future success of students. Testing is considered by many as a kind of student motivation; however, many schools do not take into consideration the importance of testing and how it effects student motivation. Scholars have related several techniques to student motivation such as creating a positive atmosphere, involving students in class activities, and giving encouraging rewards. However, very few have linked testing to engagement or disengagement in the learning process. In contrast to what is widely

known research proved that most students prefer frequent testing. Dividing the course material into smaller more manageable segments, benefit students and play a more positive role in the learning process.

This paper tries to find the relationship between frequent testing and motivation. There are two types of motivation; intrinsic and extrinsic, thus the research question here is whether frequent testing increases or decreases both the intrinsic and extrinsic motivation.

Ryan and Deci (2000) argue that people are encouraged to do something by special factors related to diverse experiences they had or consequences they want to attain. They can be motivated because they find a certain activity important or because there is a strong external force. They can be driven into a certain act because of curiosity or by a bribe. They can perform because of the need of doing extremely well or because of the fear of losing. The matter of whether people stand behind a deed out of their morals, beliefs and principles or do it for reasons exterior to the self is a subject worth studying in every society according to Johnson (1993). People whose motivation is self initiated have more confidence and interest than those whose motivation is elicited by external reasons. Those who are self initiated are more creative and have better performance (Deci & Ryan, 1991; Sheldon, ryan, Rawsthorne, & Ilardi, 1997) self esteem (Deci & Ryan, 1995) and general well being (ryan & Deci, & Grolnick, 1995).

Lumsden states that: "Motivation is caused by student's desire to participate and be successful in, the learning process" (Lumsden, 1994). Thus Lumsden says that motivated students generally initiate action when given the opportunity and show

positive interests; including enthusiasm, optimism, curiosity, and interest" . However, according to scholars, less motivated or disengaged students "are passive, do not try hard, and give up easily in the face of challenges" (Skinner & Belmont, 1991).

Scholars argue that student motivation is due to both internal and external factors. Internal factors comprise the individual characteristics such as the students' interests, responsibility for learning, effort, values, and perceived ability. External factors include certain types of schooling practices that can affect by prompting, maintaining, or changing student motivation (Ainley, 2004). Some observers believe that a wide range of students enter their schools with high motivation and enthusiasm. However, certain variables in learning conditions and environment play a role in either decreasing or increasing the students' level of motivation (Sirota, Mischkind, and Meltzer 2005 as cited in Nilsen 2009). Accordingly it is worth noting that it is important to take into consideration what methods schools apply in dealing with their students and how these affect students' learning and performance. Such methods include: insuring opportunities for student success by assigning tasks that meet their level of development, recognizing developmental differences, creating a positive atmosphere in the classroom, taking into consideration student's opinions and thoughts, involving students in class activities and group problem solving exercises, making real world connections, fostering collaboration rather than competition among students, giving encouraging feedback and rewards, and building positive teacher- student relationship.

Educators identified specific motivational variables and investigated how these relate to student's behavior and achievement. They described motivational aspects of

student's connection with learning as to be related to the following variables: Mastery goals, performance goals, intrinsic motivation, self-efficacy, individual interest, situational interest, curiosity, work avoidance, extrinsic motivation, learned helplessness, perceived competence and self-competence. Some of these variables indicate positive connection, others disconnection and alienation from learning.

In summary, all these researchers identified the different variables affecting student motivation and achievement. Also they distinguished between the two types of motivation which explain the whole motivation process of people in general and students in particular. They found that motivation can be extrinsic and intrinsic in its source. They explain intrinsic motivation as involving internal, personal factors such as need, curiosity, accomplishment, efficacy and enjoyment. An intrinsically motivated student completes a task because the activity itself is rewarding (Lumdsden, 1994). "Thus a student acting in a certain way because of internal desire constitutes intrinsic motivation" (Kouzes and Posner, 2002), in contrast to extrinsic motivation, in which a student engages in an activity in order to get a reward or to avoid punishment. This student is not really interested in the activity for its sake, but rather for what he will gain from it (Woolfolk, 2001). Once the rewards or punishments are removed, the extrinsically motivated student is more likely to lose interest and stop trying (Kouzes and Posner 2002).

In teaching, both intrinsic and extrinsic motivation are vital components. Intrinsic motivation is more desired since students who are intrinsically motivated tend to use strategies that involve processing information on a deeper level (Fulk, 1994 as cited in

Wgner 2002). Also; students who are intrinsically motivated tend to prefer tasks that are moderately challenging. In contrast, students who are extrinsically motivated tend to put forth a minimum of energy in less difficult tasks because the reason behind any deed they do is something external like a reward or such.

As an example, an intrinsically motivated student studies for a test for the sake of learning and enjoyment while, an extrinsically motivated student studies for a test either because he fears punishment (failure) or seeking a reward (grade).

The problem statement

A shared concern in education is how to motivate students to study and achieve and to determine whether students study only for tests. Thus an important question would be whether students should be given frequent tests in order to be motivated to study. It is a common knowledge that students tend to study whatever is necessary to get the grades they desire. In that sense, testing might be tackled as one of the factors affecting student motivation. Some scholars argue that test material have a considerable effect on student motivation. For example, giving a test based on memorizing details would be less motivating than a test based on synthesis and evaluation of information. Other scholars argue that test frequency might affect student motivation. Research suggests that students show motivation when they are tested more frequently. This is based on the idea that tests motivate students because they create the opportunity or necessity to achieve success or avoid failure. Thus they perform in order to get an outcome that they desire or in other words to pass the test or get a good grade in order to satisfy their parents for example. In that way tests provide an incentive to learn. They are source of incentive motivation (Petri,

and Govern, 1998). In theory a test here would function as a stimulus situation which would lead students to study as a response and the reason would be that they want to achieve a desirable behavior as an outcome like a successful grade and to avoid failure.

Hypotheses

For the purpose of providing answers and clarifications to the research topic, two hypotheses are proposed.

H1 Students tested frequently score higher on extrinsic motivation relative to students tested non-frequently.

H2 Students given weekly tests will have higher achievement scores than students given monthly tests.

Significance of the Study

This study has its own significance since it goes to issues that many studies didn't regard concerning motivational types. It measures the different types of motivation, the extrinsic and intrinsic types and then goes into details to explain them and divide them according to a continuum that starts from the amotivation (lack of motivation), and then it moves to the four types of extrinsic motivation which are the external regulation, interjected regulation, identified regulation and integrated regulation and finally the continuum reaches the intrinsic motivation or what can be called intrinsic regulation. (Figure 1: The Self Determination Continuum).

Also and as noted earlier, there were few studies regarding frequent testing and their effects on elementary school students. The findings of this research will:

- Help provide significant information of whether frequent testing does improve students' performance and achievements. Such an opportunity will probably be taken into consideration by elementary school systems in order to improve their learning systems.
- Help provide all those concerned in the field of elementary education with some kind of guidelines to help minimize student failure in the elementary cycle.
- Pave the way for further research on this specific issue in order to explore the effect of the current hypotheses on different samples and other areas.

Overview of the Methodology

This study was conducted in the beginning of fall, 2009. The study's sample comprised 110 elementary sixth grade students in two different Lebanese private schools. They were asked to fill out a questionnaire. The Academic Motivation scale questionnaire. This questionnaire was employed in order to assess the subjects' attitudes towards frequent testing and its effect on students' achievements and enthusiasm.

The Academic Motivation Scale AMS (Vallerand , Pelletier, Blais, Briere, Senecal, & Vallieres; 1992) based on self- determination theory assesses intrinsic and extrinsic motivation at the elementary school level. The AMS consists of 28 items on a 5 point rating scale such as: "Why are you going to school?" As it will be defined later in the methodology chapter, there are different subscales on the AMS. The study was conducted in both schools within the same period. Then questionnaires were collected and then analyzed.

Delimitations

There are several limitations for this study; the main limitation is that many other variables may have affected the student's motivation and attitudes towards frequent testing such as parental pressure and teacher's expectations. Further, it should be noted that the questionnaire is a good mean for asking students and teachers about their opinions but still students may have filled some of the questions without deeply thinking about them.

Definition of Terms

The different variables mentioned in the above hypotheses and more are defined as follows:

Achievement: can be rated by the grades students get on tests in the studied subject (Math, science, and English).

Motivation: is defined as a student's willingness, need, desire and compulsion to participate in, and be successful in, the learning process (Bomia et al, 1997).

Intrinsic motivation: is defined as performing an activity because of an internal desire, curiosity and sense of challenge derived from it (Deci & Ryan, 2000).

Extrinsic motivation : is defined as performing an activity because one feels compelled because of external pressure to avoid punishment, out of the sense of obligation or to attain a reward (Deci & Ryan, 2000).

Amotivation: is defined as the absence of intent or drive to do an activity due to one's failure to establish contingencies between their behavior and the activity (Vallerand, et al, 1992).

Frequent testing: Students tested on weekly bases are considered as frequently tested (One test per week).

Non-frequent testing: Students tested on monthly bases are considered as non-frequently tested (One test per month at the end of a whole unit).

Grading: is characterized by assigning scores in order to evaluate student's work mainly on tests.

Rewards: are external motivators promised to students as an incentive. In this research, rewards are regarded as the grades and scores students get on tests.

Chapter I presented a background for this study. Chapter II will provide a review of literature. Chapter III will discuss the methodology used. Chapter IV will present and discuss the analyzed data. Chapter V will offer a summary, conclusion, and recommendations.

Chapter Two

Review of Literature

What factors underlie student motivation is a question that has and still occupy many researchers, and many theories have been developed in an attempt to find the factors that lie behind this process. A large body of literature on the issue of student motivation provides a basis for the current research. One main theory of motivation is: the Self determination theory (SDT). Another theory developed from the SDT is the intrinsic extrinsic motivation theory. Based on previous empirical studies, an important factor affecting student motivation is frequent testing; the present research will discuss the issue of frequent testing and its effect on student motivation.

This chapter summarizes the theoretical issues behind student motivation. It will be divided into two parts: in the first part, the theories of motivation will be highlighted; while in the second one, the focus will be primarily on empirical studies found in this field.

Motivation

To be motivated means to be moved to do something. A person who is eager towards achieving something is considered a motivated person whereas a person who has no stimulation to take action is considered unmotivated. Many theories are concerned with the construct of motivation and how it varies from one person to another and the many reasons behind the absence or the presence of motivation. Motivation also varies in type and orientation since there is a large scale that contains many kinds of motivation. An example is a student who can be motivated to do his homework out of curiosity and interest or just to please his teacher or his parents (Deci & Ryan, 2000).

Theory of Motivation

Many psychologists had tried to define motivation, clarify it and give detailed explanations about its different types. Freud described motivation as being determined by the very innate and basic human instincts and drives. During the mid twenties, Behaviorism emerged and it focused on how stimuli and response can motivate a person and form habits and routine practices. Then came the Humanistic theorists such as Rogers and Maslow who claimed that what motivates people is their self actualizing tendency and desire to achieve personal development and expand one's capacities.

The Self determination Theory

The self determination theory as defined by Ryan, Kuhl, and Deci, (1997):"SDT is an approach to human motivation and personality that uses traditional empirical methods while employing an organismic metatheory that highlights the importance of humans' evolved inner resources for personality development and behavioral self regulation". Thus, people's innate needs determine their self motivation, personality and actions as well as the conditions that promote these actions. The first need is the need for autonomy, which means making choices on issues regarding you, the need for competence which means exercising your abilities and developing them and the need for relatedness which means connecting to others or having social value and feeling respected. Ryan (2000) also states that research on SDT also studied the environmental factors that delay a person's motivation and personal well being.

The self determination theory explains motivation in regard of three sources which are: extrinsic motivation which is learning as a means to an end, intrinsic motivation or learning because one finds the content interesting; and finally the absence of intrinsic

or extrinsic motivation that results in the lack of motivation to learn, which Deci and Ryan refer to as amotivation. SDT is mostly based on the idea that fulfillment of intrinsic needs is more important to personal growth and learning than fulfillment of extrinsic needs. Therefore, the theory says that the most meaningful and successful learning occurs when students are motivated intrinsically (Reeve, Deci, & Ryan, 2004). Extrinsic motivation is explained as the performance of an activity for the reason of gaining a certain result or product that is to receive a reward or to avoid punishment (Ryan & Connel, 1989; Vallerand, 1997) for example students who do their homework because they realize it's important for their future career are extrinsically motivated as are those who do their work because this is what their parent's asked them to do. Both of the above mentioned examples show that the homework is not done because of the delight of the work itself. However, what differs is that the first case involves individual's private choice whereas the second involves agreement with an external rule.

Deci and Ryan (1985) introduced a theory called Organismic Integration Theory, a sub-theory of self determination theory, which thoroughly explained the various forms of extrinsic motivation. They propose four types of extrinsic motivation that can be ordered according to a continuum from lower to higher levels of self determination. Each type of motivation represents a different level of internalization. According to the Organismic Integration Theory, behavioral engagement is motivated according to a person's position along a graded continuum of regulations ranging from being highly self determined to more coercive in nature. These four types are: external regulation, interjected regulation, identified regulation and integrated regulation.

External regulation is the first type of extrinsic motivation. It describes behaviors that are extrinsically motivated and are the least autonomous according to Ryan (1995). This is the classic case of extrinsic motivation in which "people's behaviors are controlled by external contingencies" (Deci and Ryan 2000). This is explained in Skinner's operant theory (1953). This kind of extrinsic motivation was examined and found to be undermining of intrinsic motivation (Deci, Kostner & Ryan, 1999a). These behaviors may be done to get an external reward or avoid a certain restriction. In this case people behave in certain ways in order to attain a kind of reward or to avoid punishment. An example of external regulation is when a student performs a certain behavior in order to satisfy an external demand like getting good grades in a test just to please his parents or because they forced him to. Here the reason for studying is to avoid the punishment and thus the reason is not the act of studying itself but something external. The same can be said if the reason for studying was to get a certain reward promised by the parents or the teacher. However in both cases the behavior is forced and caused by an outside motive other than the self .External regulation is the type of motivation focused on by operant theorists (e.g. Skinner, 1953).

The second type of extrinsic motivation is called introjected regulation. This type is a partially self-integrated form of extrinsic motivation. It involves taking a certain regulation but not personally accepting it. Instead of being motivated by external forces, a person here would be motivated by internal pressures. Thus performing this regulation is restricted to avoiding the feelings of guilt, blame or shame or to achieving ego enhancements such as pride or dignity or in other words maintains feelings of worth (DeCharms, 1968; Nicholls, 1984; Ryan, 1982). In this case, people's behaviors are

controlled by consequences administered by the individuals to themselves like feeling self worth, pride, guilt or shame. This type of extrinsic motivation is manifested in relation to ego involvements (Ryan, 1982), public self-consciousness (Plant & Ryan, 1982 as cited in Ryan 2000), or false self-ascriptions (Kuhl & Kazem, 1994). Although this introjected motivation arises from within the person; however, it is still considered external to one's self (Deci & Ryan, 1995). An example of introjected regulation is when a student studies for an exam in order to avoid guilt or anxiety or because he believes that it's what good students should do. Here the reward of the act is not offered by others like a parent or a teacher, but from the individual (Vallerand, Bissonnette, 1992 ; Muller, Louw, 2004).

The third type of extrinsic motivation is the identified regulation where an act is considered personally important and chosen according to one's own values. In other words, identified regulation is when people understand the value of a certain behavior or act like a student who performs a certain behavior consciously knowing that it is personally important and valued although it might not be enjoyable. Another example is a person who understands the value and importance of exercise for his health and so does it from his own (Vallerand, Bissonnette, 1992 ; Muller, Louw, 2004).

The forth type of extrinsic motivation is the integrated regulation which occurs when regulations have been evaluated with one's own values and needs (Ryan and Deci, 2000). Integrated regulation is considered the most complete type of internalization of extrinsic motivation for it not only identifies with the value of the behaviors but also integrates them with other aspects of the self. It's when people accept certain regulations and bring them into harmony with their own values and identities (Pelletier, Tuson, & Haaddad,

1997 ; Ryan, 1995). An example is when a student performs a certain behavior because it resembles his own values and needs. It is worth noting that integrated regulation is one form of motivation that is very similar to intrinsic motivation, however, it is still considered extrinsic since the cause of this action or behavior is to achieve separate outcomes and not for their innate satisfaction and personal enjoyment.

It is worth noting here that researchers combined the first two kinds of extrinsic motivation, the external and introjected types and put them under the name of "controlled" motivation composite. Moreover, they combined the second two types of extrinsic motivation, the identified and integrated types, and named them "autonomous" motivation composite (Vansteenkiste, Lens, Dewitte, De Witte, & Deci, 2004).

Intrinsic motivation is defined by Deci and Ryan (2000) as: "an inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities, to explore and to learn". Accordingly it's argued that students taught with a controlling approach turn out to be less creative (Amabile, 1996; Grolnick and Ryan, 1987; Utman 1997) when compared with students taught is supportive ways who turn out to be curious and have a desire for challenge (Deci, Nezelek, & Sheinman, 1981; Flink, Boggiano & Barrett, 1990; Ryan & Grolnick, 1986).

Vallerand (1992) defined three types of intrinsic motivation which are: intrinsic motivation to know, to accomplish, and to experience stimulation.

1. Intrinsic motivation to know can be defined as the pleasure a person gets when performing something new and learning from it (Vallerand, etal, 1992).

2. Intrinsic motivation to accomplish things can be defines as the pleasure a person gets when creating something and going beyond work requirements (Vallerand, etal, 1992).
3. Intrinsic motivation to experience stimulation is defined as the stimulation a person gets when engaging in a certain activity like the feelings of excitement, happiness, pleasure, and such sensations (Vallerand, etal, 1992).

Amotivation is "the state of lacking the intention to act" as defined by Ryan, (1995). Such people are either not motivated to act or don't act at all. They are neither intrinsically nor extrinsically motivated but they are not motivated at all. Ryan (1995) says that amotivation is the result of not valuing an activity nor finding a purpose of why it should be done. Bandoura (1986) also explains that such people don't feel competent to do an activity while Seligman (1975) adds that amotivated people don't believe in themselves and don't expect to reach a desired outcome. They always question if they can do a certain activity or not and act as if they have no control and thus all their behaviors stem from forces outside themselves (Vallerand, 1997).

As seen in the above research, Self Determination Theory researchers have been concerned primarily with examining the quality of learner's motivation. The quality of motivation refers to the type or kind of motivation that underlies any learning behavior. Thus it is important for this current study since it's concerned with the different types of motivation and what motivates students more to study and accomplish. Understanding each type of motivation helps us determine student's behaviors and initiatives to study or to act.

Another theory that was developed from the Self Determination Theory is the "Intrinsic and Extrinsic Motivation". This theory also goes into detail in explaining the different types of extrinsic motivation, intrinsic motivation and amotivation.

Intrinsic and Extrinsic Motivation

Intrinsic motivation as mentioned above is when people engage in an activity for its own sake without an external reason. On the other hand, extrinsic motivation is the kind of motivation controlled by outside factors from the environment or others. Thus, intrinsic motivation is the extent to which a child engages in a classroom activity driven by an internal factor (Harter, 1981). Gottfried et al. (1994) claimed that it is the performance of an activity for its own sake in which enjoyment is found in the activity itself. Intrinsic motivation is in contrast to extrinsic motivation that involves behavior determined by outside forces such as rewards or avoidance of some punishment. Boggiano and Barrett (1985) examined students' motivational orientation and their effect on children's future performance. They found that an intrinsically motivated child had a positive influence on his or her determination and carrying out and completing future tasks. Intrinsic motivation had been linked to positive academic outcomes in children. Boggiano and Barrett (1985) found that intrinsically motivated children are more persistent after a failure than the ones who were extrinsically motivated. Kohen (1993) also mentioned that intrinsically motivated students continue educating themselves even after graduating and getting their degrees. He called them "Life- long learners". Gottfried (1990) also found that intrinsic motivation is positively related to children's achievement, IQ, and perceptions of competence. The findings in a study done by Dev (1997) indicated that intrinsically motivated students got higher grades and achievement test scores, on

average, than extrinsically-motivated students and were more likely to feel confident about their ability to learn new material. In addition, they were more likely to keep on with and complete assigned tasks, retain information and concepts longer, and were less likely to need remedial courses.

Therefore, different researches explained the importance of intrinsic motivation and its various positive effects on students. It was found to be linked to higher academic achievement, higher IQ, increased persistence and competence, and to lifelong learning (Boggiano & Barrett, 1985; Gottfried, 1990; Kohn, 1993; Dev, 1997). And this is why students need to feel that they belong and that they are accepted and valued in order to be successful at school and perform better (Kuzes and Posner 2002).

Empirical studies

In recent years, many studies were done in the field of testing and whether testing motivates students to study and get high scores. Other studies tried to find out whether students need to be motivated by themselves which is the intrinsic learning motivation or need external motivators which is the extrinsic learning motivation. Moreover, research stressed on the effect of each kind of motivation on student's behavior or will to succeed. Lepper , (1999) argued that the extrinsic rewards may be important in the short-term, but not the long term and thus might help a student pass a test but not successed in life later on. Many studies were done which will be presented now in this part of the study.

Frequent Versus Non frequent Testing

Research studies were made for different age groups to explain whether students perform differently when they are tested more frequently than less frequently. Researchers have offered several possible explanations for why frequent testing should benefit teaching and learning. However, most of this research was based on secondary,

high school, and college students. The first is that more frequent testing provides extrinsic motivation and that students work harder because they want to get good grades on the tests (Curo, 1963; Dustin, 1971; Khalaf, 1989; Standlee and Popham, 1960). Second, frequent testing offers the student feedback or knowledge of their results allowing them to see their areas of strengths and weakness in order to improve themselves (Bangert-Drowns et al., 1986; McDaris, 1984; standlee &Popham). The third possible explanation is what Standlee and Popham called "enforced activity" of the subject matter. According to these researchers, taking a test forces the student to process the information at a deeper level. Furthermore, Selakovich (1962 as cited in Feldhusen 1964) found that testing leads to improved class discussion. And lastly, Dustin proposed that frequent testing may reduce stress since each test represents a small portion of the total grade.

Based on the above, a study on frequent testing was conducted in 1986 by Bangert-drowns et al. The analysis proved affirmative results that students perform better on short tests on smaller units of instruction than on long tests covering larger units of instruction. Twenty six out of their thirty two studies favored frequent testing. The remaining six, however, proved negative results due to frequent testing.

As for students' attitudes, Bangert-drowns et al conducted five studies and found that students favored instruction and had a more positive attitude when they were tested more frequently.

Other studies have shown that frequent testing is more effective with weaker students. This study was conducted on high school mathematics students who were tested on either daily or weekly intervals. The end result of this trial was minor difference

among these students, students tested on weekly bases scored as per students tested on daily bases. However, great differences were seen within less difficult courses, meaning that frequent testing has a considerable effect on weak students (Dineen, Taylor, and Stephens, 1989).

Beaulieu and Frost (1989) investigated the effect of frequent testing on 137 college students. The procedure was to divide the students into three sections, one received 3 tests; 2nd received 7 tests; and the 3rd received 13 tests during the semester. The section given 13 tests scored the highest followed by those given 7 tests. After the trial, students showed preference for frequent testing.

In 1992, Kika, Mclaughlin and Dixon measured the effect of frequent testing on 51 secondary students for an eight month period. Students were tested on weekly and biweekly bases. His study showed that student's scores were higher during the weekly testing period than the biweekly testing period. Eighty percent of the students reported, in questionnaires, their preference for weekly testing.

According to Khalaf and Hanna (1992), high school students tested frequently score better than those less frequently tested. This was shown in their study on high school students who were tested once or twice a month.

Another study has shown that testing in general has a better effect on motivation than non-testing. This is supported by Bruce W. Tuckman (2003) who conducted a study where half of the students were tested frequently and the other half were given graded homework instead of tests. Students given tests earned higher grades with more motivation than those in the homework condition. Tests require storage of information in the long term memory while homework does not. Since homework students have easy

access to all material and texts needed; thereby they are not motivated to store any information in the long term memory. The overall result shows that frequently tested students achieved better and were more motivated than homework students.

As suggested in the introduction testing is a form of motivation. Some studies tried to prove it's extrinsic and others tried to prove it's intrinsic. Much other research tried to determine if frequent testing can affect student's motivation contrary to non frequent testing. Whether testing is intrinsic or extrinsic is what this thesis seeks to shed the lights on.

Intrinsic Motivation

As noted earlier, a student is intrinsically motivated when he or she is motivated from within. These students actively engage themselves in learning out of curiosity, interest, enjoyment or seeking out challenges and personal goals. Vallerand (1997) states that the idea of intrinsic motivation means all behaviors that stem from a person's enjoyment of the activity and interest in it. According to Dev (1997), "A student who is intrinsically motivated …will not need any type of reward or incentive to initiate or complete a task. This type of student is more likely to complete the chosen task and be excited by challenging nature of an activity". Kohn (1993) states: "intrinsically motivated students are lifelong learners, continuing to educate themselves outside the formal school setting long after external motivators such as grades and diplomas are removed".

Teachers should promote intrinsic motivation by creating authentic tasks that encourage meaningfulness, improvement, optimism, confidence and self-regulation (Martin and Cothran, 2002).

Certain schools create the right climate in order to promote motivation and student engagement through giving more attention to the designing and implementing conditions that maximize the opportunity for challenging learning experiences. However, there are teachers and classroom environments that generate negative moods and anxiety. The result is boredom, disengagement, disruptive tactics and dropping out (Ainley, 2004).

Specialists argue that even in the absence of potential rewards, children, from the time of birth, are naturally curious and playful (Harter, 1978). According to Richard F. Bowman Jr., it is the role of the educators to design schools and classrooms to increase student's intrinsic motivation. Bowman also questions: "Is it possible for effective teachers to use both intrinsic and extrinsic rewards in personal, thoughtful, and complementary ways"?

Because a variety of studies confirmed that intrinsic motivation is coupled with better learning, performance and well being (e.g. Benware & Deci, 1984 ; Deci, Schwartz, Sheinman, & Ryan, 1981 ; Grolnick & Ryan, 1987 ; Valas & Sovik, 1993), significant attention has been given to investigations of conditions that undermine versus develop intrinsic motivation. Thus, the needs for autonomy, competence and relatedness should be studied in relation to intrinsic motivation.

1. Intrinsic Motivation And Autonomy

In discussing the psychological meaning of intrinsic motivation and its undermining by intrinsic rewards, Deci (1975) suggested that: "intrinsically motivated behaviors represent an example of self determined activities and these are activities that people do naturally and spontaneously when they feel free to follow their inner interests". Such activities have what DeCharms (1968), extending a concept introduced by Heider

(1958), referred to as an internal perceived locus of causality. As studies by Deci and others (e.g., Lepper, Greene & Nisbett , 1973) suggested , when extrinsic rewards are introduced for doing an intrinsically interesting activity, people are likely to feel controlled by the rewards, prompting a transfer in perceived locus of causality for the behavior from internal to external. People feel less like origins of their behaviors and thus exhibit less intrinsic motivation. A meta-analysis of 128 studies across 3 decades confirmed that not only momentary rewards, but also all contingent t rewards undermined intrinsic motivation a lot (Deci, Kostner, & Ryan, 1999a). Incidentally, this meta-analysis repudiated a broadly cited earlier meta-analysis by behaviorists Eisenberger and Cameron (1996) who claimed to show that the effect of rewards as undermining was largely a myth.

2. Intrinsic Motivation And Competence

Some early experiments revealed that intrinsic motivation was enhanced when positive feedback was shown (Boggiano & Ruble, 1979 ; Deci, 1971) where as negative feedback decreased intrinsic motivation (Deci & Caascio, 1972). Deci and ryan (1980) related these findings to the need of competence (White, 1959) and considered that positive feedback provides satisfaction of the need of competence, and thus enhancing intrinsic motivation, whereas negative feedback events that show ineffectance tend to frustrate the need for competence and thus weaken intrinsic motivation.

Another study done by Vallerand and Reid (1984) confirmed that felt competence mediated the effects of positive versus negative feedback on intrinsic motivation. Additional studies done in the field of performance and positive feedback showed that positive feedback has its enhancement effect on intrinsic motivation only when

individuals feel responsible for the performance (Fisher, 1978 as cited in Deci and Ryan 1985). Thus it's noted that just as competence is important for any kind of motivation, also autonomy is important for the motivation to be intrinsic.

3. Intrinsic Motivation and Relatedness

It has been found that autonomy and competence are very powerful influences on intrinsic motivation, also theories and research suggest that relatedness has an important role in the maintenance of intrinsic motivation. This was proved in the findings of Anderson, Manoogian, and Reznick (1976) as cited in Deci and Ryan (1985) who studied a group of children and made them work on an interesting activity in the presence of an adult experimenter who ignored their attempts of interaction and the result was that these children displayed a very low level of intrinsic motivation. Another proved for the importance of relatedness for intrinsic motivation is discussed in the attachment theory (Bowlby, 1979). During infancy intrinsic, motivation is seen as an exploratory behavior and such behavior, as suggested by attachment theorists, is more vigorous when infants are securely attached to a parent.

In addition to these findings, "SDT hypothesizes that intrinsic motivation will be more likely to flourish in contexts characterized by a sense of secure relatedness" (Ryan & La Guardia, 2000). An example is also seen in the studies of Ryan and Gorlnick (1986) and Ryan, Stiller and Lynch (1994) who spoke of greater intrinsic motivation in students who worked with warm and caring teachers. Still, Deci and Ryan (2000) believe that in some situations relatedness in less vital to intrinsic motivation than autonomy and competence.

Extrinsic Motivation

Extrinsic motivation is the most controversial type of motivation. Extrinsic motivation comes from an external source in which students behave in certain ways in order to reach satisfaction outside of themselves during or after a behavior (Witzel and Mercer, 2003). Vallerand (1997) also states that extrinsic motivation refers to behaviors that are carried out to attain a certain outcome.

As an example, students who do their homework for either because they know its value for their career later on in life, or because they want to please their parents, in both cases, the students are considered as extrinsically motivated (Ryan & Connell, 1989; Vallerand, 1997).

According to Deci and Rayan (2000), there are four forms of extrinsic motivation: external regulation, introjected regulation, identified regulation, and integrated regulation. Each one of these four kinds has its causes and characteristics.

The most common extrinsic motivation is extrinsic rewards. These include: verbal behavior (praise), tangible items (stickers, candy, prizes, etc.), and nonverbal behaviors (smiles, winks, thumbs-up). According to Witzel and Mercer (2003), new teachers usually tend to use extrinsic motivation.

Cameron, Tate, McNaughton & Politano (1997) stated that providing students with positive and quality feedback enhances their self-esteem. A study conducted by Deci, Koestner & Ryan (2001), revealed that verbal rewards can cause negative effect on intrinsic motivation when they are controlling rather than informational.

Grades are considered as another form of reward. How can the act of testing and grading affect students' motivation in reaching high levels of achievement? Is this form of motivation intrinsic or extrinsic? How can we distinguish intrinsic motivation, extrinsic motivation and amotivation with respect to student's grades and test results?

Motivation and Psychological Needs

Numerous studies in educational settings investigated the results of autonomous self-regulation and its affect on behavior. Ryan and Cornell (1989) studied this issue and asked many questions like why students do their homework and they discussed all the different regulatory styles from external regulation to self regulation and they found out that they can predict certain behaviors according to the scores of each style as well as they can combine all these scores to get an overall relative autonomy indicator.

Gronlnick, Ryan and Deci (1991), found that elementary students did various school related behaviors for external, introjected, identified or intrinsic reasons. They claimed that although intrinsic motivation is inborn and does not result from internalization, the idea that it correlates to identified regulation more than it does to introjected and external regulation because as it is explained that the more a student identifies with a regulation and accepts it, the more the regulation is close to that of intrinsic motivation.

In their study, Gronlnick, Ryan and Deci (1991 as cited in Wrong, Wisest and Cusick 2002), also mentioned that there is a positive relationship between the children's autonomous motivation for learning, that is the identified and intrinsic kinds, and between the teachers report of the student's achievement and competence.

In a study done on third and fourth grade students, Miserandino (1996) found that they showed positive school attitudes and good performance even when controlling prior achievement styles and .

Balck and Deci (2000) completed a study on college students who were autonomously motivated for organic chemistry and they enjoyed the course and got higher grades then students who were more controlled in their motivation.

In a different study done also on college students , Vallerand and Bissonnette (1992) evaluated the academic motivation of Canadian junior college students at the beginning of the school year and the results were that some students dropped out during the year and those had lower scores on identified, integrated and integrated regulation than those who stayed at school. In a follow up study done by Vallerand, Fortier, and Guay (1997), it was shown that students who had support from their teachers and parents were more autonomously motivated for school work and studying and thus this led to less number of drop outs.

Sheldon and Kasser (1998) claimed that students who were autonomously self-regulating had more will for goal attainment and thus better well being outcomes opposite to those whose behavior was more controlled and displayed less well being following goal attainment.

To conclude, Deci and Ryan (2000) mention that different studies of student motivation in elementary students to college students in different schools and cultures showed that the SDT model of regulatory styles has obvious generalizability. And thus positive student's performance can be related to behavioral persistence, value endorsement, personal adjustment and positive coping.

Testing in Relation to Intrinsic and Extrinsic Motivation

Having learned the difference between both the intrinsic and extrinsic motivation, it is now worth noting that frequent testing may have a stronger effect on the extrinsically motivated students than on the intrinsically motivated ones. The intrinsically motivated students may not need frequent testing to increase their motivation since they are already enthusiastic about the whole learning process. Supporting the above claim, a study was conducted in 1989 by Grover, Becker, and Davis on twenty eight students. These students were given the chance to decide on their testing frequency. Half of the students chose frequent testing, and the other half chose the non-frequent testing option. The findings of this experiment showed an insignificant difference on the tests. Intrinsically motivated students received the same grade rates as per before the trial.

When asked their feedback, intrinsically motivated students and half the number of the extrinsically motivated students said that if they had to go all over this experiment again, they would have chosen frequent testing. The other half of the extrinsically motivated students preferred the non-frequent testing option. In support for the previous claims there is evidence that students who are more intrinsically motivated fare better than extrinsically motivated ones (Brookes et al., 1998).

Other researchers argue that using extrinsic motivators to engage students in learning can both lower achievement and negatively affect student motivation(Dev, 1997; Lumsden , 1994).Students who are motivated to study for a test only to avoid negative consequences or to earn a certain grade usually exert a minimum effort needed to reach their goal. Also the intrinsic motivation to learn may decrease and students may be

discouraged when they compare themselves with their classmates rather than on acquiring skills at their own rate (Brooks, 1998).

Page (1992) has proved that the effects of personally designed comments on student achievement (i.e., specific comments that were written based on knowledge of the student and details of their work) are more beneficial than pre-specified comments determined by grade assignment (i.e., A=Excellent; B= Good Work; C=Perhaps try to do still better; D=Let's bring this up; F=Let's raise this grade!). Interestingly, Page also argued that the use of these pre-specified comments is better than giving no comments at all.

Students consider such comments or grades as a form of reward that reinforces their positive behaviors, which in this case means the need to study for tests. However, there has been a lot of criticism over the use of incentives (Lumsden, 1994). Especially when students are less likely to engage in the positive behavior that is extrinsically rewarded when the reward is no longer available, that is when students do not have to go through the testing experience.

On the other hand, both Chance (1992) as cited in Kohen (2003) argue that the trouble with rewards that they are damaging for extrinsically motivated students. Kohen (1993) supports the previous argument by demonstrating that extrinsic rewards are ineffective at producing long term changes in attitudes or behaviors. Cameron, etal (2003), also believes that rewards, "because they are predictable and have market value" are forms of bribery.

Contrary to the arguments stated above, math teacher Andy Reeves (2003) argues that extrinsic reward systems have long term effects and develop good habits. While Chance (1992) does not agree with Reeves, he states "that teaching without extrinsic rewards is

analogous to asking students to learn to draw with their eyes closed". He adds that such rewards should be used efficiently.

All of the above research reached by scholars did not exactly shed the lights on the real effect of frequent testing and grading on elementary school students. Accordingly, a study was needed to clarify that kind of effect and to achieve conclusive results.

Hypotheses

In light of the literature reviewed above, the following hypotheses will be tested:

H1 Students tested frequently score higher on extrinsic motivation relative to students tested non-frequently.

H2 Students given weekly tests will have higher achievement scores than students given monthly tests.

Chapter Three

Method

The purpose of this study was to find correlation between testing and student motivation and achievement. An objective was to find if frequent testing could predict the student motivation to study and achieve more. This chapter will explain the methods used in carrying out the study and will look at the procedure and instrumentation used, as well as projects and data analysis.

The Research Context

The study took place in two Lebanese private schools in Sidon (South of Lebanon). For purposes of confidentiality, the schools will be referred to with fictitious names. The first school will be referred to as DM School and the second one will be referred to as AM school. The DM school consists of a preschool and an elementary school. The students enrolled in this school belong to the low and middle socioeconomic level. The DM school uses new and updated educational programs and always work on developing their teachers by sending them to workshops and conferences. They also use very good books in all subjects. This school uses a monthly testing program or what we can refer to as non frequent testing program. Students are not allowed to miss classes or to be absent from school unless for major reasons like sickness and their parents need to come to school to report their absence. Students who fail in one subject like math has to take one month math in the summer vacation and the sit for the test again in order to pass and be upgraded to the next level or class. If a student repeats his/her class and fails to pass for the second year, he will be suspended from the school and cannot

continue in it. The school is nice in its physical appearance, every year it is renovated and all its facilities and equipment are subject to constant repair. In addition to the yearly materials that are bought in order to stay up to date. As for the classes, they are big, well decorated and colorful.

The AM school is only an elementary school. The students enrolled in it also belong to the low and middle socioeconomic level. This school also uses new educational programs from planning to books to teacher development programs and such. Contrast to the DM school, the AM school uses a weekly testing program or what can be referred to as frequent testing program. In this school also, students are not allowed to miss classes or to be absent from school unless for major reasons like sickness and their parents need to come to school to report their absence. The same system is used with respect to failing students who have to sit for the tests again in order to pass them and be upgraded to the next level or class or else they will be suspended from the school and cannot continue in it.

The school is very nice in its physical appearance, and has large playgrounds and big classes in addition to a great theatre, large music room, well equipped physical education room, labs, library as well as big colorful classrooms.

Thus we can say that both schools belong to the same educational institution and have the same presidents. They share the same vision and educational plans. Materials in both schools are almost the same, books used are common, the way of planning is also the same especially that there are subject coordinators who follow up planning in both schools. Teachers at these two schools all have certificates, attend the same workshops

and are all well trained. However, these two schools are different in one major thing which is that the fees at one of them is more than the other and the reason is that one of them was built to be a school for the people who come from low socio-economic background.

Participants

The quantitative method was used in this study. The data was collected in the beginning of fall, 2009. The current study's sample included elementary school students, a sample of six grade students was chosen from the two different schools. The number of participants was 110 students who filled out the questionnaire. Participants were all of the same age. The mean age was 11 for females and males. As mentioned above, both schools have the same educational programs in all subjects. They utilize the same books and teaching procedures. The major difference between these schools was that one school gives frequent tests (One test per week) while the other school gives tests once a month at the end of a whole unit. Accordingly, we choose four subjects: English, Math, Science and Arabic. Thus, 8 teachers were part of this experiment. All teachers have certificates and each is majored in her field. They all are experienced teachers and each has been teaching for a certain period of time.

Instruments

One main scale was used in this study, The Academic Motivation. This questionnaire was employed to collect the data and was used to evaluate the subjects' attitudes towards frequent testing and their effect on students' achievements and enthusiasm. These questionnaires are based on questions especially designed and innovated to address the research topic.

Questionnaire

The Academic Motivation Scale (as cited in Vallerand et al., 1992; 1993)

The Academic Motivation Scale AMS is the English translation of the Echelle de motivation de Education (Vallerand et al., 1992) based on self- determination theory assesses intrinsic and extrinsic motivation at the elementary school level. This 28 item instrument is divided into seven subscales, reflecting one subscale of amotivation, three ordered subscales of extrinsic motivation (external, introjected, and identified regulation), and the three distinct, unordered subscales of intrinsic motivation (intrinsic motivation to know, to accomplish things, and to experience stimulation). It contains four different situations in which students are asked to indicate the extent to which they do these school-related behaviors for reasons provided in each of the situations. Items are assessed on a 5 point scale in which we add items across the different scenarios for a given construct (e.g. intrinsic motivation). For example, participants had to answer the following question: "Usually, I do my English homework..." The four subscales were identified extrinsic motivation (e.g. because I have chosen iot myself), amotivation (e.g. I don't know why, I really don't see what difference it makes), introjected extrinsic motivation (e.g. because it is what am supposed to do), intrinsic motivation (e.g. for the pleasure of doing it). Participants choose one of the mentioned four situations or reasons for what they would do. For each of these reasons they answer what best suits them using the choice of answer on the scale. The scale ranges from 1 = Almost never for this reason, 2 = rarely for this reason, 3 = generally for this reason, 4 = often for this

reason and 5 = Almost always for this reason. The validity of this scale is strong, as demonstrated by Fairchild et al. Several empirical studies investigating issues related to motivation have used both the French (e.g., Guay, Mageau, et al., 2003) and English (e.g., Cokley, 2000b) versions of the AMS scale. The psychometric properties of the AMS have been tested by Vallerand et al.(1992, 1993). The results from the studies showed that the AMS has good construct and concurrent validity, adequate factor structure and satisfactory levels of internal consistency and temporal stability. The AMS departs somewhat from SDT in that no items were included to measure integrated extrinsic motivation. Some studies use autonomous motivation to describe intrinsic, integrated and identified regulation because of their similarity in the degree to which they are self determined. Introjected regulation and external regulation are both experienced as externally controlled behaviors, although introjected regulation is partially internalized, it is not experienced as emanating from the self. For this reason some studies study these two types of extrinsic motivation together as controlled motivation (Mills & Fullagar, 2008; Ryan & Deci, 2000; Vallerand et al, 1992).

Procedures

The study was conducted in both schools at the same period of time. Letters were sent to the two private schools principals explaining the nature of the current study. Upon their approval, the researcher visited each of these schools in person and requested the grade s of the 6^{th} graders in all four subjects, English, math, Arabic and science. The researcher also did some observations of the school settings, classrooms, decorations, visual aids and schedules.

After these observations, the study was conducted and students in both schools were asked to answer the same questionnaire and were given enough time to determine the following: Gender, age, student's feedback on the three subjects, their relationships with their teachers and their preference of testing period. The students were told that they were participating in an experiment to determine whether they prefer to do a lot of tests or not and that it's voluntarily to participate and complete the questionnaires. She also mentioned that they are not asked to write their names. The researcher let them fill them and answered them when they had any clarification in order to make sure that they were able to understand the items clearly and whether the items needed to be revised or rephrased. Questionnaires were collected and then analyzed.

In addition to questionnaires, interviews were conducted with the 4 teachers regarding their students' grades and progress.

Chapter 4

Results

In order to test the hypothesis that students who are tested frequently will score higher on extrinsic motivation than students who are tested infrequently, independent samples t-tests were conducted to see the differences between students who are tested frequently and those tested infrequently on both the "extrinsic identified" and "extrinsic introjected" scales, in the subject areas of Arabic, math, English, and science. The minimum score a student can get on these scales is 0, and the maximum is 25. Results showed that for both extrinsic scales and in all subject areas students tested frequently had higher mean scores than students who are tested infrequently. The mean differences were significant for both scales in all subject areas expect for the "extrinsic identified" scale in science, where frequently tested students had higher scores but the mean difference did not reach significance.

For further analysis of the results, independent samples t-tests were conducted on the scores of amotivation between students who are tested frequently and those who are tested non-frequently in the subject areas of science, English, math, and Arabic. Results showed that in all the four subject areas non-frequently tested students had significantly higher mean scores for amotivation than frequently tested students. This shows that the motivation of the non-frequently tested group is less than the frequently tested group.

Moreover, independent samples t-tests were conducted on the scores of intrinsic motivation between students who are tested frequently and those who are tested non-frequently in the subject areas of science, English, math, and Arabic. Results showed that in all the four subject areas non-frequently tested students had significantly higher mean scores for intrinsic motivation than frequently tested students. This shows that intrinsic motivation is lower for frequently tested students. This result is in line with the results above showing that

frequently tested students have higher extrinsic motivation than non-frequently tested students (see table 1).

Table 1 Group differences and t- test

Means									
Frequent					Non-Frequent				
Extrinsic		N	Mean	St. Dev.	N	Mean	St. Dev	t-test	Significance
Identified	Science	55	15.49	3.167	54	13.19	14.207	1.174	.243
	English	55	13.04	3.925	54	11.31	3.928	2.289	.024
	Math	55	14.49	3.299	54	11.37	4.104	4.379	.000
	Arabic	55	14.62	3.880	54	10.67	3.752	5.404	.000
Extrinsic	Science	55	14.47	2.892	54	12.91	2.929	2.808	.006
Introjected	English	55	14.02	4.094	54	11.83	3.586	2.962	.004
	Math	55	13.58	3.047	54	11.43	2.462	4.059	.000
	Arabic	55	15.78	3.095	54	13.31	2.945	4.262	.000
Amotivation	Science	55	10.18	3.840	54	12.63	3.321	3.557	.001
	English	55	8.89	3.900	54	12.65	4.830	4.472	.000
	Math	55	10.47	2.251	54	13.96	3.539	6.155	.000
	Arabic	55	9.22	3.814	54	12.74	3.371	5.106	.000
Intrinsic	Science	55	11.49	3.360	54	16.98	2.730	9.353	.000
Motivation	English	55	12.53	3.321	54	15.65	3.753	4.600	.000
	Math	55	11.00	2.502	54	16.85	2.616	11.936	.000
	Arabic	55	10.95	2.542	54	17.17	2.690	12.413	.000

Similarly to test the hypothesis that students who are tested frequently will have higher academic averages than students who are tested infrequently, independent samples t-tests were conducted to see the differences between students who are tested frequently and those tested infrequently on their school grades in the subject areas of Arabic, math, English, and science. Results showed that only in the English subject area students tested frequently had higher academic averages than those tested infrequently. In the subject areas of math and science, frequently tested students had higher grades then infrequently tested ones, but the mean difference did not reach significance. Concerning Arabic, the opposite effect was observed: infrequently tested students had a higher mean of their academic average than frequently tested students (see table 2).

Table 2 Group differences and t- test

Means									
Frequent					Non-Frequent				
		N	Mean	St. Dev.	N	Mean	St. Dev	t	Sig
Grades	Science	55	83.33	10.16	54	82.30	10.58	.517	.606
	English	55	62.56	11.41	54	57.49	11.76	2.281	.024
	Math	55	74.84	13.96	54	73.25	14.63	.579	.564
	Arabic	55	61.14	11.59	54	62.50	12.02	.603	.548

Discussion

This chapter will break up into several sections. The main headings which will be tackled are: restatement of the problem of the research and then revision of the methodology applied throughout the study. It will also summarize the results, and discuss them. Finally, recommendations for future studies will be mentioned.

The aim of the current research was to discover the effect of frequent testing on student's extrinsic motivation and achievement. It targeted elementary cycle students.

General results of the present study supported the general hypothesis that students given weekly tests have higher achievement levels and score higher on extrinsic motivation than students tested non-frequently. The obtained results tended to support all the previously mentioned hypotheses. The following sections will tackle the following points: student's extrinsic motivation, student's scores; theories and previous studies; recommendations for future research.

This study predicted that students tested frequently score higher on extrinsic motivation relative to those tested non-frequently. Results showed that in the extrinsic introjected scale for the subjects of math, Arabic, English and science, students tested frequently had significantly higher grades or scores on the extrinsic scale than those tested non-frequently.

Concerning the extrinsic identified scale, in the subjects of Arabic, math and English, frequently tested students had significantly higher scores on the extrinsic identified scale than students tested non-frequently.

Regarding the subject of science, frequently tested students had higher scores on extrinsic identified scale but the difference between them and those tested non-frequently didn't reach significance.

This result is in line with a study done by Grover, Becker and Davis who conducted a study on twenty eight students. These students were asked about their testing preference. Half of the students chose frequent testing while the other half chose non-frequent testing. Results of this study showed that frequent testing had a stronger effect on the extrinsically motivated students than the intrinsically motivated ones. This is based on the idea that intrinsically motivated students don't need frequent testing to be motivated since they are already motivated to study and achieve.

Another support for the results of this current study is the research done by Curo, Dustin, et al. There research was based on secondary, high school and college students. They proved that frequent testing increases extrinsic motivation and is beneficial for learning. They found that more frequent testing provides extrinsic motivation and that students work harder because they want to get good grades on the tests. Another reason for the students to work for tests according to Baangert-Drwons, et al is that frequent testing offers them feedback about their results and thus allows them to improve themselves and work on their weaknesses. Again this mentioned research supports the results as it explains how frequent testing increases the student's extrinsic motivation.

For further analysis of the results, t-tests were conducted on the scores of amotivation between students who are tested frequently and those who are tested frequently and

those who are tested non-frequently in the four subjects. Results showed that in all the four subject areas non-frequently tested students had significantly higher mean scores for amotivation than frequently tested students. This also supports our hypothesis that frequently tested students are more extrinsically motivated as this result shows that the motivation of the non-frequently tested group is less than the frequently tested group. This implies that if students are not pushed to study for a test, they will not study. Thus, they need the test in order to be motivated to study and pass.

Moreover, t-tests were conducted on the scores of intrinsic motivation between students who are tested frequently and those who are tested non-frequently in the four subjects. The results showed that in all the four subject areas non-frequently tested students had significantly higher mean scores for intrinsic motivation than frequently tested students.. This result is in line with the results above showing that frequently tested students have higher extrinsic motivation while non- frequently tested students have higher intrinsic motivation.

Another hypothesis of the present study predicted that students given weekly tests will have higher achievement levels than students given monthly tests. Results showed that only in the English subject, students tested frequently had significantly higher scores than those tested non-frequently.

Concerning the subjects of science and math, the grades of students tested frequently were higher than those tested non-frequently; however, the only difference between the means of the two groups didn't reach significance.

The opposite effect was observed in the Arabic subject where students tested non-frequently had a higher mean score than students tested frequently, but the mean difference was not significant.

The above mentioned results are in line with the hypothesis that frequently tested students scored higher grades than non-frequently tested students. This can be explained by the fact that students study for the test no matter what their motive was, but still when they have a test, the definitely study in order to get a good grade. That is why they scored more than those who don't do regular tests. As for the Arabic subject, the reason behind the higher scores of the non-frequently tested group may be that Arabic is the student's native language and usually all students don't study for this subject as much as they study for English or science or any other subject.

These results can be supported with the study done by Beaulieu and Frost (1989) who investigated the effect of frequent testing on college students and the result was that those given frequent tests scored higher than those given non-frequent tests. Another study by Kika (1992) supports the findings of the present study as it measured frequent testing on secondary students. The study showed that student's scores were higher during the weekly testing period than the biweekly testing period in addition to the student's preference of the weekly testing method.

In their study, Khalaf and Hanna (1992), they support the results of the current study. They tested high school students and found that those tested frequently scored better than those less frequently tested.

Another study done by Bruce W. Tuckman (2003) has shown that testing has a better effect on motivation and achievement. The results of his study support this present

study since students given frequent tests earned higher grades and were more motivated than students given graded homework.

Conclusion

The purpose of this study concerning frequency of testing was to determine if there is a difference in achievement between students given weekly or frequent tests and those given monthly or non-frequent6 tests. And to determine whether students tested frequently score higher on extrinsic motivation relative to those tested non-frequently.

To test these differences, students had to answer a 28 item questionnaire in four subjects which are English, math, science and Arabic. Their scores in addition to their school grades were computed.

The study showed that frequently tested students scored significantly higher in the extrinsic introjected scale in the four subjects than those tested non-frequently. Also frequently tested students scored higher in the extrinsic identified scale in the subjects of English, math and Arabic. As for science, the difference of scores between them and students tested non-frequently didn't reach significance.

Another finding of the study was that in the English subject only students tested frequently had significantly higher scores than those tested non-frequently. While in Arabic, students tested non-frequently had higher scores than those tested frequently even if the mean difference didn't reach significance.

Findings of this study indicate that students achieve more when they are more motivated if frequently tested. Additional research is recommended on the topic of frequent testing and its effect of student motivation and achievement. An important implication for school teachers is that frequent testing is beneficial and more motivating

for students. Students prefer frequent testing. They find it easier to be tested frequently in short units than being testes less frequently with a larger amount of information. Frequent testing produces better test scores and thus better evaluation which in return helps in achieving positive attitudes towards school and studying. Teachers must look at the testing process as a kind of motivation to study, to learn and finally to achieve.

For future studies, it is recommended to compare the effects of frequent testing with various variables such as gender, age, parent pressure and school averages.

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Scale Description

This scale assesses intrinsic and extrinsic motivation at the elementary school level. It contains different situations in which students are asked to indicate the extent to which they do these school related behaviors for the reasons provided in each of the situations. Items are assessed on a 5-point scale and we add the items across the different scenarios for a given construct (e.g. intrinsic motivation). We strongly suggest reading each of the items for the elementary school students.

Key for AMS-E 3x4

#1 Extrinsic motivation- identified regulation

#2 Amotivation

#3 Extrinsic motivation- introjected regulation

4 Intrinsic motivation

School and I

Age: _____ **School: A. M. School**

Sex: Male ____ Female ____

No Name Please

For each of the following reasons, circle the answer which suits you best, using the choice of answer on a scale of 1 to 5.

Almost never for this reason	Rarely for this reason	Generally for this reason	Often for this reason	Almost always for this reason
1	2	3	4	5

Subject: English

A) Usually, I do my English homework...

1. ... Because I have chosen it myself..... 1 2 3 4 5
2. ... I don't know why, I really don't see what difference it makes 1 2 3 4 5
3. ... Because it is what I am supposed to do....1 2 3 4 5
4. ... For the pleasure of doing it..... 1 2 3 4 5

B) Usually, I listen to my English teacher...

1- ... Because I have chosen it myself..... 1 2 3 4 5
2- ... I don't know why, I really don't see what difference it makes 1 2 3 4 5
3- ... Because it is what I am supposed to do....1 2 3 4 5
4- ... For the pleasure of doing it..... 1 2 3 4 5

C) Usually, I read an English book...

1- ... Because I have chosen it myself..... 1 2 3 4 5
2- ... I don't know why, I really don't see what difference it makes 1 2 3 4 5
3- ... Because it is what I am supposed to do....1 2 3 4 5
4- ... For the pleasure of doing it..... 1 2 3 4 5

D) <u>Usually</u>, I prepare for an English test...

1- ... Because I have chosen it myself..... 1 2 3 4 5
2- ... I don't know why, I really don't see what difference it makes 1 2 3 4 5
3- ... Because it is what I am supposed to do....1 2 3 4 5
4- ... For the pleasure of doing it..... 1 2 3 4 5

E) What testing schedule would you <u>prefer</u> in English?

Daily _____
Weekly_____
Monthly_____

Subject: Arabic

A) <u>Usually</u>, I do my Arabic homework...

1- ... Because I have chosen it myself..... 1 2 3 4 5
2- ... I don't know why, I really don't see what difference it makes 1 2 3 4 5
3- ... Because it is what I am supposed to do....1 2 3 4 5
4 -... For the pleasure of doing it..... 1 2 3 4 5

B) <u>Usually</u>, I listen to my Arabic teacher...

1- ... Because I have chosen it myself..... 1 2 3 4 5
2- ... I don't know why, I really don't see what difference it makes 1 2 3 4 5
3- ... Because it is what I am supposed to do....1 2 3 4 5
4- ... For the pleasure of doing it..... 1 2 3 4 5

C) <u>Usually</u>, I read an Arabic book...

1- ... Because I have chosen it myself..... 1 2 3 4 5
2- ... I don't know why, I really don't see what difference it makes 1 2 3 4 5
3- ... Because it is what I am supposed to do....1 2 3 4 5
4- ... For the pleasure of doing it..... 1 2 3 4 5

D) <u>Usually</u>, I prepare for an Arabic test...

1- ... Because I have chosen it myself..... 1 2 3 4 5
2- ... I don't know why, I really don't see what difference it makes 1 2 3 4 5
3- ... Because it is what I am supposed to do....1 2 3 4 5
4- ... For the pleasure of doing it..... 1 2 3 4 5

E) What testing schedule would you <u>prefer</u> in Arabic?

Daily _____
Weekly_____
Monthly_____

Subject: Science

A) <u>Usually</u>, I do my science homework...

1- ... Because I have chosen it myself..... 1 2 3 4 5
2- ... I don't know why, I really don't see what difference it makes 1 2 3 4 5
3- ... Because it is what I am supposed to do....1 2 3 4 5
4- ... For the pleasure of doing it..... 1 2 3 4 5

B) <u>Usually</u>, I listen to my science teacher...

1- ... Because I have chosen it myself..... 1 2 3 4 5
2- ... I don't know why, I really don't see what difference it makes 1 2 3 4 5
3- ... Because it is what I am supposed to do....1 2 3 4 5
4- ... For the pleasure of doing it..... 1 2 3 4 5

C) <u>Usually</u>, I watch science movies...

1- ... Because I have chosen it myself..... 1 2 3 4 5
2- ... I don't know why, I really don't see what difference it makes 1 2 3 4 5
3- ... Because it is what I am supposed to do....1 2 3 4 5
4- ... For the pleasure of doing it..... 1 2 3 4 5

D) <u>Usually</u>, I prepare for a science test...

1- ... Because I have chosen it myself..... 1 2 3 4 5
2- ... I don't know why, I really don't see what difference it makes 1 2 3 4 5
3- ... Because it is what I am supposed to do....1 2 3 4 5
4- ... For the pleasure of doing it..... 1 2 3 4 5

E) What testing schedule would you <u>prefer</u> in science?

Daily _____
Weekly_____
Monthly_____

Subject: Mathematics

A) <u>Usually</u>, I do my math homework...

1- ... Because I have chosen it myself..... 1 2 3 4 5
2- ... I don't know why, I really don't see what difference it makes 1 2 3 4 5
3- ... Because it is what I am supposed to do....1 2 3 4 5
4- ... For the pleasure of doing it..... 1 2 3 4 5

B) <u>Usually</u>, I listen to my math teacher...

1- ... Because I have chosen it myself..... 1 2 3 4 5
2- ... I don't know why, I really don't see what difference it makes 1 2 3 4 5
3- ... Because it is what I am supposed to do....1 2 3 4 5
4- ... For the pleasure of doing it..... 1 2 3 4 5

C) <u>Usually</u>, I solve math problems on my own...

1- ... Because I have chosen it myself..... 1 2 3 4 5
2- ... I don't know why, I really don't see what difference it makes 1 2 3 4 5
3- ... Because it is what I am supposed to do....1 2 3 4 5
4- ... For the pleasure of doing it..... 1 2 3 4 5

D) <u>Usually</u>, I prepare for a math test...

1- ... Because I have chosen it myself..... 1 2 3 4 5
2- ... I don't know why, I really don't see what difference it makes 1 2 3 4 5
3- ... Because it is what I am supposed to do....1 2 3 4 5
4- ... For the pleasure of doing it..... 1 2 3 4 5

E) What testing schedule would you <u>prefer</u> in math?

Daily _____
Weekly_____
Monthly_____

☺ Thank You ☺

Figure 1: The Self Determination Continuum Showing Types of Motivation with Their Regulatory Styles, loci of Causality and Corresponding Processes.