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A SURVEY ON VOCABULARY LEARNING STRATEGIES USED BY STUDENTS AT OSMANGAZi SUPER HIGH SCHOOL

Master Thesis

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We certify that we have read the thesis submitted by Aylin Filiz Tek titled "A Survey on Vocabulary Learning Strategies Used by Students at Osmangazi Super High School" and that our combined opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts.

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ABSTRACT

A SURVEY ON VOCABULARY LEARNING STRATEGIES USED BY STUDENTS AT OSMANGAZİ SUPER IDGll SCHOOL

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The main purpose of this research was to describe vocabulary learning strategies employed by students at OSHS, one of the public schools in Bursa, Turkey. Besides diagnosing the most and the least popular VLS, the study also aimed at investigating whether or not there is a significant difference in strategy use due to gender and graders.

To reach these goals the study was carried out with 191 students from Osmangazi Super High School. To measure the frequency of the VLS, a questionnaire consisting of 36 items was applied.

According to the results obtained from the questionnaire, cognitive strategies were frequently used. Of all vocabulary learning strategies, metacognitive ones were found the least applied. More specifically, students at OSHS use "Bilingual dictionaries" frequently while learning a new word. It was also found that the least preferred strategy was "Reading an English language newspaper". In addition, significant differences were found only in the use of three items between males and females, namely, "Doing written repetition (Cog5)", "Saying new word aloud when studying (Mem8)" and "Using English-language internet (Meta 9). On the contrary, it was concluded from the descriptive statistics of the questionnaire that students in Prep classes were more eager to use vocabulary learning strategies.

Key Words: Learning Strategies, Vocabulary Learning Strategies

ÖZ

OSMANGAZİ LİSESİ ÖGRENCİLERİNİN KULLANDIGI KELİME ÖGRENME STRATEJİLERİ UZERİNE BİR ARAŞTIRMA

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Yüksek Lisans Tezi, İngiliz Dili Öğretimi Bölümü

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Bu araştırmanın temel amacı, Türkiye, Bursa'daki devlet okullarından biri olan Osmangazi Süper Lisesi'ndeki öğrencilerin uyguladıkları kelime öğrenme stratejilerini tanımlamaktır. En çok ve en az popüler olan kelime öğrenme stratejilerini betimlemenin yanı sıra, bu çalışma aynı zamanda strateji kullanımında cinsiyetler ve sınıflar arasında belirgin bir farkın olup olmadığını araştırmayı hedeflemiştir.

Bu amaçlara ulaşabilmek için, çalışma Osmangazi Süper Lisesinden 191 öğrenci arasında yürütülmüştür. Kelime öğrenme stratejilerinin kullanım sıklıklarını ölçmek için 36 maddeden oluşan bir anket uygulanmıştır.

Anketten elde edilen sonuçlara göre, en sık kullanılan stratejiler bilişsel stratejilerdir. Tüm stratejiler arasında metacognitive stratejiler ise en az uygulananlar olarak bulundu. Daha belirgin olarak, Osmangazi Süper Lisesi'ndeki öğrenciler yeni bir kelime öğrenirken en çok iki dilli sözlük kullanıyorlar. Aynca "İngiliz dilinde bir gazete okumak" ise en az tercih edilen strateji olarak bulundu. Buna ilaveten, strateji kullanımında erkek ve kız öğrenciler arasında belirgin olarak sadece üç stratejinin kullanımında görülmüştür, bunlar sırasıyla şöyledir; Cog5 "Yazılı tekrar yapma", Mem8 "Yüksek sesle tekrar ederek çalışma" ve Meta9 "İnternet dili olarak İngilizce kullanmak". Öte yandan, anketin istatistiksel verilerinden anlaşılacağı üzere hazırlık sınıflarındaki öğrenciler kelime öğrenme stratejilerini kullanmakta daha istekliler.

Anahtar Kelimeler: Öğrenme Stratejileri, Kelime Öğrenme Stratejileri

TABLE OF CONTENTS

LIST OF TABLES

TABLES

LIST OF FIGURES

FIGURES

ABBREVIATIONS

ELT	English Language Teaching
SLA	Second Language Acquisition
OSHS	Osmangazi Super High School
METU	Middle East Technical University
TED	Türk Eğitim Derneği
VLS	Vocabulary Leaming Strategies
VA	Vocabulary Acquisition
L2	Second Language
Ll	First Language
STM	Short-term Memory
LTM	Long-term Memory
PM	Permanent Memory
WM	Working Memory
GTM	Grammar Translation Method
DM	Direct Method
ALM	Audiolingual Method
CLT	Communicative Language Teaching
LLS	Language Leaming Strategies
DET	Determination Strategies
SOC	Social Strategies

MEM	Memory Strategies
COG	Cognitive Strategies
META	Metacognitive Strategies
BUSEL	Bilkent University School of English Language
RVPMR	Recording Vocabulary with Personalized Meaning Representations
AET	Assisted English Teacher
EAHS	Ertuğrulgazi Anatolian High School
SPSS	Statistical Package for the Social Sciences

CHAPTER I

INTRODUCTON TO THE STUDY

I.O Presentation

In this chapter, the background of the study will be presented first. Then, the problem will be described and discussed in detail .The aim and the scope of the study will follow these discussions. Later, limitations concerning the study will be explained thoroughly. Finally, the key concepts used throughout the study will be defined.

1.1 Background of the Study

Although vocabulary has not receieved a lot of attention from researchers until recently, it is in fact central to language since learners of English have to deal with unfamiliar vocabulary during their language acquisition. As it is emphasized by Macaro (2003), "the expansion of the lexicon is a key to educational success". He explains that vocabulary knowledge enables learners to achive other things in the learning process. For instance, familiar words help learners to recognize also the unknown ones while reading. Reading a lot means having great vocabulary and sufficent vocabulary makes reading easier. Likewise, a large vocabulary leads learners to use tricks to interpret their intentions in oral communication.

Moreover, having learnt all the basic structures of the language is not adequate to communicate effectively and express ideas in the target language. As the importance of

vocabulary in communication is stressed by many schoolars, "lexical problems frequently interfere with communication; communication breaks down when people do not use the right words" (Allen, 1983, 5).

Its importance has been also supported by Rivers (1983, 125) who emphasized that without extensive vocabulary one would not be able to "use the structures and fimctions for comprehensible communication". A similar approach has been advocated by Krashen (1983, 155) who mentioned "Vocabulary is basic to communication. If acquirers do not recognize the meaning of the key words by those who address them they will be unable to participate in the conversation" (cited in Saltuk, 2001).

Likewise having a great vocabulary is of importance before starting to read an authentic text. Some researchers such as Baumann, Kameeuui, and Ash (2003), Becker (1977), Davis (1942), and Whipple (1925) have found a relationship between the extent of students' vocabulary knowledge and their reading comprehension and overall academic success. Students need "a great many words to get meaning from what they read and to establish the meaning of new ones when they encounter them. Lehr et al (2004) illustrates this situation by saying that students who have not sufficient word knowledge avoid reading. They summarized their findings as follows: "Good learners read more, become better readers, and learn more words; poor readers read less, become poorer readers, and learn fewer words" (2004). Moreover, Ekmekçi (1989, 3) has pointed out "a cyclical effect between vocabulary, reading and knowledge". Reading comprehension can be affected by word knowledge; likewise reading can contribute to vocabulary growth.

Beside the ignorance of vocabulary in the field of ELT, there is a common misbelief that the learning of a word meaning requires mostly the use of dictionaries

and teachers generally rely on the list of words with their translations. Over the last few decades fortunately a significant and gradual shift has taken place within the field of education. The emphasis on teachers and teaching has begun to move onto learners and learning. It has been attempted to identify learner-oriented and learner-driven language learning. For succesful second language learning the essential things were suggested by Naimann et al (1996). As it was concluded from the research results, the learner must:

I. be active in his/her approach and practice
2. come to grips with the language as a system
3. use the language in real communication
4. monitor his (her) interlanguage
5. come to terms with the effective demand of language learning

(Cited in Jones, 2000, 110)

It has been strongly emphasized that learners should take part in their own learning actively. In such a situation like this, teachers should act not only as a model and director but also as a supporter and facilitator in the language classroom. The effect of this drastic change in the area of SLA has been also felt in teaching and learning vocabulary. This change then has led to an emphasis on the vocabulary learning strategies.

However, this awareness in teaching vocabulary and vocabulary learning strategies seems not to take the necessary importance from the educators in Turkey. Vocabulary teaching has been still handled in a traditional way. Students are generally given long vocabulary lists to memorize or are made to guess unknown words from the context while reading a text. In addition, vocabulary instruction has been treated as a secondary item that can be learned while dealing with the structures of English and it has never been given the main focus in teaching and learning process. Besides, teachers avoid from spending extra time to teach new words because of the loaded English

curriculum and crowded classrooms. Therefore, it becomes the students' own duty to deal with vocabulary. However, do the students especially at public schools know the different ways of learning vocabulary? Are they aware of the vocabulary learning strategies which can facilitate their learning process? Or how many of them can develope their own strategies which make them more effective learners?

The problem which caused this study to be done is that the students at Osmangazi Super High School, one of the public schools in Bursa, need help in the best ways to learn and practice English words. By the help of this study, Vocabulary Learning Strategies should be investigated to make the students attending the OSHS be aware of these strategies. If they notice their capacity to apply different strategies in learning vocabulary, they feel more confident and become more active in the learning process. Developing the right VLS, the students may become more proficient in English.

1.l Aim and Scope of the Study

Much research has been done to investigate the vocabulary learning strategies of Turkish students. However, these studies conducted by Bozatlı (1998), Ekmekçi (1999) and Saltuk (2001) have been done to find out and develop mainly the vocabulary learning strategies of successful students especially in private schools and at big universities such as at METU, TED College and Anatolian University. Little has been done to diagnose the strategy use among less efficient schools. Besides, these studies did not pay attention to the gender and grader factors. This present study is designed to make the students at public schools be aware ofVLS. The main purpose of this study is

to identify strategies that Turkish students at OSHS use. In that aspect, the least and the most popular strategies are going to be emphasized. The second aim is to seek whether or not there is a significant difference between two sexes. Lastly, significant differences are going to be investigated according to graders.

This study, therefore, attempts to find answers to the following questions:

1. Currently, what vocabulary learning strategies do Turkish students at Osmangazi Super High School commonly use?
2. Which VLS are most and least frequently used by the students at OSHS?
3. Is there a significant difference in strategy use due to gender?
4. Is there a significant difference among graders?

1.3 Limitations

Several limitations were involved while conducting the study.

Firstly, this study dealt with only vocabulary learning strategies and did not take students' learning styles into consideration.

The second limitation was related to the subjects themselves. The study did not include all students at Osmangazi High School. Only the ones attending to the Super Department took participated in the research because English is taught to these students extensively. According to the curriculum, a 24- hour English is taught to students in Prep classes, and an 8-hour to the 1st graders. A 4-hour English instruction is given to the 3rd and 4th graders. On the other hand, the students attending to the other department learn English for 4 hours and only while they are at 1st grade.

The third limitation was concerned with the questionaire itself which was used to measure the frequency of the vocabulary learning strategies. The questionnaire was adapted from Kudo (1999); however, some of the items were excluded from the questionnaire because of the cultural and educational differences between Turkish and Japanese people.

1.4 De:fmition of Terms

The terms receptive vocabulary knowledge, productive vocabulary knowledge, explicit vocabulary learnin~, incidental vocabulary learning, learning strategies and vocabulary learning strategies have been used throughout in this study. The definitions of these terms are as the following:

Receptive Vocabulary Knowledge: It means being able to understand the form of a word while listening or reading and recall its meaning when it is needed (Nation, 2001, 24).

Productive Vocabulary Knowledge: It requires learners to produce or use spoken or written form of the knowledge (Schmitt, 2000, 4).

Explicit Vocabulary Learning: Explicit vocabulary learning focuses on "the study of words" (Schmitt, 2000, 116).

Incidental Vocabulary Learning: Incidental vocabulary learning exposes its attention to "the use of language" (Schmitt, 2000, 116).

Learning Strategies: Learning strategies are specific techniques or actions that students use to acquire, retain, store, and retrive new information. They are steps or

actions that learners use with some degree of conciousness to enhance their own learning (Yamamari et al, 2003, 381).

Vocabulary Learning Strategies: Vocabulary learning strategies are a part of language learning strategies. They enable learners to be active in their own learning process. Learners decide the best ways of learning vocabulary for themselves.

CHAPTERil

THE REVIEW OF LITERATURE

2.0 Presentation

In this chapter, a review of background knowledge on vocabulary will be presented. In the framework of vocabulary acquisition, a distinction between the receptive and productive vocabulary will be given at first. Then, aspects of knowing a word will be listed down. After the role of memory in VA is stated, the place of vocabulary in second language methodologies will be revised. Following this, two main processes of VA, namely explicit and implicit learning will be highlighted. Finally, relevant aspects of the literature on language and vocabulary learning strategies in ELT will be mentioned with the empirical studies conducted on these fields.

l.1 Knowing a Word

Almost all second language learners and educators in the field of ELT well know that learning a second language (L2) includes the learning of large numbers of words (Laufer & Hulstijn, 2001). As it is stated by Zhihong (2000) one cannot have an effective communication unless he/she has enough vocabulary since words are the basic components of languages. Zhihong (2000) sees limited vocabulary as a barrier preventing students from learning a foreign language.

In Collins Cobuild English Language Dictionary (1988, 1632) "word" is described as "a single unit of language that can be represented in writing or speech". In his book Nation (2001, 23) asserts, "Words are not isolated units of language, but fit into many interlocating systems and levels". Then a question arouse in our minds. What constitutes word knowledge? In other words, what does it mean to know a word? It seems that establishing the components of knowing a word is not an easy task. As it is mentioned in Bozatlı's thesis (1998), Carter (1987), Wallece (1982), Laufer (1990), Oxford & Scarcella (1994) nearly share the same idea about the characteristics of "knowing a word". However Nation (2000, 24) is the one who gives a more specific explanation about the meaning of "knowing a word" and distinguishes the word knowledge into two, namely "receptive knowledge" and "productive knowledge". *Receptive knowledge* means being able to understand a word. On the other hand, *productive knowledge* requires learners to produce or use spoken or written form of the knowledge (Schmitt, 2000, 4). To have a clear understanding of this distinction, the receptive and productive knowledge of vocabulary are going to be explained in detail in the following part.

2.1.1 The Receptive Vocabulary versus the Productive Vocabulary

In ELT literature, there is a clear distinction between skills, namely *receptive skills* referring to listening and reading and *productive skills* referring to speaking and writing. These two terms leads to another distinction in vocabulary knowledge as *receptive vocabulary* and *productive vocabulary.* As noted by Nation (2001) receptive vocabulary use requires understanding the form of a word while listening or reading and

recalling its meaning when it is needed. On the contrary, productive vocabulary makes a learner to use and recall the appropriate spoken and written form of a word.

Nation (2001, 24-28) highlights this distinction by giving a specific example. He describes the steps of knowing the word *"underdeveloped"* in respect to receptive knowledge as the following:

- being able to recognise the word when it is heard
- being familiar with its written form so that it is recognised when it is met in reading
- recognising that is made up of the parts *under-*, *-develop-* and *-ed* and being able to relate these parts into meaning
- knowing that *underdeveloped* signals a particular meaning
- knowing what the word means in the particular context in which it has just occurred
- knowing the concept behind the word which will allow understanding in a variety of contexts
- knowing that there are related words like *overdeveloped, backward* and *challenged*
- being able to recognise that *underdeveloped* has been used correctly in the sentence in which it occurs
- being able to recognise that words such as *territories* and *areas* are typical collocations
- knowing that *underdeveloped* is not an uncommon word and is not a pejorative word.

At the same time Nation (2001, 28) illustrates the productive knowledge by again concentrating on the same word *"underdeveloped'* as below:

- being able to say it with correct pronunciation including stress
- being able to write it with correct spelling
- being able to construct it using the right word parts in their appropriate forms
- being able to produce the word to express the meaning 'underdeveloped'
- being able to produce the word in different contexts to express the range of meanings of *underdeveloped*
- being able to produce synonyms and opposites for *underdeveloped*
- being able to use the word correctly in an original sentence
- being able to produce words that commonly occur with it
- being able to decide to use or not use the word to suit the degree of formality of the situation (At present *developing* is acceptable than *underdeveloped* which carries a slightly negative meaning.).

In ELT literature some researches have been conducted in relation to the distinction of receptive and productive vocabulary knowledge. One of the researches carried by Morton (1977) highlights that receptive vocabulary knowledge is twice as large as productive vocabulary knowledge (in Barcroft, 2004). The other researcher Melka (1997) has found out that the productive- receptive distinction may exist at the level of testing and not in the learner's mind and has noted "It is certainly not clear what her [reception] and (production] ought to be considered as two separate systems dependent on each other, or rather as one unique system (one lexical store) used in two different ways, receptively or productively" (quoted in Barcroft, 2004, 101-102).

In addition, Nation (200I) points out that it is easier to get receptive knowledge in respect to productive knowledge.

2.2 Aspects of Knowing a Word

This part has been organized to explain the nine aspects of knowing a word based on mainly the categories which are proposed by Nation (2001). Before going on the details about each aspect, a brief presentation of what is involved in knowing a word is going to be listed down as in the following table:

Table I What is involved in knowing a word

Form	spoken	R	What does the word sound like?
		p	How is the word pronounced?
	written	R	What does the word look like?
		p	How is the written and spelled?
	word parts	R	What parts are recognisable in this word?
		p	What word parts are needed to express the meaning?
Meaning	form and meaning	R	What meaning does this word form signal?
		p	What word form can be used to express the meaning?
	concept and referents	R	What is included in the concept?
		p	What items can the concept refer to?
	associations	R	What other words does this make us think of?
		p	What other words could we use instead of this one?
Use	grammatical functions	R	In what patterns does the word occur?
		p	In what patterns must we use this word?
	collocations	R	What words or types of words occur with this one?
		p	What words or types of words must we use with this one?
	constraints on use (register, frequency ...)	R	Where, when, and how often would we expect to meet this word?
		p	Where, when, and how often can we use this word?

2.2.1 Spoken Form

Being able to distinguish and recognize the acoustic representation form of a word constitutes the knowledge of *spoken* or in other words *phonological* form of the

word (Schmitt, 2000). As it is concluded that spoken form of a word occurs both at the end of the receptive scale and in the beginning of the productive scale (Nation, 2001). However, to know only acoustic characteristics of a word is not sufficient. At the same time one has to be aware of its parts. Knowledge of the individual phonemes and their relations when tied together also has to be acquired. It is also needed to get the information about the division of the words into syllables (Schmitt, 2000).

As it is stated in Read's book (2001, 40-41) about "Assessing Vocabulary", some of the studies based on the spoken form of a word have been conducted by "Rodgers (1969), Ellis & Beaton (1993), Henning (1973) and Laufer (1997)". Rodgers (1969) and Ellis & Beaton (1993) have found out that it takes more time for learners to acquire the words that are pronounced hard compared to the ones having no significant difficulty in pronunciation. The findings of Henning (1973) have revealed that lower learners retain vocabulary according to the sound of words; however, more advanced learners store words according to their meaning. Laufer (1997) has remarked that L2 words which look and sound alike are frequently confused by learners.

2.2.2 Written Form

The written form of a word, shortly *orthographical* knowledge, has been neglected by almost many people and has been considered as a secondary aspect of learning a word. However, in recent years many people have begun to notice the importance of orthographical knowledge of a word (Schmitt, 2000).

Nation (2001, 44) indicates, "One aspect of gaining familiarity with the written form of words is spelling". How learners represent the phonological structure of the

language affects their ability to spell the words. Other factors influencing the acquisition of the written form of words are the similarities between first and second language writing system (Nation, 2001).

It is noted by (Schmitt, 2000) that similarities in writing systems between L1 and L2 enable students to learn the spelling rules much easier.

2.2.3 Word Parts

Knowing parts of a word involves both knowing its *word class* and its *morphology*. Word class or in other words parts of speech is described as the type or grammatical category of a word. Nouns, verbs, adjectives and adverbs are the main categories of words. Many studies on this area have been carried out by the researchers. Morgan and Bonham's research conducted in 1944 on word class revealed that among all these four classes adverbs were the most difficult category to be learned, and nouns were the easiest ones (Schmitt, 2000). A similar study was also conducted by Richard in 1969. According to the findings of that research nouns were found again the easiest to be learned. Adjectives followed the nouns; on the contrary, verbs and adverbs were the categories that were the most difficult words to learn. Ellis and Beaton (1993) diagnosed the reason why the acquisition of nouns was easier than verbs. According to them, mental images of nouns made them the easiest group of all the word classes (in Read, 2001). On the contrary, Laufer (1997) remarks that these studies have weak points and then emphasizes that word classes do not show that some categories are learned much easier than others (Schmitt, 2000).

However Laufer (1997) points out the effectiveness of morphology on vocabulary learning. Morphology concerns with affixes and prefixes and the way of adding them to the base of a word. Laufer stresses, "If derivational affixes are transparent, then learning is facilitated" (cited in Schmitt, 2000, 60). Likewise, Nation (200I) notes two values of knowing of affixes and rotes. If learners relate to the unknown words to already known words or their prefixes and suffixes, they can acquire these words easily. In addition, learners may depend on their knowledge of affixes and roots to check if they have guessed an unfamiliar word successfully form context.

2.2.4 Connecting Form and Meaning

While thinking of a word, learners naturally image how the word sounds or looks and its meaning. However knowing the form and meaning is not sufficient. Learners should have to connect the two. It becomes easier to connect form and meaning of a word if it has the similar form and meaning in the first language. Besides learners make this connection easily if they can put a first language link between the second language word form and meaning. Another point that makes the form - meaning connection easier is to form a connection between the sound or shape of the word and the meaning (Nation, 2001).

2.2.5 Concept and Referents

Generally the meaning of words is equated with definitions in dictionaries. However, if one has a closer look on the meaning of words, he/she finds out different

issues on this matter. Basically meaning is composed of the relationship between a word and its referent (Schmitt, 2000). In Longman Dictionary of Applied Linguistics (1985, 241) "reference" is defined as "the relationship between words and the things, actions, events, and qualities they stand for". Here the object "tree" in the real world is indicated as the referent of the word "tree".

For most words, meaning is seen as the relationship between a word and its concept. Longman Dictionary of Applied Linguistics (1985, 55) describes the notion of "concept" as "the general idea or meaning which is associated with a word or symbol in a person's mind".

The complex nature of meaning and its relations are the concern of the "semantics" and these meaning relationships between words are categorized under the heading of *"sense relations"*. These are exemplified in Schmitt's book (2000, 26) as the following:

Table 2 Sense relations

Sense Relation	Word	Attribute	Examples
synonym	synonym	similarity	huge-gigantic rich- wealthy
ungraded antonymy	ungraded antonym	exclusive oppositeness	alive-dead pass-fail
graded antonymy	graded antonym	oppositeness on a continuum	big-little hot-cold
hyponymy	hyponym superordinate (hyperonym)	more general category	vehicle-car fruit-apple
	coordinate	same level of generality	car-truck filınk-orange
	subordinate	more specific category	car-Ford apple-Crab Apple
meronymy	meronym	whole-part	bicycle-wheels, handle, sea

2.2.6 Associations

One aspect of knowing words involves the use of word associations. It means that "a stimulus word is given to subjects and they are asked to respond with the first word or words that come into their mind" (Schmitt, 2000, 38). The followings are common associations to words from American college students:

word	~nse
accident	car
airplane	fly
American	flag
baby	child
depression	recession

(Adapted from Longman Dictionary of Applied Linguistics, 1985, 312)

Word associations affect the learning and remembering the words. They are going to be dealt with in detail in the Vocabulary Learning Strategies part.

2.2.7 Grammatical Functions

In order to use a word one has to have enough knowledge about its parts of speech and grammatical patterns. Recently a more emphasis has begun to be given to grammar. According to the findings of Sinclair's (1987) the grammatical construction of a sentence is determined by the lexical choice (cited in Nation, 2001, 56).

Some authors led by Lewis (1993) argue that vocabulary should be at the centre of language teaching because "language consists of grammatical lexis not lexicalised grammar" (in Moras, 2001).

2.2.8 Collocations

Knowing a word also requires the knowledge of 'collocation'. Schmitt (2000) defines this term as follows: "Collocation refers to the tendency of two or more words to co-occur in discourse" (76). This notion was firstly used by J. R. Firth in 1957, ever since it has gained more importance. Nattinger (1988) emphasizes that collocations enable learners to commit newly learned words to memory. In addition, learners become more capable of defining the semantic area of a word by the help of collocation. Also, collocations make easier for learners to infer meaning from context. Researches conducted on this matter show that the heavy load of learning certain words are reduced by the help of collocations. Likewise the learning becomes easier if there is a similarity between the L1 and L2 (Nation, 2001).

2.2.9 Constraints in Use

"Constraint" is defined as "a limitation or restriction" in Concise Oxford Dictionary (2001, 305). There are also some limitations which decide where and when to use words. To have a general idea about constraints in the use of words, we should focus on the two characteristics of words, namely, "style values" and "dictionary usage" (Nation, 2001).

Definitions in dictionaries refer to the denotation of a word. It is explained in Longman Dictionary of Applied Linguistics (1985) "denotative meaning" may be regarded as "the central meaning or core meaning of a lexical item" (76). On the contrary, "connotative" is defined as "the additional meaning that a word or phrase has beyond its central meaning" (58). Schmitt (2000, 31) illustrates the distinction between denotation and connotation by focusing on the word "skinny". He states the denotation or core meaning of "skinny" as "very thin". The connotation of "skinny" is described as "so thin as too be unhealthy or unattractive". The extra meaning of "skinny" limits the usage of the word and constrain the context in which "skinny" can be appropriately used. Here there is also a cover term which refers to constraints how a word is used. This term is called register which describes the stylistic variations. It means which words to use appropriately in certain language situation and for language purposes.

2.3 The Role of Memory in Vocabulary Acquisition

Vocabulary learning does not include only getting the meaning of an unfamiliar word. In fact, the most troublesome tasks have begun after then. After learning a word, one has to store it in memory for the following usages. It is not deniable that memory has an important place in vocabulary learning. If so, one has to look on the meaning and function of memory closely.

The term "memory" is defined in Collins Cobuild English Language Dictionary (1988, 906) as "is your ability to retain and recall information, ideas, and thoughts". According to Longman Dictionary of Applied Linguistics (1985, 175), "memory" is "the mental capacity to store information, either for short or long periods".

There are basically two kinds of memory, namely *short-term memory* and *long-term memory.* Short-term memory (STM) retains the information for short periods of time and has a limited capacity. Although short-term memory is fast and can be adapted easily, information held for only a few seconds may fade from STM immediately. On the other hand, having unlimited storage capacity, long-term memory (LTM) retains information more permanently but slowly (Schmitt, 2000).

Besides these types of memories, in her thesis Saltuk (2001) voice about two additional terms, "permanent memory (PM) and "working memory (WM)". While some theorists regards working memory as STM, Saltuk (2001) differentiates the two terms by underlying that "working memory is the memory system where we manipulate information such as solving mathematical problems, reorganizing information or making comparisons" (36). Likewise, she asserts that intensity including learners' personal experience causes the information to move from LTM to PM.

To sum up, as it is emphasized by Schmitt (2000, 31) "The object of vocabulary learning is to transfer information from the short-term memory, where it resides during the process of manipulating language, to the more permanent long-term memory".

How to commit a massive amount of foreign words to memory is another important issue that has to be pointed out on this matter. Repeating new words may be the first and easiest way to memorize new words. Throughout the history this matter has been the concern of many theorists. For example, Crothers and Suppes (1967) focused on list sizes ranging from 18 to 300 and found out that for difficult words small list sizes were better; on the contrary, for easy ones large sizes were more efficient (quoted in Gu, 2003).

Landauer and Bjork (1978) are the ones who focused on the principle of expanding practice. They indicated "the greater the chances the internal between presentations of a target item, the greater the chances it would be subsequently recalled" (cited in Schmitt, 2000, 130). This can be done by connecting the new information to the preexisting information in the LTM by the help of mnemonic techniques. A mnemonic device relates the new information to the previously learned ones by depending on "logical connection, similarity, contrast or similarity or simultaneous occurrence" (Saltuk, 2001, 38). Loci, paired associates and key-words are the best known mnemonics which help learners to commit words to memory. Among these devices the key word technique has become the concern of many theorists. As it is quoted in Chastain (1976, 40), the key word "involves teaching learners to form vivid mental image which link the meanings of an L2 word and L1 word that has a similar sound".

2.4 Teaching and Learning Vocabulary

The focus on teaching vocabulary throughout the history is of importance to realize the place of it in second language literature. To have a clear understanding of vocabulary acquisition process, the two approaches, namely explicit and implicit learning will be presented. The new trends putting the learners at the center of the learning process guide us to the notion of language learning strategies in general, and specifically to the vocabulary learning strategies.

2.4.1 The Place of Vocabulary in Second Language Methodologies

For a successful second language acquisition, one has to improve his knowledge about multiple linguistics subsystems such as phonetics and phonology, morphology, vocabulary, grammar, and pragmatics. Throughout the history of SLA, grammar has been given the primary emphasis; however, learning and teaching vocabulary has been of secondary importance. In fact, as stated by Wilkins (1972, 111) "without grammar very little be conveyed, but without vocabulary nothing can be conveyed". Meaning cannot be transmitted successfully due to the lack of grammatical knowledge. On the other hand, absence of vocabulary prevents learners getting the complete meaning. The importance of vocabulary in communication was illustrated by Barcroft (2004, 201). He identified "the two types of errors in the following sentences with the meaning of 'It snows': *It snow/ *It nevs". In the first sentence the intended the meaning can be captured even if there is a grammar error (i.e., third person-sis missing). However, the vocabulary error (i.e., the use of nev for snow) in the second sentence is an obstacle in the transmission of the intended meaning.

Throughout the history, different approaches have occurred in language learning and teaching. Each of them has put different emphasis on vocabulary teaching. Some methodologies have given importance to teaching vocabulary; however, some of them have neglected it. From the beginning of the nineteenth of century the Grammar Translation Method (GTM) was one of the methods which paid attention to teaching vocabulary with the sets of grammar rules. Some useful techniques associated with the GTM require finding out antonyms or synonyms in a reading passage or memorizing target language vocabulary words with their native language equivalents. Filling-in-the

blanks and using words in sentences are other techniques favored in the GTM (Larsen-Freeman, 1986).

Vocabulary was also emphasized by the Direct Method (DM) which was based on the instruction of using the target language communicatively. Unlike the GTM, DM did not allow memorization and it stressed the teaching vocabulary in a natural way. As stated by Zimmerman (1997), concrete vocabulary could be taught by the help of pictures and physical demonstration. On the other hand, abstract words could be explained in a traditional way by grouping them according to topic or association of ideas (cited in Schmitt, 2000).

After the 1940s, the emphasis on vocabulary began to decrease with the influence of Audiolingual Method (ALM). Teaching structural patterns was given primary importance in ALM and it was believed that vocabulary could be learned after structural patterns were acquired.

Between the 1950s and 1970s, a little attention was given to vocabulary. It was believed that vocabulary treated as a skill could be gained automatically. Grammar was concerned as the most important factor in second language acquisition (Saltuk, 2001).

After the 1970s, by the help of communicative approaches such as the Natural Approach and Desuggestopedia an interest again aroused in vocabulary teaching.

However, the emphasis on vocabulary did not last so long. In 1970s vocabulary was once again given a secondary status by the appearance of Communicative Language Teaching (CLT) which focused on the message and fluency rather than grammatical accuracy.

Consequently, a variety of approaches emerged in the field of second language acquisition have lead to the different attitudes towards vocabulary. It was also concluded that grammar and vocabulary cannot be taught as separate entities.

2.4.2 Implicit and Explicit Leaming of Vocabulary

Ellis (1994) who first defined the term implicit learning also made a clear distinction between implicit and explicit learning. These notions are originally based on the principles of connectionism which occurred in the 1980s as a new perspective in cognitive psychology. As quoted in Laufer artd Hulstijn (2001), Ellis (1994, 4) points out this distinction as the following:

> Implicit learning is acquisition of knowledge about the underlying structure of a complex stimulus environment by a process which takes place naturally, simply and without conscious operations. Explicit learning is a more conscious operation where the individual makes and tests hypotheses in a search for structure. Knowledge attainment can thus take place implicitly (a nonconscious and automatic abstraction of the structural nature of the material arrived at from experience of instances), explicitly through selective learning (the learner searching for information and building then testing hypotheses), or, because we can communicate using language, explicitly via given rules (assimilation of a rule following explicit instruction).

With regard to vocabulary acquisition, for explicit learning "incidental learning" and for implicit learning "incidental learning" can be used interchangeably. While explicit vocabulary learning focuses on "the study of words" incidental vocabulary learning exposes its attention to "the use oflanguage" (Schmitt, 2000, 116).

According to the recent studies conducted by Laufer & Hill (2000) and Joe (1998), incidental vocabulary learning require learners to perform more demanding tasks such as looking up new words or recalling and retaining what is read (in Gu,

2003). On the other hand, implicit vocabulary learning requires learners to study a list of new words or complete activities in a workbook for a set of target words (Barcroft, 2004).

In the field of teaching vocabulary some surveys have been conducted, too. Sökmen (1997) is one of the researchers who shed a light onto the key principles of teaching vocabulary explicitly:

- build a large sight vocabulary
- integrate new words with old
- provide a number of encounters with a word
- promote a deep level of processing
- facilitate imaging
- make new words "real" by connecting them to the students' world in someway
- use a variety of techniques
- encourage independent learning strategies

(Adapted from Schmitt, 2000, 146-147)

More specifically, as claimed by Ellis (1994) learners get the phonetic and phonological aspects of new words implicitly because of the frequent exposure. In a similar way, as a result of practice, learners also develop the motor aspects of the articulation implicitly. Nevertheless, learners get the meaning of word explicitly since they consciously focus on the form-meaning connection (in Laufer & Hulstijn, 2001).

Many researchers emphasized the inefficiency of incidental learning of vocabulary in respect to explicit one. Hulstijn, Hollander and Greidanus (1996) concentrate on this issue by listing down the several reasons as follow:

1. The readers' false belief that they know the words
2. The readers' decision to ignore the words
3. The readers' ignorance of the connection between the form of a new word and the meaning contained in the context
4. The readers' inability to infer a word from context
5. The non-recurrence of new words (i.e., a single encounter of words)

(Adapted from Koren, 1999, 4)

However, current studies have proved that vocabulary acquisition process becomes efficient if a combined approach is applied. Zimmerman (1994) discovered that self selected reading after a 3-hour-week of explicit vocabulary instruction was more efficient than reading alone. Likewise, the findings of Paribakht and Wesche (1997) stressed that reading with explicit instruction cause to perfect gains over a period of three times (in Gu, 2003).

2.4.3 The Place of Learners in Vocabulary Acquisition

During the 1970s, many educators and researchers in the field of ELT began to realize that no single method of language teaching was sufficient for a successful language teaching. They also found out that individual variation was an important factor which affected the success of learning process. Since 1970s a focus has been shifted towards learners and many definitions for successful language learners have been proposed by many theorists. Stem (1975) and Rubin (1975) were among the first researchers who described successful language learners in terms of personal characteristics, styles and strategies. The characteristics of good language learners can be listed down by Rubin and Thomson (1982). Good language learners:

1. find their own way, taking charge of their learning.
2. organize information about language.
3. are creative, developing a "feel" for the language by experimenting with its grammar and words.
4. make their own opportunities for practice in using the language inside and outside the classroom.
5. learn to live with uncertainty by not getting flustered and by continuing to talk or listen without understanding every word.
6. use mnemonics and other memory strategies to recall what has been learned.
7. make errors work for them and not against them.
8. use linguistic knowledge, including knowledge of their first language, in learning a second language.

9. use contextual cues to help them in comprehension.
10. learn to make intelligent guesses.
11. learn chunks of language as wholes and formalized routines to help them perform "beyond their competence."
12. learn certain tricks that help to keep conversations going.
13. learn certain production strategies to fill in gaps in their own competence.
14. learn different styles of speech and writing and learn to vary their language according to the formality of the situation.

(Cited in Brown, 2000, 123)

The focus on good language learners has led to the notion of learning strategies occur in the second language acquisition literature. A number of definitions of language learning strategies (LLS) have been proposed by many theorists. According to Tarone (1983, 67) a LS is "an attempt to develop linguistic and sociolinguistic competence in the target language- to incorporate these into one's interlanguage competence". Later Rubin (1987) described LS as categories affecting the development of the language system that is constructed by the learner himself. Another definition was given by O'Malley and Chamot (1990). According to them, LS are regarded as special thoughts and behaviours and each individual can comprehend, learn, or retain new information by the help of these strategies (cited in Lessard-Clouston, 1997).

A similar definition has been put forward by Yamamari et al, (2003, 381) in her article as: "Learning strategies are specific techniques or actions that students use to acquire, retain, store, and retrieve new information. They are steps or actions that learners use with some degree of consciousness to enhance their own learning".

In his article Cohen (2003) categorizes the language learning strategies into four. The first type of LLS is *cognitive strategies* which refer to memorizing and manipulating target language structures. Secondly, *metacognitive strategies* are

described as managing and supervising the strategy use. Thirdly, for assessing their emotional reactions to learning and lower anxieties, the term *affective strategies* are used. Finally, *social strategies* are defined as cooperating with other learners and trying to find out the ways of interacting with native speakers.

A fairly detailed list of LLS has been developed by Oxford (1990). She deals with LLS in terms of *direct* and *indirect language learning strategies.* Then she further divides direct LLS into three, as *memory, cognitive* and *compensation strategies.* Memory strategies refer to retrieving information in the long-term memory. Forming internal models and producing messages in the target language constitute the cognitive LLS. Compensation strategies are used to fill any gaps in the knowledge of the language. On the contrary, *metacognitive, affective* and *social strategies* are described indirect language learning strategies. Metacognitive ones enable learners to plan, arrange and evaluate their own learning. Affective LLS are related to the feelings, motivations and attitudes of learners. Finally, social strategies mean interaction with others (in Lessard-Clouston, 1997).

In second language literature a number of researches have been conducted to find out the frequency of learning strategies which are used with respect to the four skills. In the framework of LLS, relatively a new area of study has appeared in this field. Vocabulary learning strategies which are the main concern of this study are going to be examined in detail in the following part.

2.4.3.1 Vocabulary Learning Strategies

As a part oflanguage learning strategies, vocabulary learning strategies (VLS) have been considered as an important approach which facilitates vocabulary learning. A number of attempts have been made to constitute taxonomy of VLS. The first person who tried to classify VLS is Stoffer (1995). She designed a questionnaire including 53 items to measure VLS specifically. By conducting factor analysis, she developed nine groups ofVLS as follows:

1. Strategies involving authentic language use
2. Strategies used for self-motivation
3. Strategies used to organize words
4. Strategies used to create mental linkages
5. Memory strategies
6. Strategies involving creative activities
7. Strategies involving physical action
8. Strategies used to overcome anxiety
9. Auditory strategies

(Cited in Kudo, 1999, 6)

Schmitt is the other researcher who developed taxonomy of vocabulary learning strategies. He listed down 58 different strategies and divided them into two major classes. Strategies in the first category are used to discover the meaning of a new word which is encountered newly. The other ones include remembering the word that has been encountered again. Then he divided strategies specifically into five, namely, determination strategies (DET), social strategies (SOC), memory strategies (MEM), cognitive strategies (COG) and metacognitive strategies (META). According to Schmitt (2000, 135) determination strategies are the ones "used by an individual when faced with discovering a new word's meaning without recourse to another person's expertise". Secondly, "Social strategies" refer to "interaction with other people to

improve language learning". For example, a learner may ask his/her teacher a synonym of a new word. Thirdly, "memory strategies" require "relating the word to be retained with some previously learned knowledge using some form of imagery, or grouping". Using Keyword method and semantic maps are the best known memory devices. Fourthly, "cognitive strategies" are defined "manipulation or transformation of the target language by the learner" (136). They seem to function as memory strategies; however, they specifically focus on repetition and mechanical ways to study vocabulary such as keeping a vocabulary notebook. Lastly, "metacognitive strategies involve a conscious overview of the learning process and making decisions about planning, monitoring, or evaluating the best ways to study" (136). For instance, it is the learner who decides which words are worth studying.

Some of the strategies that Schmitt (1997) listed are as in the Table 3 on the next page.

In relation to vocabulary learning strategies, a nwnber of studies have been conducted. One of the studies carried out by Schmitt (1997) shed light on which strategies were used by Japanese learners and which they felt were useful. According to the results, using bilingual dictionaries was the most popular strategy. Other common strategies following it were written and spoken repetition and studying the spelling. On the contrary, the least commonly used strategies were the use of physical action, Ll cognates, and semantic maps. With the help of the results, Schmitt highlighted that the patterns of strategy use can change over time. As learners become older and more proficient in the target language, they changed the use of strategies. For example, they began to use the strategies which were less used by younger learners, and they didn't prefer the ones most popular by Youngers (in Kudo, 1999).

Table 3 Vocabulary Leaming Strategies proposed by Schmitt (1997)

Strategy group	*Strategy*
Strategies for the discovery of a new word's meaning	
DET	Analyze part of speech
DET	Analyze affixes and roots
DET	Check for LI cognate
DET	Analyze any available pictures or gestures
DET	Guess meaning from textual context
DET	Use a dictionary (bilingual or monolingual)
SOC	Ask teacher for a synonym, paraphrase, or Ll translation of new word
SOC	Ask classmates for meaning
Strategies for consolidating a word once it has been encountered	
SOC	Study and practice meaning in a group
SOC	Interact with native speakers
MEM	Connect word to a previous personal experience
MEM	Associate the word with its coordinates
MEM	Connect the word to its synonyms
MEM	Use semantic maps
MEM	Image word's meaning
MEM	Use Keyword Method
MEM	Group words together to study them
MEM	Study spelling of a word
MEM	Say new word aloud when studying
MEM	Use physical action when learning a word
COG	Verbal repetition
COG	Written repetition
COG	Word lists
COG	Put English labels on physical objects
COG	Keep a vocabulary notebook
MET	Use English-language media (songs, movies, newscasts, etc.)
MET	Use spaced word practice (expanding rehearsal)
MET	Test oneself with word tests
MET	Skip or pass new word
MET	Continue to study word over time

(Adapted from Schmitt, 2000, 132)

In the light of these findings Schmitt (1997, 226) emphasized;

> It may be that some learning strategies are more beneficial at certain ages than others, and that learners naturally mature into using different strategies. If this is true, then we must take our learners' cognitive maturity and language proficiency into account when recommending strategies,
>
> (Quoted in Kudo, 1999, 7)

Besides Schmitt's study, some researchers focused on whether there was a significant difference in strategy use between poor and good language learners. Among them were Medani (1989), Wen and Johnson (1997). The results of Medani's research (1989) based on VLS of Arabic learners of English showed that good Arabic learners compared to the poor ones were much likely to practice new words. In addition, Wen and Johnson (1997) conducted a similar study among Chineese EFL learners at tertiary level and found out some differences between high and low achievers. Firstly, they diagnosed that in respect to self-initiated reading low achievers paid less attention to new words and expressions. The second difference found out between these two groups was the ways of using a dictionary. That is to say, a decision-making process was followed by the high achievers; on the contrary, a relatively inflexible set of procedures were used by low achievers. Besides, the high achievers compared to the low one used more appropriate evaluation strategies more frequently (in Saltuk, 2001).

To find out, the VLS of Japanese senior high school students, a questionnaire consisting of 56 strategies was administered by Kudo (1999). The results of the study supported that cognitively shallower strategies such as verbal repetition were the most frequently used ones. The Keyword and semantic mapping requiring deeper cognitive process were found out as the least used strategies. On the other hand, as cited in

Barcroft (2004, 202) the Keyword method was proved to be an effective method by Atkinson & Rough (1975).

Knight (1994) discovered that learners who used a dictionary and guessed through context at the same time learned more words immediately and also remembered more after two weeks. The findings also pointed out lower verbal ability learners tended to employ the strategy of dictionary use whereas high verbal learners tended to prefer contextual clues. Moreover, Knight (1994) found out that even if high verbal learners had successfully grasped the meaning of unfamiliar word by guessing, they tended to look it up in the dictionary.

There have been also empirical studies which highlighted that repeating words aloud in contrast to the silent repetition were more effective in the retention of words. Seibert (1927) is one of the researchers who investigated three conditions: "studying aloud", "studying aloud with written recall", and "studying silently". He discovered that studying aloud were better than the two other conditions (cited in Gu, 2003).

Another empirical research study conducted by Ahmet in 1989 advocated that more successful vocabulary learners employ a more varied and a larger repertoire of VLS. Being more conscious of their learning, learners also are more capable of connecting new and previously learned words.

The awareness of vocabulary learning strategies has been a new area in the second language acquisition. The studies conducted in relation to VLS have also affected the attitudes of many scholars in Turkey. As a result, some researches have been carried out to investigate the vocabulary learning strategies of Turkish students.

Several studies on learning strategies have been conducted in Turkey since the 1990's. As cited in Saltuk (2001) thesis, one of them was carried out by Rasiha Vertaç

in 1995 to find out which strategies were used by young primary school Turkish students while learning English. She did her research among 64 students in two different private schools in Turkey. According to the results, the most common strategies used by Turkish students were translating and switching to the mother tongue. It was also discovered that Turkish students applied the strategy of coloring, pictures and drawing the words. On the other hand, imagery and semantic mapping were mostly used while memorizing.

İpek Büyükyenerel (1999) is another researcher who focused on the effects of strategies training on vocabulary training among BUSEL (Bilkent University School of English Language) students. In the light of the results, she found out that creating mental linkages was the most popular strategy as a result of vocabulary training (quoted in Saltuk, 2001),

It is also worth noting another research conducted by Neslihan Ekmekçi (1999). The study was carried out with 120 freshmen at Anadolu University in Turkey. According to the findings, there was a relation between the number of strategies and vocabulary size. It was pointed out that guessing strategies were the most common ones.

In addition to these studies, another research carried out by Özlem Bozatlı at METU diagnosed the cognitive strategies compared to the metacognitive and socio-affective ones were mostly employed by successful students. Also she pointed out that successful learners were active strategy users.

It is also worth mentioning Tülin Saltuk's research study (2001) which investigated VLS of 8th grade students at TED Ankara College. The findings indicated that keeping a separate vocabulary section in their notebooks' was the most preferred strategy. On the contrary, the least one was using flashcards to learn new words.

Relying on the interviews with 13 students who applied the RVPMR (Recording Vocabulary with Personalized Meaning Representations) systematically, she voiced about the usefulness of RVPMR technique and pointed out that students in the interview group remembered the new word by the help of this technique.

CHAPTER III

METHODOLOGY

3.0 Presentation

This chapter focuses on the procedure concerning the methodology of research. Firstly, the subjects involved in this study will be explained. Then, the selection and preparation of the questionnaire will be discussed. Lastly, the procedures followed while collecting and analysing data will be explained briefly.

3.1 Subjects

This research included 296 students in total, 191 students participated in the main study, and 72 ones in the pilot study. The main study consisted of 62 males and 128 females and 59 of the students were in Prep classes, 51 students were in the 1st grade, 52 ones in the 2nd and 29 ones in the 3rd grade. In the pilot study, 30 students were males and 42 ones females. The students ranged in age from 15 to 18.

The pilot study was conducted among students attending Ertuğrulgazi Anatolian High School. Here students were chosen by the student entrance examination which was applied by the government. The students in the main study were from Osmangazi Super High School. They were registered to the school according to their certificates belonging to secondary school. Most of the learners participated in the study had a similar, middle-class socioeconomic background.

3.2 The Questionnaire

In order to diagnose the vocabulary learning strategies employed by the students at Osmangazi Super High School, a questionnaire was developed. The aim of the questionnaire was to measure the frequency of the vocabulary learning strategies.

The questionnaire used in this study was adapted from Kudo (1999) who relied on mainly the study done by Sclunitt (1997). Although many of the items were chosen from Kudo' s study, some of them were extracted from the questionnaire since some items were not relevant to the background of Turkish students. For example, there is not an Assisted English Teacher at schools in Turkey. Therefore, students cannot be expected to use the strategy of "Ask an AET for a paraphrase or synonym". It was also highly believed that Keyword Methods and Semantic Maps would not be applied in English courses. Therefore, the numbers of questionnaire items were reduced to 36 from *56.*

The questionnaire included two parts. In the first part, questions were designed to gain demographic information about the participants. They were asked to indicate their gender, grade and age. The next part included the questions related to the vocabulary learning strategies. The strategies were divided into four categories; social, memory, cognitive and metacognitive. These four categories were defined by relying on the taxonomy of Sclunitt (1997). Each category had 9 items, and thus a total of 36 items was presented to the participants.

The questionnaire consisted of 6 items ranging from *never* to *always.* The participants were asked to note the frequency of the strategies that they had used to

learn vocabulary. All the items were presented in English and necessary and sufficient explanations in Turkish were given in case of any difficulty in understanding the items.

The questionnaire (see Appendix A) was administered to 191 students at OSHS and 72 students in EAHS.

Table 3 on the following page represents the strategies and the strategies they correspond:

3.2.1 Validity and Reliability

For internal-consistency reliability, Cronbach alpha coefficient was calculated as 0.86. Therefore, the questionnaire used for data collection was considered to be reliable. As a measure of establishing validity, exploratory factor analysis (equamax: rotation) was done. None of the items in the questionnaire were below .30, so they were used in the study.

Table 4 The items in the questionnaire and the strategies they correspond to

Item number in the Questionnaire	Classification of the strategy	Type of Strategy
I	Paraphrase the word's meaning by yourself	Cognitive strategy
2	Learn words from paper tests (learn from failure)	Metacognitive strategy
3	Guess from textual context in reading	Cognitive strategy
4	Ask your school teacher for Turkish translation	Social strategy
5	Test yourself with word tests	Metacognitive strategy
6	Put English labels on physical objects	Cognitive strategy
7	Use English- language songs	Metacognitive strategy
8	Ask your teacher to check your word lists for accuracy	Social strategy
9	Learn by group work in class	Social strategy
IO	Use a monolingual dictionary	Cognitive strategy
11	Connect the word to its synonyms and antonyms	Memory strategy
12	Use spaced word practice	Metacognitive strategy
13	Test with your parents	Metacognitive strategy
14	Do written repetition	Cognitive strategy
15	Learn by pair work in class	Social strategy
16	Use new word in sentences	Cognitive strategy
17	Study and practice meaning in a group outside of class	Social strategy
18	Connect word to already known words	Memory strategy
19	Take notes in class	Cognitive strategy
20	Memorize parts of speech	Memory strategy
21	Group words together within a storyline	Memory strategy
22	Keep avocabularynotebook	Cognitive strategy
23	Image word's meaning	Memory strategy
24	Connect word to a personal experience	Memory strategy
25	Listen to an English- language radio	Metacognitive strategy
26	Use a bilingual dictionary	Cognitive strategy
27	Learn words written or commercial items	Metacognitive strategy
28	Ask your classmates for Turkish translation	Social strategy
29	Ask our teacher for sentence including tlie new word	Social strategy
30	Associate the word with its coordinates	Memory strategy
31	Ask your teacher for paraphrase or synonym	Social strategy
32	Read an English language newspaper	Metacognitive strategy
33	Say new word aloud when studying	Memory strategy
34	Ask your classmates for paraphrase or synonym	Social strategy
35	Use language internet	Metacognitive strategy
36	Use physical action when learning a new word	Memory strategy

3.3 Data Collection Procedures

Data were collected between March and May 2005. The questionnaire was applied after getting permission from the administration of the schools. The questionnaire was administered to each group separately at the same time while they were in the guidance course because of the idea that students should not have missed their regular lessons. So, some of the teachers were English teachers and others were other course teachers. Teachers were given sufficient explanation about applying the questionnaire. In case of any difficulty, they were asked to explain strategies by depending on the Turkish version of the questions. (See Appendix B)

In perspective of students, they were asked to respond the questionnaire items without discussing the answers with their classmates because each person applies different strategies when he/she encounters difficulties.

They were also encouraged to give their comments on other strategies that they have used while learning a new word. Lastly, they were also encouraged to feel relax while working on the questionnaire. It was explained that students could ask questions if they did not understand an item.

3.3.1 Data Analysis

The questionnaire administered in the study was analyzed by depending on the SPSS (Statistical Package for the Social Sciences) program. Firstly, descriptive statistics showing standard deviations and means were obtained. Then the percentages and

frequency of each vocabulary learning strategy use were calculated. In order to find out if there was a significant difference between males and females and graders an independent T-test was used and a two-tailed mean comparison was made by setting the alpha level p/ .05.

CHAPTER IV

FINDINGS

4.0 Presentation

In this chapter, the data obtained from the questionnaire will be discussed in detail. Firstly, in general vocabulary learning strategies commonly used by students at OSHS will be evaluated with varying frequency of use. Then the most and least frequently preferred VLS will be analyzed and interpreted. Lastly, VLS will be discussed according to gender and graders,

4.1 Vocabulary Learning Strategies Used by Students at OSHS

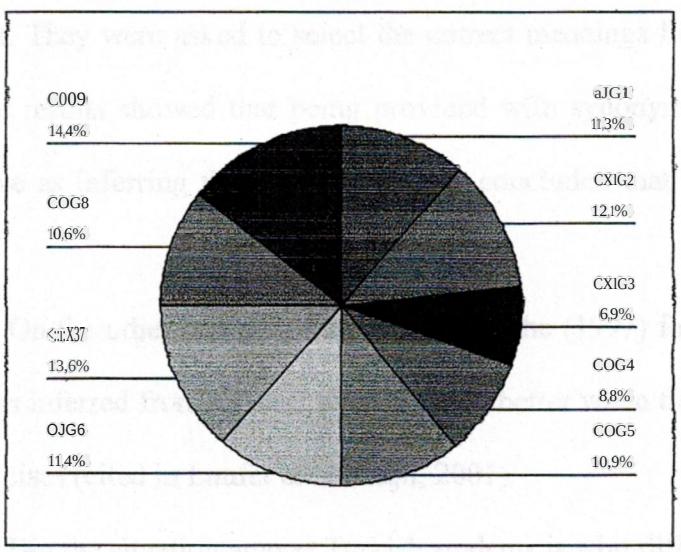
Here, all the items in the questionnaire will be presented in terms of each vocabulary learning category with their frequency and percentages. Since cognitive strategies were found as the most frequently used ones, the primary focus is going to be given to them at first

4.1.1 Cognitive Strategies Used by Students at OSHS

Both in general and specifically, cognitive strategies were the ones which were highly applied by the students ranging from 4.9686 to 2.3874. The following graph

indicates that students at OSHS most frequently "use bilingual dictionaries" (COG 9), "take notes in class" (COG 7) and "guess the meaning of unknown words from text while reading" (COG 2).

Figure 1 Cognitive strategies with their percentages



In VLS literature, there have been some studies which can be showed as an evidence for these highly preferred strategies. Lupescu and Day (1993) found out the usefulness of bilingual dictionaries for ESL/EFL students. They conducted the research among Japanese university students who were divided into two as treatment (dictionary) and control (no dictionary) group. Students in the treatment group were allowed to use a bilingual English-Japanese dictionary while reading a short story in class; however, the other group was not. A clear advantage of using bilingual dictionaries was found according to the results of vocabulary test administered immediately after reading.

Another study which supported the efficiency of bilingual dictionaries was carried out by Summers in 1988 (cited in Gu, 2003).

Also Schmitt (2000) who done an empirical study among Japanese learners discovered that one of the most favored strategies was bilingual dictionaries.

In Knight's study (1994), inference was found as a common alternative to dictionary look-up and proved the advantage of inference which enabled learners to remember the meanings of words better. The effectiveness of this strategy was also evidenced by Hulstijn (1992) who asked learners to infer the meaning of words from context. They were asked to select the correct meanings from multiple choice exercise and the results showed that being provided with synonyms while reading was not as effective as inferring the meaning. It was concluded that learners remembered words better.

On the other hand, Paribakht and Wesche (1997) found that words compared to the ones inferred from context were retained better when they were practised in a series of exercises (cited in Laufer & Hulstijn, 2001).

But the situation among Turkish students is a bit different. It was also discovered by Bozatlı (1998) that students at METU frequently applied the strategy of "guessing the meaning of the word" and "using context clues".

Table 5 Cognitive strategies with their frequencies and percentages

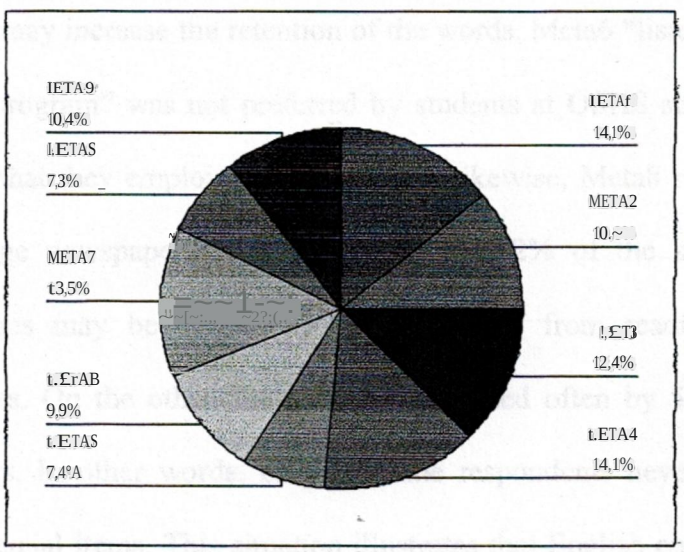
		FREQUENCIES	PERCENTAGES
COGl Paraphrase the word's meaning by yourself	l	2	1,0%
	2	19	9,9%
	3	45	23,6%
	4	59	30,9%
	5	60	31,4%
	6	6	3,1%
COG2 Guess from textual context in reading	1	-	0,0%
	2	13	6,8%
	3	36	18,8%
	4	67	35,1%
	5	56	29,3%
	6	19	9,9%
COG3 Put English labels on physical objects	l	77	40,3%
	2	32	16,8%
	3	37	19,4%
	4	25	13,1%
	5	16	8,4%
	6	4	2,1%
COG4 Use a monolingual dictionary	l	38	19,9%
	2	47	24,6%
	3	31	16,2%
	4	37	19,4%
	5	23	12,0%
	6	15	7,9%
COG5 Do written repetition	l	8	4,2%
	2	29	15,2%
	3	45	23,6%
	4	50	26,~%
	5	36	18,8%
	6	23	12,0%
COG6 Use new word in sentences	l	6	3,1%
	2	27	14,1%
	3	34	17,8%
	4	53	27,7%
	5	46	24,1%
	6	25	13,1%
COG7 Take notes in class	1	2	1,0%
	2	15	7,9%
	3	27	14,1%
	4	30	15,7%
	5	44	23,00/t>
	6	73	38,2%
COGS Keep a vocabulary notebook	1	34	17,8%
	2	33	17,3%
	3	28	14,7%
	4	15	7,9%
	5	29	15,2%
	6	52	27,2%
COG9 Use a bilingual dictionary	l	1	0,5%
	2	13	6,8%
	3	21	il ,0%
	4	18	9,4%
	5	41	21,5%
	6	97	50,8%

The Table 5 shows a specific analysis of cognitive strategies used by students at OSHS. As it was inferred from the results Cogl referring to "paraphrasing the meaning by yourself' was also very popular because of the fact that only 2 of the students dictated that they never applied this strategy. Highly surprising that none of the students said "never" for Cog2, that is 35% of the students often guessed the unknown words and 29% of them usually. On the other hand, Cog3 was not used so much by the learners. Because 77 learners out of 191 "never" put English labels on physical objects and only 4 of them preferred this strategy. The reason may be caused from the fact that students at high schools find this way childish. As it is deduced from the data, Cog4 was generally applied. That is to say, 20% of the students did not use a monolingual dictionary but others employed this strategy in a way. Cog5 referring to "doing written repetition" was favored by 45 students occasionally and by 50 students often. Only 8 of 191 learners never did written repetition. In respect to Cog5, Cog6 was more popular among these students. 53 learners often and 46 learners usually used new words in sentences but 6 of them never did. As it is affirmed before Cog7 "taking notes in class" was one of the mostly preferred strategies. 38% of the learners marked that they always selected this way. The importance of note-taking has been always underlined by teachers; however, very few studies have been conducted on vocabulary note-taking and its effects on vocabulary learning (Gu, 2003). The result of Cog8 revealed that 52 of the learners had a vocabulary notebook. Lastly, having the highest mean of all other strategies Cog9 was mostly used one. More than half of the learners (51 %) approved that they always use a bilingual dictionary.

4.1.2 Metacognitive Strategies Used by Students at OSHS

The means of metacognitive strategies ranged from 3.8838 to 1.9948, which indicated that students at OSHS applied these strategies while learning new words, but not much. Among this category, Metal "learning from paper tests", Meta4 "using spaced word practice" and Meta7 "learning words written on commercial items" were the most popular strategies as it is stated in the following graph.

Figure 2 Metacognitive strategies with their percentages



It is deduced from the Table 6 that almost every student tried to learn words from paper tests, and only 2% of the students expressed that they never applied Metal. However, "testing themselves with word test", in other words, Meta2 was not as popular as Metal since just 2% of the learners always employed this strategy. There was a general tendency to use English language songs as it was inferred from Meta3. In the field of education, especially in ELT area, songs are widely used by teachers while

introducing new words or revising the previously learned ones. The reason behind this attempt may be that songs are regarded as a part of enjoyment and when students feel comfortable and relaxed, they become more motivated to learn. Students at OSHS also believe the positive effects of songs but they need more guidance. Meta4 refers to using spaced word practice. While 6% of the learners never applied this strategy, 29% of them often practised themselves since they may be aware that repetition by doing practice enables them to learn and retain the words better. The results of Meta5 show that 50% of the respondents never tested themselves with their parents and 2% of them always did because of the misbelief that they become teenagers and they can accomplish everything without their parents' help. On the other hand, doing practice orally with others may increase the retention of the words. Meta6 "listening to an English language radio program" was not preferred by students at OSHS since only 7% of the learners stated that they employed this strategy. Likewise, Meta8 referring to "reading English language newspapers" was chose by only 2% of the students. The lack of these strategies may be caused by the avoidance from reading and listening authentic contexts. On the other hand, Meta7 was used often by 54 and usually by 39 of the learners. In other words, only 8 of the respondents never learned words written on commercial items. This situation illustrates that English compared to Turkish has been widely used as a commercial means. In spite of the popularity of Internet, it was not preferred as a vocabulary learning strategy by the students at OSHS because only 10% of the learners always applied this way.

To sum up, metacognitive strategies requiring deeper process were not so much popular among these students since they may not be given enough chance to plan, monitor and evaluate their own learning process.

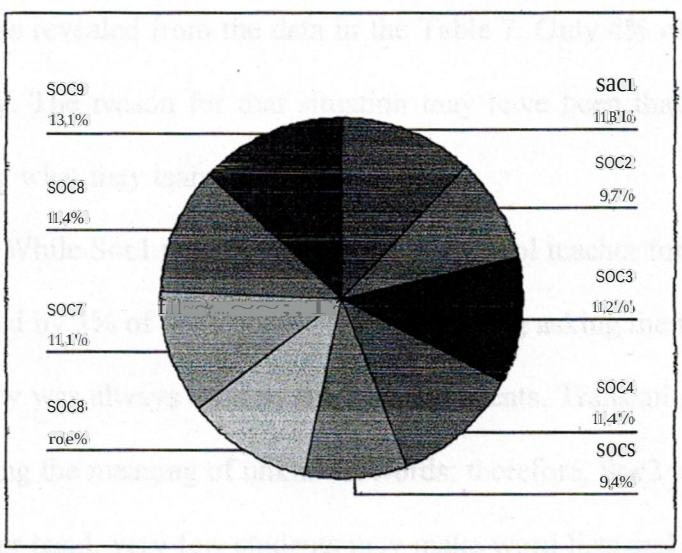
Table 6 Metacognitive strategies with their frequencies and percentages

		FREQUENCIES	PERCENTAGES
META 1 Learn from paper tests (learn from failure)	1	5	26%
	2	20	10,5%
	3	43	22,5%
	4	61	31,9%
	5	48	25,1%
	6	14	7,3%
META2 Test yourself with word tets	I	33	17,3%
	2	46	24,1%
	3	42	22,0%
	4	36	18,8%
	5	30	15,7%
	6	4	2,1%
META3 Use Engilish-language songs	I	18	9,4%
	2	50	26,2%
	3	31	16,2%
	4	38	19,9%
	5	33	17,3%
	6	21	11,0%
META4 Use spaced word practice	I	12	6,3%
	2	21	11,0%
	3	37	19,4%
	4	56	29,3%
	5	39	20,4%
	6	26	13,6%
META5 Test with your parents	I	96	50,3%
	2	42	22,0%
	3	22	11,5%
	4	15	7 ,9%
	5	12	6,3%
	6	4	2,1%
META6 Listen to an English-language radio program	I	63	33,0%
	2	39	20,4%
	3	32	16,8%
	4	17	8,90/o
	5	26	13,6%
	6	14	7,3%
META7 Learn words written or commercial items	r	S	f,2%
	2	1.7	14,1%
	3	47	24,6%
	4	54	28,3%
	5	39	20,4%
	6	16	8,4%
META8 Read an English language newspaper	I	107	56,0%
	2	33	17,3%
	3	16	8,4%
	4	18	9,4%
	5	14	7,3%
	6	3	1,6%
META9 Use English language internet	1	63	33,0%
	2	37	19,4%
	3	21	11,0%
	4	20	10,5%
	5	31	18,2%
	6	19	9,9%

4.1.2 Social Strategies Used by Students at OSHS

As the means (from 4.1047 to 2.9319) indicates, social strategies were used on average and the following graph highlights that there was not a clear cut among these strategies.

Figure 3 Social strategies with their percentages



When these strategies were analyzed and interpreted more specifically as in the Table 7, some amazing results were found. For example, as it is deduced from Soc6 (7% of the learners always applied this strategy) and Soc7 (11% of them used), Turkish students at high schools avoided from asking their teachers for paraphrase, synonym or Turkish equivalent of the words.

Surprisingly those learners were found to like studying and learning by cooperating with their classmates. For instance, as stated in Soc9 only 2% of the learners never asked their classmates for Turkish translation but others did. Likewise 52

of the learners often and 40 of them usually asked their classmates for paraphrase or synonym as it is indicated by Soc8. Soc4 "learning by pair work in class" and Soc3 "learning by group work in class follow these strategies and it was deduced from the Table 7, 8% of the learners did not apply Soc4 and 5% of them did not prefer Soc3. Learners feel confident with their friends so that they like sharing their knowledge with their peers. They are relaxed because of the fact that they are in the same status and they do not feel ashamed of making mistakes. However, Soc5 which requires studying and practising meaning in a group outside of class did not take enough respect from students as it was revealed from the data in the Table 7. Only 4% of the students employed this strategy. The reason for that situation may have been that students were not keen on revising what they learnt after school.

While Socl referring to asking the school teacher for Turkish translation was not preferred by 3% of the learners, Soc2 indicating asking the teacher for the word lists for accuracy was always used by 6% of the students. Translation is one of the easiest ways of getting the meaning of unknown words; therefore, Soc2 was frequently preferred. On the other hand, very few students may make word lists and they may not think that it is necessary to ask their teachers for accuracy.

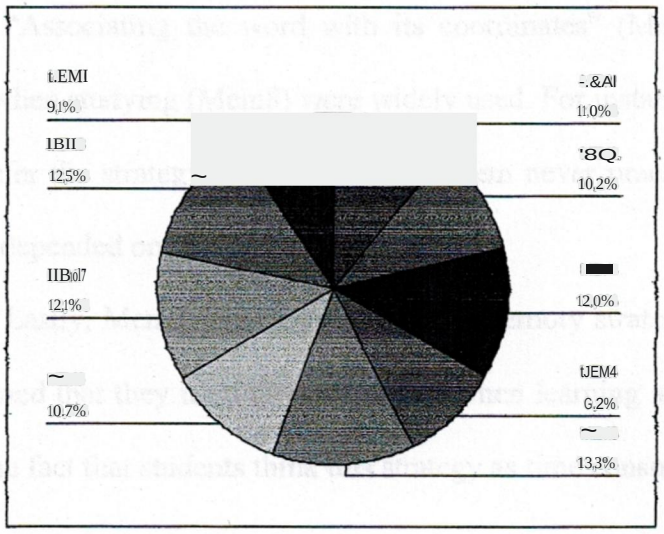
Table 7 Social strategies with their frequencies and percentages

		FREQUENCIES	PERCENTAGE
SOC I Ask your school teacher for Turkish translation	1	5	2,6%
	2	35	18,3%
	3	42	22,0%
	4	54	28,3%
	5	41	21,5%
	6	14	7,3%
SOC2 Ask your teacher to check your word list for accuracy	1	39	20,4%
	2	40	20,9%
	3	34	17,8%
	4	46	24,1%
	5	20	10,5%
	6	12	6,3%
SOC3 Learn by group work in class	I	9	4,7%
	2	39	20,4%
	3	59	30,9%
	4	36	18,8%
	5	25	13,1%
	6	23	12,0%
SOC4 Lean by pair work in class	I	15	7,9%
	2	38	19,9%
	3	38	19,9%
	4	43	22,5%
	5	37	19,4%
	6	20	10,5%
SOCS Study and practise meaning in a group outside of class	1	39	20,4%
	2	44	23,0%
	3	41	21,5%
	4	33	17,3%
	5	26	13,6%
	6	8	4,2%
SOC6 Ask your teacher for paraphrase or synonym	I	22	11,5%
	2	35	18,3%
	3	37	19,4%
	4	49	25,7%
	5	35	18,3%
	6	13	6,8%
SOC7 Ask your teacher for sentence including the new word	1	21	11,0%
	2	40	20,9%
	3	33	17,3%
	4	43	22,5%
	5	33	17,3%
	6	21	11,0%
SOC8 Ask your classmates for paraphrase or synonym	1	24	12,6%
	2	25	13,1%
	3	33	17,3%
	4	52	27,2%
	5	40	20,9%
	6	17	8,9%
SOC9 Ask your classmates for Turkish translation	I	3	1,6%
	2	22	11,5%
	3	39	20,4%
	4	45	23,6%
	5	52	27,2%
	6	30	15,7%

4.1.4 Memory strategies used by the students at OSHS

Following the social strategies, memory ones also had an average usage since the means ranged from 3.9581 to 2.7120. Mem5 "imaging words meaning", Mem8 "saying new words aloud when studying" and Mem7 "associate the word with its coordinates" were the most preferred strategies as it is concluded from the graph below. Saltuk (2001) also found in her study that "creating mental linkages" and "applying images and sounds" were the most frequently used strategies.

Figure 4 Memory strategies with their percentages



The Table 8 gives specific information about memory strategies used by students at OSHS. Meml referring to "connecting the word to its synonyms and antonyms and Mem2 "connecting word to already known words" were used but not preferred frequently. For example, Meml was always used by only 5% of the learners and Mem2 was applied by just 2% of them. The ignorance of these strategies may be caused from the fact that students at Turkish schools find more complex and difficult to make association with their pre-knowledge about words. Likewise, Mem4 which refers to

grouping words together within a storyline was not so popular among these students since only 3% of the learners said that they employed this strategy.

On the other hand, Mem3 "memorizing parts of speech" and Mem5 "imaging word's meaning" were frequently used. The results showed that only 9% of the learners never applied Mem6, and 4% of them never imaged word's meaning.

Mem6 "connecting word to a personal experience" again did not take enough respect from learners since only 6% of them indicated that they employed this strategy. This result evidenced that strategies requiring deeper process was not preferred so much.

"Associating the word with its coordinates" (Mem7) and "saying new word aloud when studying (Mem8) were widely used. For instance, 20 out of 191 learners did not prefer the strategy Mem7 and 11 of them never practised words aloud, but others highly depended on these ways.

Lastly, Mem9 was the least applied memory strategy because 58 of the learners mentioned that they used physical action when learning a new word. It may be caused from the fact that students think this strategy as time consuming or ridiculous.

Table 8 Memory strategies with their frequencies and percentages

		FREQUENCIBS	PERCENTAGES
MEMl Connect the word to its synonyms and antonyms	l	24	12,6%
	2	35	18,3%
	3	48	25,1%
	4	44	23,0%
	5	30	15,7%
	6	10	52%
MEM2 Connect word to already known words	1	24	12,6%
	2	48	25,1%
	3	49	25,7%
	4	40	20,9%
	5	26	13,6%
	6	4	2,1%
MEM3 Memorize parts of speech	I	15	7,9%
	2	41	21,5%
	3	31	16,2%
	4	50	26,2%
	5	29	15,2%
	6	25	13,1%
MEM4 Group words together within a stoıyiine	1	37	19,4%
	2	51	26,7%
	3	48	25,1%
	4	39	20,4%
	5	13	6,8%
	6	3	1,6%
MEMS Image word's meaning	1	7	3,7%
	2	17	89%
	3	51	26,7%
	4	50	26,2%
	5	34	17,8%
	6	32	16,811/o
MEM6 Connect word to a personal experience	I	29	15,2%
	2	34	17,8%
	3	45	23,6%
	4	52	27,2%
	5	19	9,9%
	6	12	6,3%
MEM7 Associate the word with its coordinate	1	20	10,5%
	2	26	13,6%
	3	46	24,1%
	4	45	23,6%
	5	28	14,7%
	6	26	13,6%
MEM8 Say new word aloud when studying	1	11	5,8%
	2	26	13,6%
	3	51	26,7%
	4	43	22,5%
	5	36	188%
	6	24	12,6%
MEM9 Use physical action when learning a new word	1	58	30,4%
	2	47	24,6%
	3	29	15.2%
	4	25	13, 1%
	5	13	6,8%
	6	19	9,9%

4.2 The most and least preferred strategies by students at OSHS

Table 9 The descriptive statistics of the questionnaire items

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	191	1,00	6,00	3,9110	1,07969
Q2	191	1,00	6,00	3,8848	1,19090
Q3	191	2,00	6,00	4,1675	1,06286
Q4	191	1,00	6,00	3,6963	1,26987
Q5	191	1,00	6,00	2,9791	1,39532
Q6	191	1,00	6,00	2,3874	1,43880
Q7	191	1,00	6,00	3,4241	1,53323
Q8	191	1,00	6,00	3,0209	1,50423
Q9	191	1,00	6,00	3,5131	1,39117
Q10	191	1,00	6,00	3,0262	1,56082
Q11	191	1,00	6,00	3,2670	1,39309
Q12	191	1,00	6,00	3,8743	1,39356
Q13	191	1,00	6,00	2,0419	1,35659
Q14	191	1,00	6,00	3,7644	1,35801
Q15	191	1,00	6,00	3,5707	1,46323
Q16	191	1,00	6,00	3,9476	1,34061
Q17	191	1,00	6,00	2,9319	1,46560
Q18	191	1,00	6,00	3,0419	1,30518
Q19	191	1,00	6,00	4,6649	1,36989
Q20	191	1,00	6,00	3,5864	1,49794
Q21	191	1,00	6,00	2,7330	1,26363
Q22	191	1,00	6,00	3,6702	1,89490
Q23	191	1,00	6,00	3,9581	*1,34490*
Q24	191	1,00	6,00	3,1780	1,41412
Q25	191	1,00	6,00	2,7173	1,65868
Q26	*191*	*1,00*	*6,00*	*4,9686*	*1,32151*
Q27	191	1,00	6,00	3,7173	1,28705
Q28	191	1,00	6,00	3,4136	1,44427
Q29	191	1,00	6,00	3,4712	1,53141
Q30	191	1,00	6,00	3,5916	1,50464
Q31	191	1,00	6,00	3,5759	1,49147
Q32	*191*	*1,00*	*6,00*	*1,9948*	*1,39358*
Q33	191	1,00	6,00	3,7277	1,39895
Q34	191	1,00	6,00	4,1047	1,30567
Q35	191	1,00	6,00	2,8743	1,77850
Q36	191	1,00	6,00	2,7120	1,64022

The questionnaire administered in this study was designed to find out the overall strategies that the students use while learning new words. In addition, one of the aims of this research was to voice about the most and least frequently vocabulary learning strategies. The Table 9 gives an overall description of the questionnaire items and the most and the least preferred strategies were stated both in *italic* and **bold**

As it was deduced from the information presented in the Table 9 the most preferred strategy was the item 26 which required the use of bilingual dictionaries as the mean 4.9686 indicated. It was also found as the most frequently used strategy in Kudo's study. The reason for this may be that students highly believe that they can learn words

simply by using bilingual dictionaries and they do not need to apply more complex strategies which are time consuming.

The second most preferred vocabulary learning strategy was "to take notes in class" whose mean exceeded 4.6649. The item 3 was the third most actively used strategies. It received a mean of 4.1675, which means that students *occasionally* guess the meaning of words from textual context while reading.

Interesting was the fact that all of the most preferred vocabulary learning strategies belonged to the category of cognitive. Table 10 represents the most frequently used strategies.

Table 10 The most preferred strategies

	The most preferred strategy in the questionnaire	The statement in the strategy	The strategy	Mean
1	Item number 26	Use a bilingual dictionary	Cognitive strategy	4,9686
2	Item number 19	Take notes in class	Cognitive strategy	4,6649
3	Item number 3	Guess from textual context in reading	Cognitive strategy	4, 1675

There have been studies which supported the advantage of using the dictionary and they evidenced that the use of dictionaries aided retention. For instance, Grabe and Stoller (1997) found that a highly motivated learner using the bilingual dictionary to study vocabulary became more successful while learning a second language. They emphasized "the conscious though involved in deciding whether or not to look up a word was useful for vocabulary retention" (quoted in Koren, 1999). In addition, Knight (1994) was another researcher who discovered that students using the dictionary were more successful in remembering words compared to the ones who did not. The results also indicated that much more time was spent on reading by the ones who used the

dictionary. It was also found that the students with low verbal ability compared to the ones with high verbal ability benefited from the dictionary much more.

The second preferred strategy, namely "taking notes in class" was also found as one of the commonly used VLS by Schmitt (2000).

On the other hand, the least preferred strategies were items 32, 13, and 6 in the questionnaire. As a metacognitive strategy, "reading an English language newspaper" had very low mean, 1.9948. The reason why this item was the least preferred strategy might have been because of the fact that Turkish students do not give much importance to reading authentic texts, especially newspapers and magazines. Following it, the item 13 "testing with your parents" was again a metacognitive strategy, the mean of which was only 2.0419. Having a mean as 2.3874, the 6th item was the third least preferred strategy. This implied that students almost never put English labels on physical objects. These findings are going to be summarized with their means as in Table 11:

Table] 1 The least preferred strategies

	The least preferred strategy in the questionnaire	The statement in the strategy	The strategy	Mean
1	Item number 32	Read an English language newspaper	Metacognitive strategy	I, 9948
2	Item number 13	Test with your parents	Metacognitive strategy	2,0419
3	Item number 6	Put English labels on physical objects	Cognitive strategy	2,3874

4.3 The Evaluation of the Strategies in Terms of Gender

Another research question in this study was about finding out any significant difference in strategy use between females and males.

In terms of overall strategies, no significant differences were found between males and females. However, the studies conducted on this aspect evidenced the opposite. For instance, Boyle (1987) discovered that males compared to females outperformed in listening vocabulary. On the other hand, Oxford, Lavine, Hollaway, Felkins, and Saleh (1999) found out the superiority of females. According to the findings, it was concluded that females were significantly more eager to try out vocabulary learning strategies in contrast to males (cited in Gu, 2003).

Table 12 Significant differences in terms of gender

	SEX	N	Mean	Std. Deviation	t	df	Sig. (2-t.ailed)
Cog5 Doing written repetition	male	62	3,2581	1,3421	-3,641	117,972	,000
	female	128	4,0078	1,3071			
Mem8 Saying new word aloud when studying	male	62	3,3226	1,3643	-2,826	122,352	,006
	female	128	3,9219	1,3839			
Meta9 Using English language internet	male	62	3,5645	1,7426	3,771	118,513	,000
	female	128	2,5547	1,7060			

In this present study, only three significant differences were observed in the use of vocabulary learning strategies as stated in the Table 12. Firstly, there was a remarkable dominance in the use of "Cog5"; in other words, females compared to males were more likely to do written repetition. The reason may be that females in general

tend to employ verbal activities more. Secondly, there was a significant difference between the two sexes in the use of "Mem8". This indicates that when studying males do not say new words aloud like females because of the fact that males in fact do not like revising the newly learned words after school. They generally prefer to be active in the class, not at home. On the other hand, males were found highly motivated to use English internet as it was inferred from "Meta9" (significant at 0.05 alpha levels). Here, the reason is apparent since males in respect to females are more active internet users. They like spending tiine on the net especially by chatting with others or playing games. English is widely used as a communication vehicle on the net; therefore, males feel that it is urgent to learn some common English words.

4.4 The Evaluation of the Strategies in Respect to Graders

The last question in this study was about finding out any significant differences in strategy use among all graders. After applying One-way ANOVA test, a number of interesting findings were discovered in the research. In this part, these findings are going to be discussed by dealing with the differences between each grade.

Table 13 ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
COOi	Between Groups	33,091	3	11,033	10,951	,000
	WrthinGroups	188,389	181	1,001		
	Total	221,481	190			
META2	Between Groups	42,12	3	14,041	8,010	,000
	Within Groups	327,794	187	1,753		
	Total	369,916	190			
MET3	Between Groups	47,732	3	15,911	7,458	,000
	Within Groups	398,917	187	2,133		
	Total	446,649	190			
C004	BetWeen Groups	113,701	3	37,900	20,298	,000
	Within Groups	349,168	187	1,86,		
	Total	462,869	190			
MEMl	Between Groups	24,169	3	8,0SE	4,33S	,0DE
	Within Oroupi	347,213	181	1,8S7		
	Total	371,382	190			
METM	Between Groups	41,741	3	13,914	8,4SC	,000
	Within Qroupi	307,924	181	1,647		
	Total	349,66l	190			
S0C4	Between Group,i	25,02E	3	8,34,	4,08f	,001
	Within Group,i	381,77C	181	2,042		
	Total	406,796	190			
SOCS	Between Groups	86,88f	3	28,96,	16,86(	,000
	WithinGroup,i	321,229	187	1,7U		
	Total	408,llS	190			
com	Between Group,i	20,SS6	3	6,8S2	3,81	,011
	Within Groupi	335,99S	187	1,797		
	Total	356,SSS	190			
COGS	Between Groupi	169,529	3	56,SIC	20,611	,000
	Within Grimpi	512,691	187	2,74,		
	Total	682,22(	190			
MEME	Between Groups	48,013	3	16,004	S,01e	,000
	WithinGroupi	331,93S	187	1,775		
	Total	379,948	190			
METAE	Between Groupi	J6,828	3	S,60S	2,073	,10
	WithinGrouJ)5	505,905	187	2,705		
	Total	522,733	190			
COG9	Between Group,i	18,790	3	6,263	3,74,	,01
	Wlhin Group,i	313,021	187	1,674		
	Total	331,812	190			
SOCS	Between Group,i	44,415	3	14,801	7,867	,000
	Within Group,i	351,910	187	1,882		
	Total	396,325	190			

* Homogeneity Variance <0.05

Tabld4 ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
METAI	Between Groups	13,597	3	4,532	3,311	,021
	Within Groups	255,868	187	1,369		
	Total	269,W5	190			
SOC1	Between Groups	1,303	3	,434	,266	,850
	Within Groups	305,084	1S,7	1,631		
	Total	306,387	)9(			
COG2	Between Groups	8,26'1	3	2,75'3	2,496	,061
	Within Groups	206,37•1	187	1,10.1		
	Total	214,639	190			
COG3	Between Groups	29,399	3	9,80<	5,035	,002
	Within Groups	363,931	187	1,94<5		
	Total	393,330	190			
SOC,2	Between Groups	51,56'5	3	17,181	8,495	,000
	Within Groups	378,351	181	2,02?		
	Total	429.916	190			
SOC,3	Between Groups	44,97•1	3	14,991	8,686	,000
	Within Groups	322,74'3	187	1,721		
	Total	367,717	190			
META•1	Between Groups	85,421	3	28,47'5	18,779	,000
	Within Groups	283,559	187	1,516		
	Total	368,984	190			
COG!5	Between Groups	18,27'5	3	6.091	3,430	,018
	Within Groups	332,12'3	187	1,711		
	Total	350.398	190			
COOS	Between Groups	36,00!	3	12,00,	7,348	,000
	Within Groups	305,467	1S,7	1,634		
	Total	341,47(	190			
MEM2	Between Groups	8,71,2	3	2.~	J,724	,163
	Within Groups	314,9S'3	187	1,6~		
	Total	323,=3	190			
MEM3	Between Groups	62,48!	3	20.83(	I0,70E	,000
	Within Groups	363,rn	18,7	1,941		
	Total	426,32!	190			
MEM4	Between Groups	37,22(	3	12,407	8,717	,000
	Within Groups	266,16,2	187	1,423		
	Total	**303,382**	190			
MEM5	Between Groups	43,13!3	3	14,37!	8,947	,000
	Within Groups	300,527	187	1,607		
	Total	343,66'5	190			
META7	Between Groups	*34,141*	3	11,SS;	7,W	,000
	Within Groups	279,99,2	187	1,497		
	Total	314,73'3	190			
SOC7	Between Groups	90,081	3	30,02!	15,79(	,000
	Within Groups	355,SO<	187	1,901		
	Total	*445,59,2*	19<			
MEM,7	Between Groups	58,38!	3	19.463	9,79(	,000
	Within Groups	371,751	187	1,98!		
	Total	430,J4.7	190			
SOO	Between Groups	60,06<	3	20,021	10,3U	,000
	Within Groups	362,58•5	187	1,93!		
	Total	422,645	190			
METAI	Between Groups	10,491	3	3,49,7	1,82•1	,14'
	Within Groups	358,50<1	187	1,917		
	Total	368,99'5	190			
MEMS	Between Groups	2.23'5	3	,74'5	,377	,770
	Within Groups	369,601	187	1,97,7		
	Total	371,843	)9(			
SOC!i	Between Groups	8,698	3	2,899	1,72(	,16'
	Within Groups	315,20!	187	1,68E		
	Total	323,9()(i	)9(			
META9	Between Groups	4,09,2	3	1,364	,427	,73~
	Within Groups	*596,89,2*	187	3,192		
	Total	600,984	190			
MEMS	Between Groups	78,97,2	3	26,324	11,39(	,00<
	Within Groups	432,190	187	2,311		
	Total	S11,162	190			

* Homogeneity Variance >0.05

4.4.1 The Significant Differences between Prep Classes and 1st Graders

According to the results of Post hoc analysis of Dwinett C and LSD (see Appendix C); several significant differences were found between the students in prep classes and at 1st grades. One of the differences was observed in the use of Cogl strategy. For prep classes the mean was calculated as 4, 4915; on the other hand, it was found as 3, 7451 for the 1st graders. In other words, students at prep classes more likely to paraphrase the word's meaning by themselves while learning a new word.

Another significant difference was seen in the use of Meta2 (Testing themselves with word tests). While the mean was 3, 6780 for preps, it was found at the 2, 6471 level for 1st graders.

In the use of strategy Cog7, the mean difference was found as, 78797. That is to say, students at prep classes are more eager to take notes in class.

Cog8 "keeping a vocabulary notebook" is a more common strategy among preps as it is deduced from the mean which was calculated as 5, 0339 for preps. Here the mean was found as 3, 0980 for 1st graders.

In the use of Mem6, the mean difference was observed as, 97408 between preps and 1st graders. It means that connecting a newly learnt word to a personal experience is a popular strategy among students at prep classes.

The mean difference found as 1, 16916 indicates that prep classes compared to other graders are more likely to ask their teacher to check their word lists for accuracy. Here the mean was calculated as 3, 7966 for preps and 2, 6275 for 1st graders.

There is a significant difference in the use of Soc3 as it was derived from the mean results (4, 1917 for preps and 3, 2157 forlst graders). In contrast to 1st graders, prep classes are more eager to learn by group work in class.

The results reveal that preps in respect to 1st graders use spaced word practice more. In the use of Meta4, the mean was calculated as 4, 5932 for prep classes and 3, 7255 for 1st graders.

In the use of Cog5 referring to doing written repetition, it was discovered that prep students employ this strategy more often than 1st graders because the variance of the strategy was found as 4, 1864 for preps and 3, 5098 for 1st graders.

The strategy Cog6 was found popular among Sts at prep classes as it was inferred from the mean values calculated as 4, 5932 for preps and 3, 6863 for 1st graders.

The other significant differences observed between preps and 1st graders belong to the memory strategies. The mean difference between preps and 1st graders was found as, 63842 for Mem3 (memorizing parts of speech), as, 73114 for Mem4 (grouping words together within a storyline) and as 1, 36690 for Mem9 (using physical action when learning a new word).

The results have revealed that the biggest differences between preps and bt graders were in the use of Cog8 "Keeping a vocabulary notebook", Mem9 "Grouping words together within a storyline" and Soc2 "Asking their teacher to check their word lists for accuracy". One of the reasons behind these results may be that 1st graders ignore the importance of keeping a vocabulary notebook while learning new words and do not spend any time organizing a notebook. Another reason can be aroused from the fact that English is taught heavily in prep classes. Therefore, preps tend to try different

ways while learning a new word. It may become interesting for them to write a story based on the newly learnt words. Lastly, 1st graders do not *ask* their teacher to check their word lists for accuracy because of the fact that they do not keep any word lists. Instead, they highly believe that memorizing is the only way of learning a new word as it was indicated by one of the 1st graders in the comment part of the questionnaire.

4.4.2 The Significant Differences between Prep Classes and 2nd Graders

In respect to other graders, more significant differences were observed between the students of prep classes and that of 2nd grades. Firstly, like 1st graders 2nd graders do not prefer the strategies Cogl and Meta2. With respect to 2nd graders, the mean was calculated as 3, 7500 for Cogl and 2, 7308 for Meta2.

Meta3 "Using English-language songs" is generally used by all graders. However, the mean difference found as I, 22392 between preps and 2nd graders has revealed that preps are more active users in this strategy.

Concerning Cog4, the mean *was* calculated *as* 3, 9322 for preps and 2, 3462 for 2nd graders. The result indicates that prep classes use monolingual dictionaries more than 2nd graders.

Surprisingly that Meml "Connecting the word to its synonym and antonyms" and Soc4 "Learning by pair work in class" were the ones in the use of which the significant difference were found between preps and 2nd graders. Between these groups, the mean difference was found as, 89863 for Meml and, 91167 for Soc4.

Unlike 1st graders, a significant difference was discovered between preps and 2nd graders in the use of strategy Meta5. The results demonstrate that Sts at prep classes

compared to the 2nd graders test themselves with their parents more often. While the mean was found as 2, 6610 for preps, it was valued as 1, 7308 for 2nd graders.

The mean difference was, 8772 in the use of Soc5; on the other hanci it was 1, 15971 for Soc6. In other words, compared to the 2nd graders preps not only practise meaning in a group outside of class but also ask their teacher for paraphrase or synonym ofit more.

Regarding cognitive strategies, Cog3 "Putting English labels on physical objects", Cog5 "Doing written repetition", Cog6 "Using new word in sentences" and Cog8 "Keeping a vocabulary notebook" were differently used by these groups. For instance, the mean of Cog3 was calculated as 2, 7627 for preps and as 1, 8654 for 2nd graders. In the use of Cog5, students at prep had a mean of 4, 1864 and students at 2nd grade had 3, 4808. Likewise, the mean values of preps were higher in respect to Cog6 and Cog8. While the mean of Cog6 was 4, 5932 for preps, it was 3, 6923 for 2nd graders. The mean difference was discovered as 1, 72621 between preps and 2nd graders. Interestingly this difference is not so much high as the ones between the other groups.

In respect to social strategies, significant differences were found in the use of Soc2 "Asking the teacher to check the word lists for accuracy", Soc3 "Learning by group work in class", Soc7 "Asking the teacher for sentence including the new word" and Soc8 "Asking their classmates for paraphrase or synonym". Toe results have revealed that preps had a mean at 3, 7966 and 2nd graders had at 2, 6923 level in the use of Soc2. Concerning to preps, the mean was valued 4, 1017 for Soc3, as 4, 1695 for Soc7 and as 4, 1017 for Soc8. On the contrary, regarding 2nd graders the mean was calculated as 3, 5962 for Soc3, as 2, 5577 for Soc? and 2, 8077 for Soc8. The results

have supported the idea that 2nd graders avoid from asking their teachers for unknown words. The reason may be that these Sts feel that they become older and do not want to have a connection with their teachers.

Unlike 1st and 3rd graders, preps and 2nd graders behave differently in the use of Mem2 "Connecting word to already known words" and Meta8 "Reading an English language newspaper". As the results show that in the use of Mem2 the mean difference between preps and 2nd graders was, 49055 and in Meta8 it was, 60039.

In respect to memory category, significant differences were found in the use of Mem3 "Memorizing parts of speech" the mean of which was calculated as 4,3051 for preps and 2,8269 for 2nd graders, Mem4 "Grouping words together within a storyline" the mean of which was found as 3,3390 for preps and 2,5385 for 2nd graders, Mem5 "Imaging word's meaning" the mean of which was valued as 4,4746 for preps and 3,4808 for 2nd graders, Mem7 "Associating the word with its coordinates" the mean of which was calculated as 4,0847 for preps and 2,8269 for 2nd graders, and Mem9 "Using physical action when learning a new word" the mean of which was observed as 3,6610 for preps and 2,4038 for 2nd graders.

The results above indicate that of all the biggest difference was found in the use ofMem3. It may be caused from the fact that 2nd graders regard vocabulary learning as a simple job. In other words, they ignore memorizing the parts of speech since they consider this way as time consuming and complex.

Lastly, the significant differences were found in the use ofMeta4 "Using spaced word practice" and Meta7 "Learning written on commercial item". In respect to preps, the mean was calculated as 4, 5932 for Meta4 and as 3, 7797 for Meta7. Regarding 2nd graders, the mean values were found as 3, 9615 for Meta4 and as 3, 0962 for Meta?.

Surprisingly that in the use of Cog8 the biggest difference was found again between preps and 2nd graders like 1st graders.

Among all the strategies, the biggest differences were found in the use of Soc7 (1, 61180) referring to asking the teacher for sentence including the new word, Meta3 (1, 22392) using English language songs and Sco8 (1, 72621) "Keeping a vocabulary notebook".

4.4.3 The Significant Differences between Prep Classes and 3rd Graders

Many differences were found between preps and 3rd graders. Among them some interesting results have been observed. For example, Metal "Leaming words from paper test" and Meta7 "Leaming written on commercial items" were found as the ones which were highly used by 3rd graders in respect to prep Sts. The mean value of Metal was estimated as 3, 5224 for preps and 4, 3448 for 3rd graders. Likewise the mean of Meta7 was found higher for 3rd graders at the 4, 3793 level while it was as 3, 7797 for preps. Here another interesting point is that Metal was the only strategy in which a significant difference was found only between preps and 3rd graders. In other words, no significant difference was observed among preps, 1st and 2nd graders. It may be caused from the fact that 3rd graders cannot spend much time in learning a new word, so they apply more practical ways like learning from paper tests and from commercial items since they give importance to the university exam.

Likewise, in the use of Soc9 only preps and 3rd graders behave differently. The mean result for preps was 4, 2712 and for 3rd graders 3, 6207. That is to say, 3rd

graders compared to preps and other graders do not prefer asking their classmates or Turkish translation.

In respect to cognitive strategies, significant differences were found in the use of Cogl the mean difference of which was calculated as 1, 18118 and in Cog4 the mean difference of which was estimated as l, 41717. In Cog3 the mean difference was valued as 6, 9375. Likewise, Cog6 and Cog8 were differently used strategies. The mean of Cog6 was calculated as 4, 5932 for preps and 3, 5517 for 3rd graders.

Similarly, many interesting findings have been observed concerning memory strategies. Mem3 "Memorizing parts of speech", Mem4 "Grouping words together within a storyline", Mem5 "Imaging word's meaning", Mem6 "Connecting word to a personal experience", Mem7 "Associating the word with its coordinates and Mem9 "Using physical action when learning a new word". Among these strategies, the biggest mean difference (1, 59205) was found in the use of Mem9 because of the fact that 3rd graders feeling themselves more mature may regard physical action as a childish way in learning a new word. On the contrary, a very slight difference (, 87785) was seen in Mem7. The result demonstrates that 3rd graders apply this strategy but not much like preps.

It was calculated that mean difference ofMem3 was 3, 96026, that ofMem4 was 1, 27002, that ofMem5 was 1, 16423 and Mem6 was, 98422.

Beside Metal and Meta7, another four strategies were found as differently used ones by preps and 3rd graders. Among them, the mean of Meta2 "Testing with word test" was calculated as 3, 6780 for preps and as 2, 5862 for 3rd graders. Meta3 "Using English-language songs" had a mean difference at 1, 05085 level. Surprisingly the biggest difference (2, 07598) was observed in the use of Meta4 "Using spaced word

practice". In general 3rd graders do not practise or repeat what they have learnt in the lesson. Instead they dream about the day of their graduation from high school or the entrance to the university. The other significant difference was observed in Meta5 the mean of which was valued as 2, 6610 for preps and as I, 3448 for 3rd graders. This strategy was also discovered as one of the least used strategy by all graders. According to the results, 3rd graders do not prefer testing themselves with parents because of the belief that they do not depend on their parents any more and they can stand on their own foot without any help.

Interesting findings also have been obtained in respect to social strategy category. In general, there have been huge differences in the use of social strategies. However, Soc8 "Asking classmate for paraphrase and Soc9 "Asking classmates for Turkish translation" were used highly by both preps and 3rd graders since the results indicated that the means were valued as 4, 1017 (Soc8) and 4, 2712 (Soc9) for preps and as 3, 1724 (Soc8) and 3, 6207 (Soc9) for 3rd graders. Here the results show that in the use of Soc9 there has been no significant difference among other graders. Soc2 "Asking the teacher to check word lists for accuracy, Soc3 "Learning by group work in class" and Soc7 "Asking the teacher for paraphrase or synonym" are used by preps more than 3rd graders. Since the mean differences were calculated as 1, 07247 for Soc2, as 1, 41204 for Soc3 and as 1, 23846 for Soc7. In respect to social strategies, the biggest difference was valued as 2, 07539 for Soc5 "Imaging word's meaning". The reason behind this fact may be that 3rd graders do not like complex jobs and they tend to apply simple strategies in their learning activity. One of the important reasons is that they do not aware of the other strategies as it was dictated by one of the 3rd graders in the

comment part of the questionnaire. He stated that he did not know any kind of strategies except memorizing.

Of all cognitive strategies, preps and 3rd graders behave differently in the use of six cognitive strategies. The mean difference was found as, 69375 for Cog3 and as, 75687 for Cog7. It means that both preps and 3rd graders put English labels on physical objects (Cog3) and take notes in class (Cog7) but preps are more active users. This slight difference is caused from the fact that Cog3 was the least used one among all strategies and Cog7 was the second mostly used one. However, the situation is not same as the others. For example, in the use of Cog8 "Keeping a vocabulary notebook" and Cog4 "Using a monolingual dictionary", the mean differences were found as 2, 48217 and as 2, 03565. Likewise, preps in respect to 3rd graders are more active while applying to the Cogl and Cog2. The results show that the mean of Cogl was valued as 4, 4915 for preps and as 3, 3103 for 3rd graders and the mean of Cog2 was calculated as 4, 1525 for preps and as 3, 8276 for 3rd graders. In other words, 3rd graders compared to the preps paraphrase the word's meaning by themselves (Cogl) and guess the meaning from textual context (Cog2) less. In the use of Cog5 there have been differences among all users; however, no significant one was discovered between preps and 3rd graders.

4.4.4 The Significant Differences between 1st Graders and 2nd Graders

Unlike preps, not so many differences were found between 1st and 2nd graders. As the results indicate that the mean of Cog3 was 2, 6667 for 1st graders and 1, 8654 for 2nd graders. Likewise, the mean difference of Cog4 was found at, 96757 level.

Similarly, Mem3 the mean difference of which was, 83974 and Mem5 the mean difference of which was, 73492 were used by both graders, but 1st graders are more active. On the other hand, 1st and 2nd graders behave too differently in the use of Mem7 the mean difference of which was 1,19268, Soc6 that of which was 1,07164, Soc7 that of which was 1,34427 and Soc8 1,17270. The results reveal that 2nd graders do not like to have a connection with their teachers when they encounter a new word. It may be caused from the fact that they prefer to overcome difficulties by themselves or with their classmates. They are in puberty stage; therefore, the thoughts and ideas of their friends are of great importance for them. The strategy Mem7 "Associating the word with its coordinates" may not be common among 2nd graders and they do not know how to combine words with their coordinates. It is interesting that 2nd graders compared to all other graders apply the strategy Meta7 less. In other words, 2nd graders are not interested in English words which are written on commercial items.

4.4.5 The Significant Differences between 1st Graders and 3rd Graders

Some significant differences were also seen between 1st and 3rd graders. *There* were slight differences in *the* use of Mem5 (, 97093), Soc8 (, 80798) and *Meta5 (*, 69439). On *the* other hand, serious differences were observed in the use of Soc5 (1, 54633), Cog4 (1, 41717) and Meta4 (1, 20825). The results above show that 1st graders in respect to 3rd ones study and practise meaning in a group outside of class (Soc5), use a monolingual dictionary (Cog4) and use spaced word practice (Meta4) more. One of the reasons can *be* shown that 3rd graders neither study nor practise English and English words so much. They may study English just for the exam to pass the class. Secondly,

they do prefer bilingual dictionaries to monolingual ones since it is the most simple and easiest way of getting the meaning of a word. Lastly, 3rd graders highly tend to memorize the words and may not practise the words by doing fill-in the blanks exercises.

4.4.6 The Significant Differences between 2nd Graders and 3rd Graden

The least differences were found between 2nd and 3rd graders. Surprisingly that in the use of Cog2 a significant but slight difference (, 63395) was found only between 2nd and 3rd graders. Cog2 "Guessing from textual context in reading" was also found as one of the most used strategy among all graders. There was also a slight difference in the use of Soc3 (, 90650) which refers to learning by group work in class. As the results indicated that instead of group working 3rd graders do like studying by individually more.

The differences were found huge in strategy Meta4 the mean of which was calculated as 3,9615 for 2nd graders and 2,5172 for 3rd ones, in Soc5 the mean of which was estimated as 2,7500 for 2nd graders and as 1,5517 for 3rd graders. The results have again supported the idea that 3rd graders do not like studying in a group neither in nor outside of a class. On the other hand, in strategy Meta7 3rd graders compared to 2nd ones are interested in the words written on commercial items. Here it was supported that 3rd graders tend to use more practical ways.

Surprisingly no differences were found in respect to memory strategies.

4.5 **Last Remarks**

Overall, descriptive statistics revealed some general points. Firstly, as in the other researches, it was also discovered in this study that cognitive vocabulary strategies, especially shallower ones, were tended to be employed more often than other strategies. The social and memory strategies were ranked in the middle in terms of the category averages. However, metacognitive strategies were the least commonly used. The reason why this strategy was not preferred much might have been due to the fact that learners are not aware of their potential to control their own cognition which is one of the principles of metacognitive strategies. Since courses are traditionally teacher-centered at Turkish schools, learners are less capable of arranging, planning and evaluating their learning process.

Secondly, between males and females significant differences were found only in three items. On the contrary, students in prep classes compared to the other graders were found the ones who applied the overall strategies more frequently because students lose their interest in studying and learning English when they become older.

CHAPTERV

CONCLUSION

5.0 Presentation

In this chapter, a brief summary of the study will be presented first. Then, conclusions dtawn from the results will be revised. Finally, implications and recommendations for future studies will be given.

5.1 Summary of the Study

The concern of this study was to find out the vocabulary learning strategies used by the students at Osmangazi Super High School The study focused on investigating the most and the least preferred VLS. Finally. the study aimed at finding if there was a significant difference between males and females and among graders.

The research questions were as the following:

1. Currently, what vocabulary learning strategies do Turkish students at Osmangazi Super High School commonly use?
2. Which VLS are most and least frequently used by the students at OSHS?
3. Is there a significant difference in strategy use due to gender?
4. Is there a significant difference in strategy use in respect to graders?

In this study, as an instrument a vocabulary learning strategies questionnaire was used. Before identifying the VLS of students at OSHS, a pilot study was conducted to

~e the validity and reliability of the questionnaire. After finding out its appropriateness, it was administered to the students at OSHS. 191 students participated in the study and frequency of the students' VLS use was determined. The descriptive statistics of the results was presented in Table 9 in the previous chapter.

The questionnaire results showed that while learning new words in English, rather than only one strategy various strategies were used by the students. These common strategies could be listed as follows:

- Use a bilingual dictionary
- Take notes in class
- Guess from textual context in reading
- Ask your classmates for Turkish translation
- Image word's meaning
- Use new word in sentences
- Paraphrase the word's meaning by yourself
- Learn from paper tests (learn from failure)

It could be deduced from this list that students mostly employ cognitive strategies. For instance, 5 of the strategies above were cognitive and other three categories have only one type.

Also the results evidenced that the most preferred strategy was using bilingual dictionaries. The least one was reading an English language newspaper.

The last conclusion obtained from the questionnaire showed that there was no difference in strategy use due to gender except Cog5, Mem8 and Meta9. The results have evidenced that girls prefer more mechanical ways like "Doing written repetition" and "Saying new word aloud when studying"; however, boys do use more practical

ways like "Using English language internet". Besides, the findings of the fast researeh question confirmed that students at prep classes were highly motivated in applying vocabulary learning strategies. In respect to graders, the most differences were found between preps and 2nd graders and the least ones were found between 2nd and 3rd graders. In addition, the biggest differences were observed between preps and 3rd graders in the use of Cog8 "Keeping a vocabulary notebook", (the mean difference was 2, 48217), Meta4 "Using spaced word practice" (the mean difference was 2, 07598} and Soc5 "Studying and practising meaning in a group outside of class" (the mean difference was 2, 07539). One of the main reasons of these results is that students lose their curiosity to learn new things in English when they pass to the upper grades and they become more interested in the other courses. In addition, while they are in the 3rd grade they begin to worry about their future and the university exam turns into a nightmare for them. In such a case, English course has given a secondary importance.

To sum up, cognitive strategies were the most preferred ones. Following this, social and memory strategies had an average usage. Metacognitive strategies were not so much used by the learners. According to the results, it could be said that various strategies were used while learning and retaining new vocabulary items.

5.2 **Pedagogical Implications and** Reeommendatieas **for Further Research**

This study was conducted in order to promote interest in teaching vocabulary learning strategies at public high schools in Turkey. In addition, the aim of this study was to make learners be aware of various VLS and encourage them to use these strategies in their own learning situations.

In recent years, in the field of ELT,, learner-centered approaches have been supported by many educators. Moreover, as a concept "Ieamer-autonomy" which emphasizes that students should learn independently of teachers has gained importance. One of the steps which makes students become more autonomous is identifying their own strategies while learning new words. The questionnaire administered in this study might have facilitated the awareness of students on vocabulary learning strategies, However, only the identifications of the strategies are not sufficient Learners should also self-evaluate and self-direct their own learning. They should choose and explore strategies that are more suitable for them. In that aspect, the importance of teachers' roles is undeniable. Teachers are the ones who provide a situation in which students can show their performance actively. In addition, teachers are facilitators who guide learners to move on the best way to reach their goals. Lin (2001) supported the important roles of teachers by suggesting that "teachers should (1) provide direct and explicit instruction in vocabulary learning strategies, (2) refine and develop vocabulary learning strategies, (3) devise appropriate vocabulary assignments and vocabulary quizzes, and (4) create opportunities for vocabulary learning" {quoted in Lan and Oxford, 2003),

To sum up, teachers should take part in the learning process as a co-operator who provides adequate material and situations according to the students' needs, interest and ages. Specifically, they should expose their students to teaching situations which make learners use various vocabulary learning strategies,

However, the most important of all, teachers themselves should be aware of these vocabulary strategies. They should be knowledgeable enough about identifying and teaching these strategies. They should be good observers and organizers. They should be capable enough to diagnose students" VLS and to create appropriate teaching

situations. In addition, teachers should be well-equipped with suitable materials about these strategies.

However, just enhancing learners' awareness of vocabulary learning strategies may not be sufficient. Therefore, learners should also be trained how to use these strategies. If strategy training procedure is done regularly and systematically, students become more encouraged to use VLS in their own learning process. But here again efficient guidance is necessary both in the beginning and throughout the training.

This study has some limitations since as an instrument only a VLS questionnaire was used. However, this single source of information may not reflect the actual use of VLS. Students may respond to the questions according to their beliefs or thoughts about strategies. Therefore, future studies are essential in order to investigate the actual use of strategies. Researchers should not rely on only one instrument but also apply multiple sources such as think-aloud procedures and interviews. Besides, they should observe classes in which students are learningnew vocabulary. It is also of importance to relate the strategy use to the tasks and demand of learning contexts. Therefore, longitudinal case studies are necessary to advance in this area,

Moreover, further studies may be carried out to investigate if there is a significant difference in strategy use in respect to cultural values. In addition, it should question whether there is a relationship between learning styles and strategies and if so, how these styles of students affect the use of vocabulary strategies should be discussed.

Finally, a qualitative study should be done in order to find out why some of the vocabulary learning strategies are used more. More and more continued case studies are essential in advancing in this field of area

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APPENDICES

APPENDIX A

LEARNING STRATEGIESQUESTIONNAIRE

Questionnaire of Vocabulary Learning Strategies

Please answer the questions first, before you continue on to the following questionnaire.

1. Sex: male / female (circle one)
2. Grade level: Prep class / lst grader / 2nd grader / 3rd grader (circle one)
3. Age: _____ years old

The following list is a list of vocabulary learning strategies. Leaming strategies here refer to the methods by which you learn vocabulary. I would like to know what you actually do, NOT what you should do or want to do. I would like you to indicate how often you have used a certain strategy over the last two weeks, irrespective of the skills {Le. listening, reading, speaking, and writing) and of the place of learning (i.e. school, preparatory, school. and home). Please indicate the frequency of the strategies you use.

1. Paraphrase the word's meaning by yourself.

never	seldom	occasionally	often	usually	always
0%	20%	40%	60%	80%	100%

2. Learn words from paper tests (learn from failun}.

never	seldom	occasionally	often	usually	always
0%	20%	40%	60%	80%	100%

3. Guess from textual context in reading.

never	seldom	occasionally	often	usually	always
0%	20%	40%	60%	80%	100%

4. Ask your school teacher for Turkish translation.

never	seldom	occasionally	often	usually	always
0%	20%	40%	60%	80%	100%

5. Test yourself with word tests.

never	seldom	occasionally	often	usually	always
0%	20%	40%	60%	80%	100%

6. Put English faôefs on physicaf objects.

never	seldom	occasionally	often	usually	always
0%	20%	40%	60%	80%	100%

7. Use EngJisl-1anguagesongs,

never	seldom	occasionally	often	usually	always
0%	20%	40%	60%	80%	100%

8. ASk your teacher to check your word lists for accuracy.

never	seldom	occasionally	often	usually	always
0%	20%	40%	60%	80%	100%

9. Learn by group work in class.

never	seldom	occasionally	often	usually	always
0%	20%	40%	60%	80%	100%

10. US() a monolingual dictionary.

		occasionaliy	often	usually	always
0%	200/o	400/o	60%	800/o	100°.4

11. Connect the word to its synonyms and antonyms.

never	seldom	occasionally	often	usually	always
0%	20%	40%	60%	80%	1000/c~

12. Use spaced won! practice.

n£.Ver	seldom	occasionaIII	often	usual]~	alwa)'.S
0%	20%	40%	60%	80%	100%

13. Test with your~

~vet	seldom	occasionaily	often	usually	alwa!S
0°Ai.	200A1	400/o	60%	800/o	100%

14. Do written repetition.

never	seldom	occasionally	often	usuall¥	alwa¥s
0%	20%	40%	60%	80%	100%

15. Learn by pair work in class.

never	seldom	occasionally	often	usually	alwa,I§
0%	20%	40%	600/o	800/o	100%

16. Use new word in sentences.

never	seldom	occasionally	often	usually	always
00/o	200/o	40%	600/o	800/o	1~/.

17. Study and practice meaning in a group outside of class.

never	seldom	occasionally	often	usually	always
0%	20%	40%	60%	80%	1000/o

18. Connect word to already known words.

never	ş_eldom	occasionally	often	usually	always
Q,0/e,	20.0/0.	4.0o/0.	60o/o	&0%	100%

19. Take notes in class.

never	seldom	occasionally	often	usually	alwaE1
0%	20%	40%	60%	80%	100

20. Memorize parts of SQCCCh.

never	seldom	occasionally	often	usually	always
0%	20%	400/o	600/o	800/o	1000.4

2L Group words together within a storyline.

never	seldom	occasionally	often	usually	always
0%	20%	400/o	600/o	80%.	100°/o

22. Keep a vocabulary notebook.

aeser	seldom	occasionally	often	usually	always
0%	20%	40%	600/o	80%	10001.

23. Image word's meaning.

aeser	seldom	occasionally	often	usually	always
qo,4	20,%	40.%	60%	80%	100%

24. Connect word to a personal experience.

never	seldom	occasionally	often	usually	s
Q0/o	200/o	400/o	600/o	800/o	100%

25. listen to an English- ~e radio program.

never	seldom	occasionatty	often	usualll;:	always
t)ll/o	2tJl/o	40%	6t)ll/o	80%	100%

26. Use a bilinguaf dictionary.

never	seldom	occasionally	often	usually	always
0%	20%	40%	60%	8<)11/0	100%

27. Leam words written or commercial items.

never	seldom	occasionally	often	usually	always
0%	20%	40%	60%	80%	100%

28. Ask your teacher for paraphrase or syuenym.

never	seldom	occasionalfy	often	usuaUy	al¥#£,'$.
0%	20%	40%	60%	80%	100%

29.Ask J7our teacher for sentence including tfie new word,

never	seldom	occasionally	often	usually	always
-0%	2()%	40%	6()0/o	80°/o	1~ı.

30.Associate the word with its coordinates.

never	seldom	occasionalb:	often	usuanx	alwaxs
t)ll/o	2tJl/o	4tJl/o	6t)ll/o	8t)ll/a	100%

Jf. Ast your classmates ; for paraphrase; or synonym.

never	seldom	occasion.aHy	often	usually	always
06/o	2<)11/0	4-0%	60%	80%	100°/o

32. Read an EngJish languagp newspaper,

never	seldom	occasionally	often	usually	always
0%.	200/o	40%	6()0/o	80%	100%

33. Say new word aloud when studying.

never	seldom	occasionallv	often	usually	alwm¥a
0%	20%	40%	60%	80%	100%

34. Ask your classmates for Turkish translation.

never	seldom	occasionally	often	usually	always
00/o	200.J	400/o	60%	800/o	lOOo/o

35. Use English language internet.

never	seldom	occasionally	often	usually	always
t)ll/o	2tJl/o	4t)ll/o	6tJl/o	80%	1000/o

36. Use physical action when teaming a new word.

never	seldom	occasionally	often	usually	always
0%	20%	40%	60%	80%	100%

Please write any other strategies you have used that are not written above, if any. If tht:I~ is no strategy you can think of, please give me any comments, or ask me any about this questionnaire or my research. Any eomments or questions are welcome. I will answer to you via your teacher.

Thank you very much for your cooperation. I will use your answers as effectively as lç~.

ArrENDIX B

TURKISH VERSION OF THE QUESTION ITEMS IN THE QUESTIONNAIRE

1. Kelimenin anlamım kendi kelimelerinle izah etmek
2. Sınav kağıtlarından öğrenmek (başarısızlıktan)
3. Okuma parçasından kelimenin anlamım tahmin etmek
4. Kelimenin Türkçe karşılığını öğretmene sormak
5. Kelime testleriyle kendini ölçmek
6. Nesnelerin üzerine kelimelerin İngilizce anlamlarını içeren etiketler yapıştırmak
7. Kelime öğreniminde İngilizce şarkılardan yararlanmak
8. Öğretmene kelime listesinin doğruluğunu kontrol ettirmek
9. Kelimeyi sınıf içerisinde grup çalışmaları esnasında öğrenmek
10. İngilizce'den İngilizce'ye sözlük kullanmak
11. Kelimeyi eşanfaıınyla yada zıt anlamıyla anlamlandınnak
12. Boşluk doldurma içeren alıştırmalar çözmek
13. Aile bireyleriyle kendini test etmek
14. Kelimeyi yazarak tekrar etmek
15. Kelimeyi snnf içerisinde ikili çalışmalar esnasında öğrenmek
16. Öğrenilen yeni kelimeyi cümle içinde kullanmak
17. Kelimeyi sınıf dışında grup içerisinde öğrenmek ve pratik yapmak
18. Yeni öğrenilen kelimeyi daha önceden öğrenilmiş olan kelimeyle anlamlandırmak
19. Sınıfta not almak

20. Kelimeleri sözbölükleriyle öğrenmek (kelimenin isim, fill, sıfat, vs anlamlarıyla öğrenmek}
21. Kelimeleri bir hikaye dizini içerisinde gruplandırmak
22. Keiıne defteritutmak
23. Zihinde kelimeyi imgelendirmek
24. Kelimeyi kişisel bir olayla bağdaştırmak
25. İngilizce radyo programı dinlemek
26. İki dilli (İngilizce- Türkçe, Türkçe- İngilizce) sözlük kullanmak
27. Kelimeyi yazılardan yada reklam afişlerinden öğrenmek
28. Öğretmene kelimenin eş anlamını sormak yada kendi kelimeleriyle izah ettirmek
29. Öğretmenden yeni öğrenilen kelimeyi cümle içinde kullandırmak
30. Kelimeyi koordinasyonlarıyla birleştirmek (listen to music)
31. Sınıf arkadaşlarına kelimenin eşanlamını sormak yada kendi kelimeleriyle izah ettirmek
32. İngilizce gazete okumak
33. Çalışırken kelimeyi yüksek sesle tekrar etmek
34. Sınıf arkadaşına kelimenin Türkçe karşılığını sormak
35. İntemetten yararlanmak
36. Yeni bir kelimeyi fiziksel hareketlerle öğrenmek

APPENDIXC

THERESULTSOFONE-WAY ANOVATEST

Deseriotives

		I'{	Mean	Sfd. Dcviatinn	Std. Error	95% Confidr;ıM;ı: Interval rоır		Minimum	Maximum
						LowerBound	UpperBound		
COOi	prep class	59	4,4915	,7040	9,165E-02	4,3081	4,6750	3,00	5,00
	£st grader	Sl	3,7451	1,214(I	,!700	3,403i	4,-0865	1,00	6,00
	2nd grnider	52	3,7500	1,064]	,147~	3,453i	4,0463	2,00	6,00
	3td~	29	1,310	1,-0037	,1&64	2,92&ı	3,6921	2,00	6,-00
	Total	191	3,911(	1,0797	7,812E-m	3,7569	4,0651	1,0O	6,00
META!	prep class	59	3,5424	JJ644	J5H	3,23~	3,845~	1,00	6,00
	lst gradtt	51	3,9~	1,100	,154(!	3.669	4.291	2JIO	6ıll
	2ndgnıder	5?	3,9231	1,0998	,152:5	3,6169	4,229	1,0	6,0O
	3rdırradu	IS	4,3441	1395B	,2592	3,8139	4,875ı	1,00	6J)(
	Tota:	191	3,88-H	1,1909	8,617£-02	3,7148	4,0W	1,0	6,ıll
COG2!	tıretı class	59	4,152	1,0798	,l.Wl:	3,8711	4,4339	2,00	6,p(
	}ste;ıdcı	51	4,07M	,955!	,133!	3~	4,3473	2,00	6,00
	2ndmde	52	4,MH	,9592	,13Jt	4,1945	4,721	2,00	[illegible]
	3rdJU&lde	IS	3,8276	1,2837	,23~	3,3393	4,315	2,0	~6
	1:-0ta	191	4,1675	1,062ı:	7,69tE.m	4,-0151	4,3l!T	2,ıl	6,0l
SOCl	prep class	59	3,796ı	1,1262	,146«	3,5031	4,0901	1,0C	6,00
	J.st2Tadeı	51	3,t;07	1,,3~	,1942	3)J7.8	3,99~	J,f)(	6.fl(
	2nd=ıder	52	3,634ti	lZSS:	,175S	3.28~	3,987!	2,00	6,0L
	3rd grader	IS	3,15~	1,3798	,2561	3,2338	4,,2J3	L,00	6,00
	Total	191	3,69ft	1,;ıJYT	9,IUE..o	3,5151	3$11	UI6	UI
META2	prep class	59	3,678	1,1513	,149:	3,3779	3,.978	L,OO	6J)(
	lSl ıgrader	51	2,,647	1.:4117	,l91	2,2:w	3J)441	UX	6J
	2nd grader	52	2,7301	1,0ıı67	,lSO:	2,4282	3,l)55:	1,00	5,00
	3rd gıadeı	2Q	2,5ıı62	1,8031	.33~	1,,9003	3,2721	1,0(	6,0(
	Tota	191	2,9791	1,,3953	,t<HO	2S79'	3,I7fa	I,()	6,ııı
~Ujl	meıı elass	59	2,762i	1,4061	,1831	2,3963	3,1292	1,00	6,00
	}st grader	51	1,666	1,,3515	,1893	2,2865	3,04~	1,lX	6J
	ındımıfm	52	{,8654	1,38(,(	,192.l	1,4793	2,2fü	1,00	5,00
	3rd ıuadet	2	2,0690	1,4622	,ırn	1,5128	2,6251	1,00	6,00
	Total	191	2,)17-4	1;438	J04	2Ji21	2,WZ	1,0ô	6,ıl
MET3	prep class	5S	4,050	1,2652	,164	3~7211	4,3SO(	1.0ô	6,0ü
	ht graaer	51	3,54~	1,8581	,2602	3,026'	4,071G	1,(K	6,0
	2odııradel	S2	2,12&	1,3390	,1851	2,4541	3,lW.7	1,0	6,ıl
	3rd grader	IS	3,0000	1,224,	,227A	2,5341	3,465	1,00	S,ee
	Total	191	3,4241	1,.533	,llOS	3,205	3,642	1,0	6,00
SUCT	preıı elasr	55	3,7961	1,2564	,163f	3,469	4,l24O	1,0C	6,00
	lst ıımık:	51	2,627	1,5226	,2132	2,1992	S,0SS:	1,00	6,0O
	Qlll2rnder	52	2-ııTl3	1,4217	,1971	22965	3,08!1	1,0C	6J)(
	3rd 2J'llde	2Q	2,7241	1,55f,()	,28~	2,1323	3,316(	L,OO	6,06
	Total	191	3,02()Q	1,,5042	,10~	2,806	3,235~	1,00	6,00
SOC3	eree class	59	4,tOti	1,2951	,1687	3,764	4,439-1	1.0C	6,lK
	1st erader	51	3,215	1,2380	,1733	2,8675	3,5639	1,00	6,00
	2nd ıılldeı	52	3,5962	1,,3025	,180G	3,,1335	39581	1,ıu	6,00
	3rd ıınıdcı	ZS	2,6897	1,4905	,276	2,1227	3,256G	1,0O	6,ft(
	Total	191	3,5131	1,3912	,1007	3,3145	3,71H	1,00	6,00
Ç()(i4	[illegible]	~	3,932	1,3113	,170'J	3,5905	4,2739	1,00	6,ıı
	1st ıımner	51	3,J13	1,6185	:126'	2,8585	3,7~	1,00	6,00
	2nd mıdeı	52	2,3462	J,2506	,1734	1,,991(I	2,694	J,00	5,00
	3rd gnıı1er	25	t.8~	l,I 75	,21&	1,4494	2,343'I	1,Y(	6#(
	Total	191	3,026	1,5601	,112S	2,8034	3,2.ffl	1,0l	6,00
MEM.	v,qıdass	~	3,6)0	1,0989	,143J	3)ııı	3,896	2,0i	6~
	lst ırrıde	51	3,3333	1,5319	,214	2,9()25	3,7642	1,9(	6,00
	2Ddımıdc	52	2,7Jlj	1,4050	,1941	2,,3204	3,J02ı	l,0	5,()(
	3rd ıınider	2	3,44&	1,4537	,269	2,8953	4,0012	1,00	6,00
	Total	191	3,267(	1,3981	,JOl	3,0675	J,~	1,00	6,00
META4	ıırcnclMS	5(	4.593	L035<	,134S	4,.323	4,8632	2,00	6JIL

	1st grader	51	3,725'J	1,327 8	,1859	3,3520	4,-0985	1,00	6,00
	2nd2rader	52	3,96lj	1.1875	,1647	3,SIOS	4291.2	2,00	6,09
	3rd grader	29	2,S1.7~	1,4789	,274(i	1,9547	3,0791	1,00	6,00
	Total	191	3,8743	1,3936	,IOOB	3,67~	40732	1,10	6,00
METAS	prep class	55	2,66U	1,4337	,1m	Un4	3,~	1~00	§,9
	1st grader	51	2,0392	1,3851	,1939	1,649	2,428	1,00	6,00
	2nd grader	52	I,730~	1,269 8	,1761	1,3773	2,0843	1,0C	6,0C
	3~d1mldei	2'	1,344l!	~rn	,H4<	1,1113	U783	L0	3,0
	Total	191	2,0419	1,356',	9,816E-02	1,8483	2,2355	1,00	6,0
C'UC	prep clas	5	4,J86	1,12!5	~14ti(1	3,394.2	4,478J	2,00	S,ee
	1st grader	51	3,5091	1,3766	,192B	3,12zt	3,897(	1,00	60C
	2nd grader	52	3,480~	1,5015	,2082	3,0627	3,8981	1,00	S,00
	J11 1 ndu	29	3.3621	1,32RQ	,24fi1	3.35fili	4,367f	1,IX	6.IX
	Total	191	3,7644	1,3580	9,826E-O2	3,5706	3,958 2	1,00	6,00
~	prepclass	55	4,-084,7	1,277-0	,1662	3,752(	4.4rn	1,00	6,0
	1st grader	51	3,431~	1,6883	,2364	2,9565	3,9061	1,U0	S,00
	2nd grader	52	3,1731	1,2000	,1664	2,8390	3,5072	1,00	5,00
	3rd grader	ZS	3,482~	1,5951	,2962	2,876(	4,0895	1,0C	6,0(
	Total	191	3;570,7	1,463.7	,1059	3,36U	3,779'	1,00	6,0
COG6	prep clas	59	4,593.2	1,084 7	,1412	4,3106	4,875S	2,00	6,0C
	1st grader	51	3,ti863	t,3783	,193C	3298t	4.~rn:	t,00	6,6C
	2nd grader	52	3,692.1	1,2763	,1770	3,337(	4,047~	1,00	6,00
	3rd grader	25	3,551i	1,4537	,269	2,91m	4,104,	1,00	6,00
	Total	191	3,9471	1,34<M	9,700~-0.2	3,7561	4,139(	1,00	6,00
SOC5	prep class	55	3,6271	1,3633	,1775	3.27H	3,9824	1,00	6,0(
	1st grader	SI	3,-098(	1,5'13 3	,irn	11,12	3,523	1,-00	6;0
	2nd grader	52	2,750C	1.1004	,152~	2,4437	3~0563	1,J)(J	5,0C
	3rdgrader	~	J,551'i	1,1522	,21.W	urn	1.990(	UX	6J)(
	Total	191	2,931S	1,465 6	,106(	2,7W	3,1411	1,00	6,ot
MEM2	prep class	55	3,355S	1,1561	,1505	3,05%	3,6572	1,00	6,0C
	btl!Dldi	51	2,%01	1,2955	,ISlll	2,5964	3,3251	1,00	6,Dll
	2nd grader	52	2,8654	1,3288	,1843	2,4954	3,2353	1,00	5,00
	ml.~	2'	2,8621	1,505 3	,2795	2,;1891	3,4341	1~00	6.00
	Total	191	3,041S	1,3052	9,444E-02	2,855(	322X2	1,00	6,0(J
COGi	prep class	59	S,1On	1,093 8	,1424	4,816 7	5,386	2,00	6,0C
	1st grader	51	4,313	1,4KW	,208(i	3J94,7	4,732 7	1,0O	6,0
	2nd grader	52	4,6923	1,4758	,204i	4,2814	5,103,2	LOO	6,0(
	3rd=ld.el	1S	4,344.i	1,2614	,2342	3,865(	4,$24ti	2,00	6,1)(
	Total	191	4,664{)	1,3699	9,912E-02	4,~	4,~	1,0	6,00
MEM3	prep class	59	4,3051	1,2899	,1675	3,9689	4,6412	2,00	6,00
	lstgrader	5)	3,66ö.	1.Smi	,2145	3,23511	4,0975	1,00	6,0
	2nd grader	52	2,826'	1,2637	,1152	2,4751	3,1 78'J	1,00	6,00
	3!d grader	2S	3,344~	1,564i	,290ti	2,74~	3,940C	1,0(	6,00
	Tot&l	191	3,Sl!64	1;497'	,imw	3,372~	3,K002	1,0C	6,~
MEM1	prep class	5S	3,339(	1,07~	,1402	3,05&4	3,6195	1,IX)	6,0C
	1st grader	51	2,607!	1,342!	,1880	2,2300	2,985	1,ee	6,0
	2nd grader	S2	2,538~	1,1793	,1635	2,2101	2,866B	1,00	5,0C
	3rd grade,	1S	2,069(	1,162B	,2159	1,626t	2,5113	1,00	4,00
	Total	191	2,7330	1,2fi36	9,143E-02	2,SS2	2,9133	1,00	6,00
com	prep Class	59	5,033S	1,461 8	,1903	4,653(	5,414!	1,00	6,00
	lstgrader	51	3,-093(	1.6883	,2164	2,623	3,572'	1,-0	L,TM
	2ndgrader	S2	3,307J	1,7S82	,24Kll	2,lro9S	3,8055	1,00	6,m
	3rd grader	2'	2,551,7	1,723-	,321X	1,8961	3,207	1,00	6,00
	Total	191	3,6702	1,894S	,1371	3,399i	3Q40t	1,0	6,0C
~	prep class	59	4,474(i	1,119 7	,1451	4,18~	4,7664	2,0	6,00
	lstgrader	51	4,215J	1,3902	,194']	3,824	4 606J	LO(	6,00
	lml grader	52	348UI	1,228t	,1 70'	3,138	3,82ZI	1,00	6,00
	3rd grader	2~	3,31W	1,3914	,2584	2,7811	3,83%	1,0C	6,00
	Total	19	3,9581	1~9	9,731E-m	3,7£,62	4,1501	L,0	6,00
MEME	prep class	SS	3,9153	1,0714	,1395	3,636(	4,!945	1,00	(i,-00
	1st grader	51	2,9412	1,332~	,18~	2,566	3,316(	1,0C	6,0
	2nd grader	S2	2,7115	1,391{	,1921	2,3243	3,098!	1,00	6,0
	3rd grader	29	2,931(	1,6676	,309,7	2,296,7	3,5653	LP	6~00
	Total	191	3J78(1	1~4141	J023	ZSIe	3,,3791	1,p(1	6,00
METAI	prep class	55	2,762J	1,643f	,2140	2,3344	3,191{	1,0C	6,00
	1st grader	51	3,1373	1,928S	,2701	2,594,7	3,6798	1,0C	6,ot
	2nd grader	52	2,4801	1,61~	,ZZSS	2,0312	2,93iII	)1)(	61)6
	3rd grader	29	2,3103	1,OJ8i	,1929	1915:	2,7054	1,0c	5,00
	Total	191	2,7173	1,6Si1	,110C	2,41o5	2,954-0	1,0(	6,0

COO9	or ea class	59	4,8983	1,1401	,1484	4,6012	5,195~	3,0C	6,0C
	!st graden	51	52745	1,234~	,17211	4,9274	5,6216	2,00	6,0(
	Znd gradeT	52	4,5385	1,S77E	,2188	40993	4:)777	1,00	6,00
	3rd grader	29	5,3WL	1, UOS	,2061	49223	5,7674	2,0C	6JX
	Tfitall	191	4,'HiX	1,J2U	95liZFALI	4,7300	!i,lm	uic	6,Di
METAT	oreo class	59	3,779"1	1,190fJ	,1549	3,4695	4,0898	1,0C	6,0(
	lst grader	51	3,902 0	1,374~	,192	3,5153	4,288 6	1,0C	6,0C
	2nd gnidelr	S2	3,0962	1,12,n	,156(	2,7&30	3,409 3	LOO	6,0{
	3rd grader	29	4,379 3	1,1776	,218 7	3,9314	4,827 2	2,0C	6,00
	Total	19i	J,7173	1,.287(	~,3i3E-O	3,5331i	3,90i11	!;Of	b,ot
SOCt	prep elasi	59	3,8136	1,121~	,146(	3,5213	41058	1,0C	6,0(
	1st grader	51	3,7255	15502	,2171	3,2895	4,1615	1,00	6,0C
	2nd gnider	52	2,6531	1,3414	,1860	22R04	3,0273	1,0C	5,0C
	3rd y.niter	29	34138	1,5473	,'12.73	2,8252	4,0023	LOI	6,U0
	Total	191	3,413(i	1,4443	,104	3,207§	3;619 7	1:0	6,0
SOC"J	prep class	59	4,1695	13791	,179	3,8101	4,5289	1,0C	6,0C.
	1st grader	51	3,902 0	1,5001	,2101	3,4801	4,,3239	1,0(	6,0C
	Zi,d grider	5.2	2,5577	1,3345	,1851	2,1862	2!)29.1	1,00	5,00
	3rdgrader	29	2,931C	1,222,7	,2271	2,4659	3,3961	1,0C	5,0(
	Tmail	191	3,4712	1,5314	,1101	3,252f	3,689.8	LO9	6,rx
MEM1	prep dms	5~	4,084 7	1,2491	,162i	3,759f	4,4104	2,0C	see
	fsf grader	51	4,01%	1,4351	,201(	3,616<1	4,4232	1,0(	6,0C
	2nderader	S:2	2XZ6-sl	1,5431	,214	23973	3,2565	1,0	6,0
	3rd iquder	2Ç	3,2~	1,4238	,2644	2,6663	3,748.5	1.00	6,0
	Tota	191	3,591()	1,500	,10SÇ	3,376']	3,800	1,00	(j,tX
SDL'B	prepclasi	SS	4,IOli	1,335)	,1731	3,75311	44491:	1,00	{;0{
	1st gnider	51	3,9&04	1,44iX)	,202S	3,5729	4,3879	1,0(	6,0C
	2nd ≡ulr	52	2,807 7	1,495ti	,2074	2,,3913	3,2241	1,j(	'6,i)(
	3rd gnider	2Ç	3,1W	1,1973	,2223	2,717()	3,6271	1,0C	5,0C
	Total	191	3,5759	1,4915	,107Ç	3,363<:	3,7888	1,00	§,Q
METM	yn:D class	59	2,2542	1,480li	,192li	t,8683	2,MOt	t,tMJ	6,ti
	1st gnider	51	2,0784	1,467~	,2055	1,665]	2,4912	1,00	6,00
	lnderade.	52	i,6rn	1,1863	,1645	1,3ZM	1,9i41	1,-0	5,0(
	3rd gnider	2S	1,9310	1,361C	,252i	1,4134	2,4417	1,00	5JX:
	Total	191	1,9948	1,393E	,100S	1,7959	2,193 7	LOO	6,0(
MEMI	uiap dlisii	5<	3,813j 6	1,,4441	,18lU	3,437	4J.691	1,0e	6,0E
	!:st.gnider	51	3,803'	1,42&t	,200(	3,4021	4,205i	1,00	6,0(
	2nd gni&r	S^	3,557,7	1,2744	,176J	3,.2029	3,91.2.5	U)O	6,D9
	3rdgnine	ZS	3,7241	1,509'1	,2803	3,1500	4,2983	1,00	6,00
	Tota	191	3.727 7	1,,39')(]	.1012	3,5281	3,927~	1,00	6,00
SOC9	prep class	5S	4,2712	1,,ZZ94	,1601	1,9Tilll	4,.59U	2,00	liD
	Ist gnider	51	4,1765	1,3668	,1914	3,792()	4,560',	1,00	6,0(
	2ndgnider	52	4,1154	1,3233	,1835	3,747(	4,483~	1,'X	6,00
	Jl:(f ft1lde,r	11	3620i	1,26S3	,235(	31394	4,102(	2,0C	6,00
	Total	191	4,104,7	1,3051	9,447E-0,2	3,91&4	4,2911	1,00	6,00
METM	ems	~	2,847~	U64'	,142	2,36lt	3,,333	1,0C	6,0E
	1st gracler	51	2,8431	1,SZS;	,255,	2,329'	3,3561	1,0f	6,0(
	2nd gnider	52	3,076Ç	1,6550	,2295	2,6162	3,537,7	1,00	6,,0
	3ntgnider	2'	2,620i	1,7811	,330i	1,9432	3,2982	1,00	6,00
	Total	191	2,8743	1,7785	,IZS:	2,6205	3,1282	1,00	6,00
MEMS	oiw<lass	5~	3,66i,{	t,5823	,2-06(]	3,243,7	4,-0734	1,-0	6,-0
	1st grader	51	2,2941	1,4601	,2044	1,883'	2,704~	1,0	6,0(
	2nd grader	52	2.403!	1,5115	,209ti	1,9830	2,8241	IJIO	6,00
	3rd wmicr	29	2,069!)	1,SIO.''	,2104	1,494~	2-64L<	1,9(	6JX
	Tom	191	2,71~	1,6402	,1181	2,4779	2,9461	1,00	6,00

Test of Homogeneity of Variances

	!.a\llaeStatistic	m1	g	~
COGI	4,312	~		,~
METAI	,711	3	18]	,547
com	Z,593	3	IS'	,OSI
SOCI	1,S11i	3	1	,m
META2	8,257	3	187	,000

comt	,209	3	187	,89C
MET3	8,22~	3	187	,00C
SOC2	2,20i	3	t81	,08!
soc3	,597	3	187	,6U
COG4	4,72~	3	187	,003
MEMl	3,22,	3	18,	,024
META4	1,595	3	187	,192
METM	6,429	1	lS:	,00C
coos	2,404	3	187	,069
SOC4	5,28ll	3	187	,002
cooe	2,000	3	181	,ue
SOCS	3,681	3	187	,013
MEM2	,700	3	187	,SSa
COG7	3,742	3	187	~OU
MEM3	1,85'J	3	18'J	,13~
MEM4	1.S~	3	187	,204
com	3,111	3	187	,02E
MEM3	r,321	3	187	,269
MEMt	4,145	3	181	,OOI
METAt	7,330	3	18	,c0e
coos	5,225	3	18'l	,002
META?	1,02.,2	3	18J	,384
SOC~	5,271	3	18')	,002
SOCJ	1,206	3	HJ	,309
MEM7	,749	J	187	,524
Soai	2,211	3	187	,088
META&	2,25i	3	l87	,083
~	,46i	3	t8i	,752
SOC9	,29(	3	187	,833
META9	,65(	3	lSJ	,58-4

r	~	,691I	3r	lSl	,553

AWOVA

		Sum of Squares	df	Mean Square	F	Sig.
COOlr	Bctwccn GrooD5	33,098	3	11,033	10,951	,000
	Wıthin Grouır,;	188,389	187	1,00'l		
	T<)blll	221,48?	190			
MET Al	Between Groups	13,597	3	4,532	3,31:3	,021
	Within Grouqı	255,868	187	1,368		
	T-Otal	269,466	190			
C002	Between Groups	8,264	3	2,755	2,49(i	,061
	Widiin Gmum!s	206,374	187	1,10<		
	Tota l	214,63S	lSe			
SOCI	Between Groups	1,303	3	,434	,26/i	,850
	Within Gmtms	305,084	18')'	1,631		
	Total	306,387	1~			
META2	Between Groıml:;	42,12<3	.1	14,041	8,01(	;00!l
	Wrthin Groups	327,794	18i	1,753		
	Tota l	369,916	190			
COG3	Between Groııos	29,399	3	9,K00	5.035	Jl02
	Within Groups	363,931	187	1,~		
	Tot.all	393,330	19{)			
MET3	Between GrouD5	47,732	3	15,9U	745~	,vt'A
	Within Groıms	398,917	187	2,133		
	Total	446,649	191:			
ISUL"2	Between Groues	St,565	3	11,m	8,495	,00C
	Within Groıı>ı	378,351	187	2,023		
	Tom	429,9H	19{)			
SOC3	Between Grouos	44,97~	3	14,991	8,6X1	,000
	Within Grouvı	322,743	187	1,ns		
	Tota:l	367,71i	191)			
COG4	Between Grouos	113,701	3	37,90C	20,298	,0IX)
	Withiır Gıouuı	349,16!:	187	1,86i		
	Tota l	462,86~	19C			
MEMI	Between Growıs	24,169	3	8.0~	4,339	,00/i
	Witlıin Gmum	347,213	187	1,857		
	Total	371,382	}9()			
METM	Between Grouos	85.426	3	28,475	ıı.rn	„000
	Within Groeos	2&3,559	18i	l,füi		
	Total	368,984	190			
META~	Between GrouD'5	41,741	3	13,914	8,45(1	,0IX)
	Within Groups	307,924	187	1,64')		
	Total	349,li65	191:			
COOS	Between Groum	18,275	3	6,092	3,43{:	,018
	Withiıı Groıım	332,123	187	1,77~		
	Tota l	350,.398	l91i			
SOC4	Between Groupı	25,02A5	3	8,342	4,08ti	.0m
	Within Cımıms	381.771)	18i	2,042		
	Total	406,79t	19{)			
COGt	Between Groum	36,009	3	12003	7,348	,000
	Within Groımı	305,467	181	1,634		
	Tota l	341,47~	}9(			
SOC'J	Between Groum	&6,XXl	,1	28,962	16,&61:	,000
	Within Gmun!	321,229	IB'J	1,7il!		
	Tote!!	408,11'J	19()			
MEM?	Between Gıuuı!	8,71.n	3	2,904	ı,n4	,163'
	Within fimım	314,953	18i	I,~_		
	Tota:	323,665	19C			
com	Between Groıw!	20,556	3	6,852	3.81:J	,OH
	Within Groutı!	335,999	18,	1,79,		
	Tota l	356,SSS	l'll)			
MEM]l	Between GıoUDı	62,@J	,1	20,ltiU	10,7ıMi	,000
	Within Groues	363$3t	lS7	1.9«fli		
	Toııll	42632'1J	}(fl:			

MEM4(	Between Groups	37,220	3	12,4-0	8,71,	,000
	Witfili Grouos	266,162	187	1,421		
	7otal	303,&1	190			
com	Between Crmums	169529	3	56,51{	20611	,00(
	Within Crumps	512,691	11	2,74		
	I'otal	682,22 0	190			
MEM5	Between Groups	43,138	3	14,379	8,941	,000
	Within Groues	300,527	18'l	1,60'1		
	Totul	343,665	190			
MEME	Between Groom	4S,Ol 3	3	16,oo1	9,01E	,000
	Within Groups	331,93'5	18	1,1~		
	Total	m,94 8	19C			
METAI 5	Between Grrmps	16,&21	3	5,60	2,073	,105
	Withlu Grmu~	505,905	18	2,705		
	Total	522,73 3	191			
COG9	Between Groups	18,790	3	6,263	3,742	,012
	Within Grouqs	313,021	18i	1,674		
	Tote!	331-812	190			
MET Ai	Between Grouqs	34,741	3	I 1,58<	7,734	,000
	Within Groum	279,992	18,	I,49'i		
	Total	314,733	1YC			
S0C6	Between Groum	44,415	3	14,80'	7,86i	,000
	Within Groans	351.910	18'I	1,8X2		
	Total	396,32 5	19(			
SOC7	Between Groups	90,08 8	3	30,0~	15,7~	,00(
	Within Grouos	355,504	181	1,901		
	Total	445,592	19()			
MEM,7	Between Groom	58,389	3	19,463	9,790	,000
	Within Grouqs	371,758	181	1,?~		
	Total	430,[41	1~			
SUU	Between Gmum	60,064	3	20,021	10,321	,000
	Wttlin Groues	362,58'5	187	1,939		
	Total	422,64 9	190			
METAI!	Between Grouns	10,491	3	3,491	1,824	,144
	Within Gmum	358,504	181	1,9li		
	Totul	368,99 5	1Q(			
MEM~	Between Groaes	2,23 5	3	,745	,377	,77(
	Within Groue	369,60~	187	1,977		
	Tom	371,343	190			
SOCS	Between Groups	8,69!	3	2,899	1,720	,16'1
	Within Gronns	315,ZW	Uj	L,6ili		
	Tota	323-901	190			
MET AS	Between Grouos	409,?	3	1,364	,42 7	,7~
	Within Groun!	596,892	18,7	3,192		
	Tot>1	600,9~	19()			
M~	Between Crmums	78,972	3	26,,324	11-39(	,000
	Within Grouo	432,19C	18,7	2,311		
	Tota	511,162	190			

Multiple Comparisons

Dependen Variabl		(I) GRADER	(J) GRADER	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
COOi	LSD	prep class	1st grader	,7464	,1919	,000	,367~	1,1250
			2nd grader	,7415	,190	,000	,3649	1,1181
			3rd grader	1,1812	,276	,000	,7321	1,6302
		1st~	prep class	-,7464	,1915	,000	-1,1250	-,367~
			2nd grader	-4,9020E-03	,1911	,981	-,3951	,385.3
			3rd grader	,4341	,23J.	,0&1	-2,5753E-O 2	,89~3
		2nd grader	prep class	-,7415	,190	,000	-I,1181	-,364S
			1st grader	4,902E-03	,197~	,98(	-,3353	,3951
			3rd grader	,439,7	,232t	,06C	-1,9243E-O.?	,898t
		3rd grader	prep class	-t,18U	,1.1~	,000	-1,6300	-,7321
			1st grader	-,4341	,233~	,064	-,8953	2,575E-OO
			2nd grader	-,4~97	,232t	,061	-,~	1,924&02
	DunnettC	prep class	1st grader	,7461	,191~		,2337	1,2591

			2nd graden	,7415	,190.i		,2801	1,2024
			3rd graden	1,1812	,227(i		,6175	1,744!
		1st grader	prep class	-,7464	,191<		-1,2591	-,1011
			2nd grader	-4,9020E-03	,197~		-,603<	,5932
			3rd grader	,4397	,233-4		-,245'I	1,115a
		2nd grader	prep class	-,7415	,190		-1,2024	-,280i
			1st grader	4,902E-03	,1971		-,5932	,603(
			3rd grader	,4397	,232~		-,2021	1,0815
		3rd grader	prep class	-1,1812	,227E		-1,7W.3	-,6rn
			1st grader	-,4~	,2334		-1,HS2	,245'
			2nd grader	-,4397	,23U		-1,0819	,10U
METAI	LSD	prep class	1st grader	-,438()	,2231	,052	-,8792	3,186E-03
			2nd grader	-,3807	,222	,089	-,819ti	5,822E-02
			3rd grader	-,8025	,2653	,003	-1,315E	-,2791
		1st grader	prep class	,438()	,223,7	,05.2	-3,1 860E-03	,8191
			2nd grader	5,732E-02	,230	,804	-,397'	,5121
			3rd grader	-,3644	,272(	,182	-,9011	,17:2
		2nd grader	prep class	,3807	,222	,089	-5,~0E-02	,~1~
			1st grader	-5,7315E-02	,230	,804	-,5121	,39n
			3rd grader	-,4218	,2711	,121	-,9560	,1131
		3rd grader	prep class	,8025	,2653	,003	,2791	1,325~
			1st grader	,3644	,2T2C	,182	-,1722	,90))
			2nd grader	,4218	,2711	,121	-,1131	,95~
	Dunnett C	prep class	1st grader	-,438()	,2231		-1,0122	,136
			2nd grader	-,3807	,222		-,950'J	,1893
			3rd grader	-,8025	,2653		-1,615~	1,087E-02
		1st grader	prep class	,43XO	,223,		-,1362	1,011
			2nd grader	5,732E-02	,2305		-,5197	,6344
			3rd grader	-,3644	,2721		-1,1827	,453<
		2nd grader	prep class	,3807	,222j		-,1893	,950i
			1st grader	-5,7315E-02	,2305		-,1iW4	,519"
			3rd grader	-,42IB	,2711		-1,2371	,393~
		3rd grader	prep class	,8025	,2653		-1,0870E-02	1,615~
			1st grader	,3641	,272(		-,4539	1,1821
			2nd grader	,4211	,2711		-,393E	1,2371
COG.I	LSD	prep class	1st grader	7,4UE-02	,2001	,713	-,3221	,47~
			2nd grader	-,309()	,199!	,124	-,7032	8,520E-02
			3rd grader	,325()	,2382	,174	-,1450	,7949
		1st grader	prep class	-7,4111E-02	,200(I	,713	-,4704	,3221
			2nd grader	-,3831	,207(	[illegible]	-,7915	2,531E-02
			3rd grader	,2508	,2443	,30(i	-,2311	,732a
		2nd grader	prep class	,309()	,199~	,124	-8,5197E-02	,7032
			1st grader	,3831	,207C	[illegible]	-2,53136-02	,7915
			3rd grader	,634C	,2435	,010	,1536	1,1143
		3rd grader	prep class	-,325()	,2382	,174	-,7949	,1450
			1st grader	-,2508	,2443	,31ki	-,7321	,2311
			2nd grader	-,634()	,2435	,010	-1,114j	-,1536
	Dunnett C	prep class	1st grader	7,411E-02	,2(001)		-,440	,588?
			2nd grader	-,309<	,1998		-,8219	,2039
			3rd grader	,325()	,23~		-,4245	1,0745
		1st grader	prep class	-7,4111E-02	,2(001)		-,588	,44ill
			2nd grader	-,3831	,207(i		-,8844	,1182
			3rd grader	,250~	,2443		-,49m	,992S
		2nd grader	prep class	,300()	,1998		-,203C	,82Hl
			1st grader	,3831	,207C		-,118.i	,8844
			3rd grader	,634()	,243S		-,106	1,3744
		3rd grader	prep class	-,325C	,2382		-1,074j	,4245
			1st grader	-,250~	,244~		-,992~	,4908
			2nd grader	-,634(	,243S		-1,,3744	,106
SOCII	LSD	prep class	1st grader	,188~	,2442	,441	-293{	,J:10~
			2nd grader	,162()	,243()	,SOS	-,317~	,6413
			3rd grader	3,799E-02	,289!	,896	-,533j	,6094
		1st grader	prep class	-,18811	,2442	,441	-,67()j	,293{
			2nd grader	-2,6772E-02	,251i	,915	-,>234	.4698
			3rd grader	-,1S1n1	,2911	,612	-,736	,4352
		2nd grader	prep class	-,162C	,2430	,506	-,641.1	,317~
			1st grader	2,677E-02	,2517	,915	-,469	,sn.1
			3rd grader	-,U41J	,2960	,676	-,708(	,4600
		3rd grader	prep class	-3,79896-02	,2897	,896	-,6094	,5335

			1st 2Cader	,1SO 8	,2971	,612	-,4352	,73611
			2nd ɪmɪ.ɪ:icɪ	,1240	,296C	,676	-,4600	,708C
	Dunnett C	prep elasɪ	1st ɪɪɪɪQcɪɪ	,1888	,2442		-,4568	,834a
			2nd eraɪ1c:ɪ	,1620	,243(		-,4452	,7692
			3rd 2l1ldel	3,799E-O 2	,2891		-,76Ul	,srn
		Istzradeɪ	nree class	-,188 8	,2442		-,8343	,4568
			2nd ɪzradeɪ	-2.6772E-O,2	,251 7		-,7229	,6693
			3rd 2radeɪ	-,1SO 8	,2971		-1.0200	.71~5
		2nd ɪmɪder	oren class	-,1620	,243C		-,76Yɪ.	.44~
			1st ɪɪnɪdeɪ	2,677E-02	,251,7		-,6693	,722'i
			3rd grade,	-,124( )	,296C		-,9652	,7172
		3rd gradeɪ	prep class	-3,7989E-O,2	,2891		-,8378	,7618
			!st ɪzɪ:adeɪ	,150 8	,2971		-,7185	1,020C
			2nd ɪɪnɪdeɪ	,1Z«	~		-,7172	,9651
META2	LS[	oreo elasɪ	1st eradet	1,03()!;	,2531	,000	,5315	1,53-03
			2nd zrader	,9472	,2S1ll	,00(	,4504	1,444(]
			3rd 2!adeɪ	1,09H	,3003	,000	,4994	1,6841
		Lst enɪdeɪ	nren class	~1 ,OJQÇ	,2531	,00O	-1.5303	-,531'5
			2nderadeɪ..	-8,37lOE-O,2	,260\	,74~	-,5984	,431()
			3rd zradeɪ	6,085E-02	,307\	,W	-,546ti	,66x:1
		2nd zradeɪ	ɪrey class	-,94T..!	,25lll	,000	-1,4440	-4504
			1st eradeɪ	8,371E-02	,260'7	,749	-,4310	,5gg.ɪ
			3m'. grader	,144t	,3068	,63ll	-,4608	,749I.I
		3rd ɪrradeɪ	oreoclass	-1,09U	,3003	,000	-1,6841	-,4994
			1st grader	-6,0852E-O,2	,307Ç	,844	-,6683	,54~
			2m1~	-,14-lU	,3068	,638	-,7499	,4608
	DunnettC	eree class	1st~	1,0309	,2531		,3727	1,6891
			2nd- eradeɪ	,947,2	,25U		,3838	1,51CHi
			3rd zradeɪ	1,09U	,3003		9,536E--02	2,0882
		1st zredeɪ	oreo class	-1,030<;.	,2531		-1,6891	-,372,7
			2nd ɪmɪL.ɪ	-8,3710E-02	,2609		-,7442	,5767
			3rd ɪmɪdcɪ	6085E-01	3079		-,9935	1,1152
		2nd eJll(leɪ	oreo class	-,947 2	,2518		-1.5106	-,383ll
			1st ɪmɪɪicɪ	8,371E-O:2	,2bU\I		-,5767	,7442
			3rd 2llldel	,144t	,3068		-,8534	1,1425
		3rd ɪɪ1Kleɪ	oreoclass	-109U	,3003		-2,08~	-9,5356E-OO
			1st ɪɪnɪɪeɪ	-6,0852E--02	,3079		-1,1 lS.1	,9935
			2nd 2radɪ:1	-,144t	,3068		-1,142'5	,8534
C003	LSD	nreo ciass	1st ɪɪnɪdcɪ	9,605E-02	,2661	,119	-,43-01	,fil:1:1
			2nd eradcɪ	,8973	,265-1	,001	,3739	1,4208
			3rd enɪda.	,6931	,3164	,030	6,962E-OO	I,II.1!
		1st graru:ɪ	prep class	-9,6045E-02	,266i	,719	-,622:I	,4301
			ZndR,radeɪ	,8013	,2749	,P<)4	,258S	1,3436
			Jrdgnɪder	,597,7	,3245	,067	-4,2354E-02	1,237&
		2nd erɪdeɪ	oreo class	-,8973	,265-1	,001	-1,42(ij	-,3739
			1st ɪɪnɪdeɪ:	-.8013	,2749	,004	-1,343t	-,2SS!I
			3rd ɪɪnɪdeɪ	-,203f	,3233	,530	-8414	,4342
		3rd l!,T8(leɪ	oreo class	-,693'J	,3164	,030	-1,317S	-6,9619E-02
			tst ɪɪnɪfcɪ	-,597i	,3245	,067	-1,237ll	4,235E-02
			2nd ɪmɪdeɪ	,203f	,3233	,53()	--4342	,841-4
	DunnettC	oreoclass	lst erader	9,605E--02	,266,		-,6021	,7942
			2nd grader	,8973	,265-1		,193~	1,6011
			3rd 2!adeɪ	,6937	,3164		-,19H	1,5791
		!'st grader	oreo class	-9,6045E--02	,2667		-•7942	,6021
			2nd ɪɪnɪɪeɪ	,8013	,274~		8,450E-02	1,518]l
			3rd=ɪdeɪ	,597i7	,324'5		-,2981	1,49-3~
		2nd ɪmɪder	oree class	-,8973	,2654		-1,601 I	-,19-3ɪ
			lsterɪdeɪ	-,8013	,2749		-1,5181	-8,4503E-m
			1r,4mɪdcɪ	-,203()	,3233		-1,103'J	~
		3rd ɪɪnɪdeɪ	prep class	-,{i93]	,3164		-1,5791	,l9H
			1st eradeɪ	-,59TJ	,324'5		-1,493'5	,29&]
			2od ɪɪnɪdeɪ	,203E	,3233		-,6~	1,103,7
MET3	LSD	oɪɪ:ɪ elasɪ	1st erɪdeɪ	,SOU	).193	,074	-4,9073E-02	1,0527
			2nd ɪɪnɪɪeɪ	1,?ffil	~1rn	,00(	,6759	1,772(
			3rd mɪ.ɪ:teɪ	1,0508	,331::.	,002	,3974	1,704.:
		1st ɪɪ'ɪldeɪ	oreo class	-,5018	,27'I3	,074	-1,052i	4,907E-02
			2nd~	,7221	,2878	,013	,1543	1,21M
			3rd ɪnMkɪ	,5490	,3397	,108	-,1211	1,2191
		2nd ɪzradeɪ	oreo class	-1,2239	zm	,000	-1,7720	-,67SS

			1st 11rader	-,7221	,2878	,013	-1~	-,1543
			3rd e.rader	-,1731	,338~	,611)	-84~	,494i
		3rd erader	1)fel) class	-1,0508	,331:	,e0:	-1,704~	-,397~
			1st ızradcr	-,5490	,3397	,101	-1,2191	,1211
			2ndmde	,1731	,338~	,610	-,494,/	,MOS
	DwınettC	preı, elası	1$12rader	,5018	,279~		-,315~	1,3191
			2nd ımıner	1,2239	).778		,5659	1,8820
			3rd ıu·ader	1,0S01	,33~		,29:f<1	1,809~
		1st enıder	eree class	-,S018	,2793		-1.ns1	,3155
			2nd Prlıder	,7221	,2878		-,127j	1,57}}
			3rd ırrader	,S49O	,3397		-,3803	1,4783
		2nd ırrader	oreo elass	-1,223S	,2778		-1,882(	-,5659
			1st ıııııdıır	-,7221	,2878		-1,571~	,1272
			3rd e:rader	-,1 731	,33R<		-,9660	,61911
		3rd mıdeı	oree class	-1,OSO8	,331:		-1,&o93	-,292-4
			1st srader	-,5490	,3397		-1,4783	,3803
			2nd 11ııd.,ı	,1731	,3385		•,619~	,9660
:SUCI	LSIJ	oreo class	1st eı-ıııeı	1,1692	,272{	,-000	,632~	1,7057
			2nd e:rader	1,104~	,270t	,00<	,57™	1,6380
			3rd e11der	1,072'	,3226	,001	,4361	1,70~
		1st ımıdcr	ıreo class	-1,169~	,2720	,000	-1,705ı	-,63~
			2nd mıdeı	-6,4857E-fü	,2803	,8J:ı	-,6179	,4881
			3tdonuf	-9,6687E-01	,330ı	,770	-,7493	,5559
		2ndnadeı	oren eless	-1,1043	,270f	,000	-1,fil8{	-,570li
			1st zradeı	6,486E-O	,2803	,817	-,4881	,617<
			3rd ıuııdeJ	-3, 1830E-<r	,329i	,923	-,6l1m	,61K
		3rd~	[)Jel) class	-1,072'	,3226	,001	-1,7081!	-,4361
			1st ımtder	9,669E-O	,3308	;ne	-,5559	,7493
			2nd ımıder	3,183E-O	,3297	,92	-,60"315	,6822
	DunnettC	prep elası	1st ımıder	1,16~	,2720		,4562	1,8821
			2nd ırtudı	1,104	,210i		,4251	1,7835
			3rd ımıter	1,072~	,322J		,I 71L	1,9722
		1st zradeı	oreo class	-1,1697	,272!		-1,8821	-,4562
			2nd mıdeı	-6,4857E-01	,2803		-,8364	,7067
			3rdonwter	-9,6687E-O	,3301		-1,0679	,87%
		2nd ımıder	""""cl=•	-1, 1041	aı«		-1,783'	-,4251
			(st OIMM	6,486E--O	,2803		-,706i	,836'
			3rdıınuteı	-3,1830E-O	,329ı		-,978f	,914S
		3rdgradeı	men class	-1.ons	,3226		-1,97"	-,iW
			lstımuleı	9,669E-O2	,33oi		-,87~	1,0679
			2ndonwr	3,183E-O2	,3297		-,914~	,91&6
SOL3	L'ID	oreo da<:	Ist erader	,8860	,2512	,001	,390~	1,381~
			2nd zrader	,5055	,249!	,114<4	1,258E-O~	,998~
			3rd ınurer	1~4120	,297<	,00	,~1	1,,999~
		1st erader	ıreıı cl=	-,886C	,2512	,001	-1,381'	-,3~
			2nd l!nldcı	-,3805	,2581	,143	-,891:	,13ili
			3rd zrader	,5260	,3055	,087	-7,6718E..O	1,1ZS1
		2nd~adeı	oreo class	-,5055	,249!	,()4.1	-998'	-1,2583E-OO
			fst' ımufcı	,380~	,25~	,143	-,1303	,8912
			3rd onu1er	,9063	~	,003	,30sc	1,5071
		3rd enıder	oreocl=•	-1,412()	,297!	,w	-1,9991	-,&243
			1st ınıder	-,526()	,3055	,08i	-1,1281	7,672E-02
			2nd e;rade	-,9065	,3045	,003	-1,S071	-,305~
	Dunnett(	mop elası	1st gnıder	,8860	,ıst		Jlıı.3	1,527~
			2nd l!,Jadcr	,SOS5	,249S		-,14~	1,160i
			3rd~	1,4121	,29'fi..		,534~	2,289f
		1st mıner	eree class	-,8860	,2512		-1,527'	-,244ti
			2nd""""rader	-,3IIO5	,25~		-1,045f	,21Mi
			lw! l!Illdci	,5260	,3055		-,350(	1,4110
		2nd511der	etas~	-,S055	,2491		-L160~	,149E
			1st ırrader	,3805	,2589		-,ıw.	1,04515
			~d onut	,9065	,3045		1,146E-m	1,801'5
		3rd erader	ıreo class	-1,412(	,29~		-2~	-,5345
			1'St orutL	-,5260	,305~		-1,4110	,35YI
			2nd ont1Por	-,~	,304~		-1,801~	-1, 1463E-02
COG<	LSC	nree elası	1st zrader	,6185	,261~	,01S	,1031	1,133S
			2ndff8der	1,5860	,2599	,00<	1,0733	2,0911.11
			3nl ırrader	2035J	3()9(	,00<	1,42.41	2,6470
		1st mıdeı	nrep class	-,6185	,2613	,015	-1,133~	-,1031

			2nd grader	,967t	,2693	,000	,4363	1,4988
			3rd grader	1,417	,3171	,00()	,7902	2,0441
		2nd grader	prep class	-1,586C	,259'	,00{)	-2,0988	-1,0733
			1st grader	-,967~	,2693	,000	-1.498il	-,4363
			3rd grader	,449(:	,316'l	,IS:	-,1 751	10744
		3rd grader	prep class	-2,035,7	,3095	,00£	-2,647{]	-1 ,4243
			1st grader	-1,417.1	,3178	,00()	-2,0441	-,7902
			2nd grader	-,44q;	,3161	,IS:l	-1.0744	,1'251
	DunnettC	prep class	1st grader	,6185	,2613		-,1343	um
			2nd grader	1,5860	,2598		,9416	~~1} J
			3rd grader	2,035,7	,3099		l,IUO	2,7833
		1st grader	prep class	-,618'	,2613		-1,3713	,1343
			2nd grader	,967t	,2693		,2093	1.7258
			3rd grader	1,417.<	,3178		,5699	2,2644
		2nd grader	prep class	-1,5X6C	,25!,T		-2,23ll	-,941(1
			1st grader	-,961t	,2693		-1,7258	-,2093
			3rd grader	,449(:	,316.i		-,3036	1,2028
		3rd grader	prep class	-2,035 7	,~		-2.7833	-1.28KO
			1st grader	-1,417 2	,3171		-2,2644	-,5699
			2nd grader	-,449t	,316,7		-1,2028	,303(i
MEMI	LSD	prep class	1st grader	,2768	,2605	,289	-,2371	,?Yml
			2nd grader	,89st	,2592	,001	,3873	1,4-099
			3rd grader	,161S	,309(]	,601	-,4477	,7715
		1st grader	prep class	-,2768	,2605	,289	-,7908	,2371
			2nd grader	,62H	,2685	,022	9,204E-02	l,lSlS
			3rd grader	-,114S	,316()	,71i	-,7401	,5102
		2nd grader	prep class	-,8~	,2592	,001	-1,4099	-,3873
			1st grader	-,6211	,268'5	,012	-1,1516	-9,2038E-02
			3rd grader	-,736,7	,315!	,0Zl	-t,3S!n	-,tt3i
		3rd grader	prep class	-,161S	,309()	,601	-,7715	,4477
			1st grader	,114S	,31AA	,71i	-,5102	,7401
			2nd grader	,736i	,3158	,021	,1137	1,3597
	DunnettC	prep class	1st grader	,2768	,2605		-,4074	,9611
			2nd grader	,898t	,2592		,2576	1,539-i
			3rd grader	,161S	,309l		-,6666	,9903
		1st grader	prep class	-,276,1l	,2605		-SSU	,4074
			2nd grader	,62u	,2685		-,1481	1,3917
			3rd grader	-,114S	,316S		-1,0467	,8168
		2nd grader	prep class	-,898';	,2592		-1,519'1	-;1.576
			1st grader	-,6211	,268'5		-1,391')	,1481
			3rd grader	-,7361	,3158		-1,6.372	,163,7
		3rd grader	prep class	-,161S	,309(]		-,990~	,66(x
			1st grader	,1149	,3169		-,816!	1,046,7
			2nd grader	,736'1	,3158		-,1637	1.6372
META'1	LSD	prep class	1st grader	,867,7	,2354	,000	,4033	1,3322
			2nd grader	,631 7	,2342	,00l!	,169(:	1,093,7
			3rd grader	2,0761J	,2793	,000	1,5251	2,626S
		1st grader	prep class	-,8677	,2354	,IIOU	-1,332,	-,403.1
			2nd grader	-,236D	,2427	,332	-,71~	,242,7
			3rd grader	1,208"2	,2864	,0IX)	,643.3	1,m2
		2nd grader	prep class	-,6317	,2342	,008	-1,-0937	-,1691!
			1st grader	,2300	,2427	,332	-,242i7	,714~
			3rd grader	1,4443	,2854	,000	,8811	2,0073
		3rd grader	prep class	-2.076(]	,2793	,00U	-2,6265	-1,5251
			1st grader	-1,2082	,2864	,U0U	-1,773..?	-,6433
			2nd grader	-1,4443	,2854	,000	-2,007.3	-,8813
	Dunnett(	prep class	1st grader	,867 7	,2354		,258_3	1.4771
			2nd grader	,6317	,2342		6,729E-O.1	1,1961
			3rd grader	2,076(]	,279~		1,245,7	2.9063
		1st grader	prep class	-,8671	,235"4		-1,477,?	-,1S11
			2nd grader	-,236(]	,242,7		-,895S	,4238
			3rd grader	1,2082	,286-1		,3103	2,106
		2nd grader	prep class	-,6317	,2342		-1,1961	~.7287E-02
			1st grader	~	,242,7		~423,~	,8959
			3rd grader	1,4443	,285~		,5763	2,3123
		3rd grader	prep class	-2,076(]	,2793		-2,906 3	-1,245'1
			1st grader	-1,2082	,2864		-2,100_	-,31ffi
			2nd grader	-1,4443	,28S4		-2,3123	-,5763
MEIAL	LSD	prep class	1st grader	,6218	,2454	,012	,1378	1,1058

			2nd grader	,930 2	,2441	,000	,4487	1,4m
			3rd grader	1,3162	,2910	,00C	,7421	1,8903
		1st uadcr	orco class	-,6218	,2454	,012	-1,1058	-,1378
			2nd gradeı	,10JW	,25:ZG	,224	-,1904	,8073
			3rd graderı	,6944	,2984	,021	,1056	1,2831
		2nd !!I'adeı	prep class	-,9302	,2441	,000	-1,4118	-,4481
			1st grader	-,308 4	,2529	,224	-,8073	,1904
			3rd grader	,3859	,2974	,196	-,2008	,972.fJ
		3rd graderı	preo class	-1,3162	,291(]	,00C	-1,8903	-,7421
			1st graderı	-,6944	,2984	,021	-1,2831	-,105ti
			2nd grader	-,3859	,2974	,196	-,97ı.tJ	,2008
	DunnettC	prep class	1st grader	,621E	,2454		-9,1949E-02	1,335E
			2nd grader	,930.?	,2441		,2502	1,6103
			3rd grader	1,316:2	,2910		,7326	1,8998
		1st graderı	oreo class	-,621 8	,2454		-1,3356	9,195E-02
			2nd graderı	,3084	,2529		-,3875	1,0044
			3rd graderı	,6944	,2984		9,231E-02	1,2965
		2nd grader	eren elasıs	-,9302	,2441		-1,6103	-,2502
			1st grnuıeı	-,301[4	,ZSZS		-1,0044	,3875
			3rd grader	,385S	,2974		-,1758	,9477
		3rd grader	prep class	-1,3162	,2910		-1,SSSS	-,73~
			1st graderı	-,6944	,2984		-1,2965	-9,2307E-02
			2nd graderı	-,385(X	,2974		-,947,7	,1758
COOS	LSD	prep class	1st graderı	,6761.3	,25:U3	,001	,174(	1,1793
			2nd grader	,705')	,2535	,006	,205t	1,205,7
			3 cdernder	,3244	,3022	,285	-,2719	,920\'i
		1st graderı	prep class	-,6766	,254B	,009	-1,1 793	-,174(]
			2ııd [!J'llderı	2,903£-0 2	)626	,912	-,4891	,5472
			3rd graderı	-,3523	,3099	,257	-,963,7	,2592
		2ndgıadeı	prep elası	-,7057	,2535	,006	-1,205,7	-,205(:
			1st !!I1lderı	-2,9035£-02	,2626	,912	-,5472	,489'1
			3rd graderı	-,3813	,3089	,219	-,990E	,ZZS0
		3rd graderı	oreo class	-,3244	,3022	,285	-,920/'5	,2719
			fsf gradc1r	,3523	,3099	,25')	-,259.ſ	,963,
			2nd graderı	,3813	,3089	,219	-,228(	,990fi
	DurıaettC	oreo class	1st graderı	,676fı	,254.1L		3,510E-02	1,31&2
			2nd graderı	,705 7	,2535		3,116E-O,?	1,3802
			3rd graderı	,3244	,3022		-,452[	1,1009
		1st graderı	on:o elası	-,6766	~		-1,3182	-3,5096E-02
			2nd graderı	2,903£--0 2	,2626		-,7241	,7828
			Jrdgradeı	-,3523	,309']		-1,198t	,4941
		2nd graderı	pfcP class	-,705,7	,253'J		-1,3802	-3,1163E--02
			1st graderı	-2,9035£--02	,262(		-,782~	,7248
			3rd graderı	-,381~	,30~		-1,252~	,49Q
		3rd grader	prep class	-,3244	,3022		-1,100S	,4522
			1st graderı	,3523	,3099		-,4941	1,1986
			2mt=gdeı	,3813	,3089		-,4903	1,2529
SOCA	LSD	oreo elası	1st grader	,653~	,2732	,OU	,1144	1,1923
			2nd graderı	,911,7	,ım	,001	,3755	1,4478
			3rd !!I'llderı	,602 0	,324(	,065	-3,7253£--02	1,2412
		1st graderı	prep class	-,6534	,273,?	,OU	-1,1923	-,1144
			2nd 2T8deı	,2S83	,28H	,36(	-,2972	,8138
			3rd gradeı	-5,1386E--02	,3323	,877	-,7069	,6042
		2nd graderı	oreo class	-,91J 7	,ım	,001	-1,4478	-,3755
			1st graderı	-,25~	,281t	,36(	-,8rn	,2972
			3rd graderı	-,309,7	,3311	,351	-,962S	,3436
		3rd graderı	prep class	-,602(	,324(	,065	-1,2412	3,725£--02
			1st graderı	5,139E-02	,3323	,877	-,6042	,7069
			2nd graderı	,309,7	,3311	,351	-,3436	,9629
	DunnettC	nren elası	1st J?.t1lderı	,6534	,2732		-,ım	1,4202
			2nd2T8deı	,911,7	,ım		,2882	1,5351
			3rdmHleı	,602(	,324(		-,3185	1,S:Π'
		1st graderı	oreo class	-,653,4	,2732		-1,4202	,1ISS
			2nd grader	,258 3	,28H		-,509')	1,0264
			3rdgradeı	-5,1386£--02	,3323		-1,0754	,97U
		2nd graderı	prep class	-,91 ∩	,2m		-1,5351	-,2882
			1st graderı	-,2583	,281E		-1,0264	,SIM
			3rd graderı	-,3097	,3311		-1,2312	,SUS
		3rd graderı	prep class	-,602C	,324(		-1,5225	,3185

			1st grade	5,139E-02	,3323		-,97U	1,0754
			2nd grade	,3097	,33ll		-,611 9	1,2312
COO6	LSD	prep class	1st grade	,9069	,2444	,000	,4245	1,389(
			2nd grade	,9009	,2431	,000	,4213	1,3805
			3rd grade	1,0415	,2895	,000	,4697	1,6133
		1st grade	prep class	-,9069	,2444	,000	-1,389(	-,4245
			2nd grade	-6,0332E-03	,2519	,981	-,5025	,4909
			3rd grade	,1346	,2973	,651	-,4SU	,7200
		2nd grade	prep class	-,9009	,2431	,000	-1,3805	-,4213
			1st grade	6,033E-03	,2519	,981	-,4905	,5025
			3rd grade	,1406	,296?	,63t	-,4438	,7249
		3rd grade	prep class	-1,0415	,2895	,00(	-1,6133	-,4697
			1st grade	-,134(	,2973	,651	-,720	,4511
			2nd grade	-,1401	,29fü	,63t	-,724S	,4431
	Dunnett C	prep class	1st grade	,906	,2444		,2724	1,5414
			2nd grade	,9009	,2431		,300~	1,5013
			3rd grade	1,0415	,2899		,2153	1,8677
		1st grade	prep class	-,9069	,2444		-1,5414	-,2724
			2nd grade	-6,0332E-03	,1m		-,?OU	,689?
			3rd grade	,1346	;1.973		-,7633	1,0324
		2nd grade	prep class	-,~	,2431		-1,5013	-,3005
			1st grade	6,033E-03	,251(		-,6891	,7018
			3rd grade	,1401	,296?		-,7335	1,0147
		3rd grade	prep class	-1,041'	,2899		-1,86T1	-,215:
			1st grade	-,1346	,2973		-1,0324	,7633
			2nd grade	-,1401	,2962		-1,014i	,7335
SOCS	LSD	prep class	1st grade	,5291	,2506	,036	3,472E-02	1,0234
			2nd grade	,8771	,2493	,001	,3853	1,3689
			3rd grade	2,0754	).97?	,000	1,489(	2,66U
		1st grade	prep class	-,5291	,2506	,036	-1,023A	-3,4724E-02
			2nd grade	,3480	,2583	,17	-,1615	,8576
			3rd grade	1,5463	,304~	,000	,945U	2,1476
		2nd grade	prep class	-,8771	,2493	,001	-1,3689	-,3853
			1st grade	-,348(	,2583	,179	-,8576	,1615
			3rd grade	1,198	,303~	,000	,599<	1,7975
		3rd grade	prep class	-2,0754	,297?	,00(	-2,66U	-1489(
			1st grade	-1,546	,304~	,00(	-2,1476	-,945(
			2nd grade	-1,1983	,303~	,00(	-1,7975	-,5990
	DunnettC	prep class	1st grade	,5291	,2506		-,2041	1,2623
			2nd grade	,8771	,2491		,256S	1,4973
			3rd grade	2,0754	,2972		1,326<	2,824li
		1st grade	prep class	-,5291	,250f		-1.2621	,2041
			2nd grade	,3480	,2583		-,3458	1,0419
			3rd grade	1,54(3	,3048		,7349	2,3S7i
		2nd grade	prep class	-,8771	,2493		-1,4973	-,256~
			1st grade	-,348(	,2583		-1,0419	,3458
			3rd grade	1,1981	,303B		,4873	1,9092
		3rd grade	prep class	-2,0754	,2972		-2,8241	-1,3260
			1st grade	-1,5463	,3041		-2,3577	-,7349
			2nd grade	-1,1983	,3031		-1,9092	-,<<
MEM2	LSD	prep class	1st grade	,3951	,2481	,1 1S	-9,4355E-02	,884,7
			2nd grade	,4905	;1.469	,041	3,576E-03	,9775
			3rd grade	,4935	,2943	,095	-8,6749E-02	1,0745
		1st grade	prep class	-,3951	,2481	,113	-,8847	9,435E-02
			2nd grade	9,540E-0,?	,2551	,710	-,4091	,5999
			3rd grade	9,872E-02	,3011	,744	-,4967	,6941
		2nd grade	prep class	-,4905	,2469	,048	-,9775	-3,5759E-03
			1st grade	-9,5400E-02	,2551	,710	-,5999	,4091
			3rd grade	3,316E-03	,3008	,991	-,5900	,596i
		3rd grade	prep class	-,4935	,2943	,095	-1,074	8,675E-02
			1st grade	-9,871SE-0,?	,3011	,744	-,6941	,4%,7
			2nd grade	-3,316E-03	,3001	,991	-,5967	,590(
	Dunnett C	prep class	1st grade	,3951	,2481		-,2301	1,0204
			2nd grade	,4905	,2469		-,1404	1,1214
			3rd grade	,4935	,2943		-,3~	1,354E
		1st grade	prep class	-,3951	,2481		-1,0204	,2301
			2nd grade	9,540E-02	,2551		-,5916	,782A
			3rd grade	9,872E-02	,3018		-,804(	1,001
		2nd grade	prep class	-,4905	,2469		-1,1214	,140

			!st grader	-9,5400E-02	,255~		-,7824	,591 6
			3rd grader	3,3!6E-03	,S0OS		•,9033	,90Yli
		3rd u,ader	prep class	-,4939	,2943		-l,3S4(i	,3669
			lst gmder	-9,871SE-02	,30U		-l,0014	,804(
			2ndl grader	-3,3156E-03	,3ooa		-,9099	,9033
COG7	LSC	prep class	1st grader	,7880	,256J	,002	,2824	1,293 6
			2nd grader	,4094	,255(	,llC	-9,3592E-02	,9124
			3rd grader	,7569	,304(	,014	,1572	1,3561 5
		1st gmrleu	prep class	-,7880	,2563	,002	-l,293E	-,2&2 4
			2ndmder	-,3786	,2642	,153	-,899'l	,1425
			3rd grader	-3,1102E-02	,31U	,921	-,6461	,5839
		2nd grader	prep class	-,4094	,255(	,IIU	-,9124	9,359E-02
			1st grader	,3186	,2642	,153	-,1425	,8997
			3rdl gmnder	,3475	,310,7	,26'J	-,2654	,9603
		3rd grader	prep class	-,7569	,304(	,014	-1,3566	-,1572
			1st grader	3,1 IOE-02	,SUS	,921	-,5839	,6461
			2nd grader	-,3475	,310i	,26'J	-,9603	,2654
	DunnettC	erep class	1st grader	,7880	,2563		,1171	1,4582
			2nd grader	,4094	,255(		-,2519	1,070,7
			3rd grader	,7569	,304(		1,472E-02	1,499(
		1st grader	prep class	-,7880	,2563		-I,4582	-,117,7
			2ndl gnlder	-,3786	,2642		-l,155C	,397t
			3rd grader	-3,1102E-02	,31U		-,8774	,8152
		2ndl gmnder	prep class	-,41H4	,255(		-1,070?	,2519
			1st gmder	,378E	,2642		-,397S	1,155 0
			3rd grader	,3475	,310,7		-,4911!	1,1867
		3rd grader	prep class	-,7569	,304(		-l,499C	-l,4718E-02
			1st gmder	3,1 lOE-02	,3118		·,8152	,8774
			2nd gmder	·,3475	,3107		-1186,7	,4918
MEM3	LSI	prep class	1st grader	,6384	,2667	,OU	,1123	1,1645
			2nd gmvler	1,4782	,2653	,000	,954a	2,001 6
			3rd gmder	,9603	,3163	,003	,3361	1,5843
		1st grader	prep class	-,6384	,2667	,018	-1,164-J	-,1123
			2nd gmdcr	,839?	,2749	,003	,297,J	1,382 0
			3rdl grader	,32U	,3244	,3m	•,3181	,9618
		2ndl grader	prep elasi	-1,4782	,2653	,000	-200H	·,9548
			Isi grader	-,8397	,274S	,003	-1,382(	-,2975
			3rd graderi	-,517S	,3233	,111	-l.lSSe	,1198
		3rd grader	erep class	-,960B	,3163	,003	-1,5843	-,3362
			1st gnider	-,3211!	,3244	,322	-,96U	,3181
			2nd gmder	,517S	,3233	,il 1	-,l 19a	1,155<1
	DunneUC	prep class	1st 2rader	,6384	,2667		-8,4291E-02	1,361 1
			2nd ruader	1,4782	,2653		,834a	2,1215
			3rd grader	,9603	,3163		5,112E-02	1,869'1
		1st grader	prep class	-,6381	,2667		-1,3611	8,429E-02
			2nd grader	,839i	,2749		,ion	1,5757
			3rd ruader	,3218	,3244		-,655C	1,298 7
		2nd gmder	prep class	-1,4782	,2653		-2,1215	-,8348
			1st grader	-,8397	,274S		-l,57Sl	-,1038
			3rd gmder	-,517S	,3233		-1,437E	,4018
		3rdmder	prep class	-,960B	,3163		-1,8694	-S,uzas-cl
			1st gmder	-,3218	,32'44		-1,2981	,6550
			2nd grader	,5179	,3233		-,401E	1,437 6
MEM4	LSD	preo class	1st grader	,7311	,2281	,002	,2811	1,1811
			2nd grader	,8005	,226S	,001	,35:ZÇ	1,248; 2
			3rd gmder	1,2701	,270f.	,00(	,7363	1,803 8
		1st grader	prep class	-,7311	,2281	,00.1	-1,1811	-,2811
			Zndmder	6,938E-02	,2351	,768	-,394-1	,5332
			3rd grader	,5389	,zrl.3	,054	-8,4928E-03	1,0862
		2nd gmder	prep class	-,8005	,226S	,001	-1,2482	-,352.i
			Ist gmder	-6,9382E-02	,2351	,768	-,5332	,394'1
			3cd gmder	,4695	,2765	,091	-7,5963E-02	1,0150
		3rd gmder	prep class	-1,2700	,270f	,000	-1,803~	-,7363
			Lst grader	-,5389	,277<J	,054	-1,0862	8,493E-03
			2nd gmder	-,4695	,2765	,091	-l,015C	7,596E-O ?
	DunnettC	prep class	1st grader	,7311	,2281		,10~	1,3534
			2nd grader	,8005	,zzss		,2295	1,371<J
			3rd grader	1;2700	,Z10f		,573<1	1,9664
		1st grader	prep class	-,7311	,2281		-1,3534	-,JOSS

			Znd grader	6,938E-02	,2351		-,5927	,7315
			3rd grader	,5389	,2775		-,2339	1,3117
		2ndgrader	prep class	-8005	,2269		-1,3715	-229•
			1st grader	-6,9382E-02	,2351		~.7315	,5927
			3rd grader	,4695	,2765		-,2627	1,2017
		3rd grader	prep class	-1,270(	,270(		-1,9664	-,573
			1st grader	-,5389	,2775		-1,3117	,2339
			2ndgrader	-,4695	,2765		-1,2017	,2627
COOS	LSD	prep class	1st grader	1,9359	,31~	,000	1.3113	2.,5604
			2nd grader	1,7262	,3149	,000	1.1049	2,3475
			3rd grader	2,4822	,3755	.000	1,7414	3,223O
		1st grader	prep class	-1,9359	,31~	,000	-2,5604	~1,3113
			2nd grader	-,2097	,3263	,521	-,8534	,4341
			3rd grader	,5463	,3851	,158	-,2134	I,3060
		2nd grader	prep class	-1,7262	,3149	,000	-2,3475	-1,104S
			1st grader	,2097	,3263	,521	-,4341	,8534
			3rd grader	,7560	,3838	,050	-1,0685E-03	1,5130
		3rd grader	prep class	-2,4822	,3755	,000	-3,2230	-1,7414
			1st grader	-,5463	,3851	,158	-1,3060	,2134
			2nd grader	-,7560	,3838	,050	-1,5130	1,068E-03
	DunnettC	prep elass	1st grader	1,9359	,3166		1,1308	2,7409
			2nd grader	1,7262	,3149		,8973	2,5551
			3rd grader	2,4822	,3755		1,4738	3,4905
		1st grader	prep class	-1,9359	,31~		-2,7409	-1,1308
			2nd grader	-,2097	,3263		-1,1198	,1003
			3rd grader	,5463	,3851		-,5298	1,6225
		2nd grader	prep class	-1,7262	,3149		-2.5551	-,8973
			1st grader	,2097	,3263		-,7005	1,1198
			3rd grader	,7560	,3838		-,3382	1,8501
		3rd grader	prep class	-2,4822	,3155		-3,4905	-1,4738
			1st grader	-,5463	,3851		-1.6225	,5298
			2nd grader	-,7560	,3838		-1,8501	,3382
MEMS	LSC	prep class	1st grader	,2589	,242~	,287	-,2193	,7371
			2nd grader	,9938	,2411	.000	,5181	1,4695
			3rd grader	1,1642	,2875	,000	,5971	1,731~
		1st grader	prep class	-,2589	,242~	,287	-,7371	,2193
			2nd grader	,7349	,2498		,2421	1,2278
			3rd grader	,9053	,2948	,002	,3231	1,4870
		2ndgrader	prep class	-,9938	,2411	,000	-1,4695	-,5181
			1st grader	-,7349	,2498	,004	-1,22n	-2421
			3rdgrader	,1704	,2938	,563	-,4092	,7500
		3rd grader	prep class	-1,1642	,2875	.000	-1,7314	-,5971
			1st grader	-,9053	,294~	,002	-1,487(	-,3237
			2nd grader	-,1704	,2938	,563	-,7500	,4092
	Duoaett(	prep class	1st grader	,2589	,2424		-,3863	,9041
			2nd grader	,9938	,2411		,3993	1,5883
			3rd grader	1,1642	,2875		,3604	1,9681
		1st grader	prep class	-,2589	,2424		-,9041	,3863
			2nd grader	,7349	,249~		4,762E-02	1,4222
			3rd grader	,9053	,294~		3,060E-02	1,7801
		2nd grader	prep class	-,9938	,2411		-1,5883	-,3993
			1st grader	-,7349	,249~		-1,4222	-4,7619E-02
			3rd grader	,1704	,2938		-,667(	1,0085
		3rd grader	prep class	-1,1642	,2875		-1,9681	-,3604
			1st grader	-,9053	,294~		-1,7801	-3,0604E-02
			2nd grader	-,1704	,293~		-1,0085	,6676
MEMt	LSD	prep class	1st grader	,9741	,2547	,000	,4716	1,476t
			Znd grader	1,2037	,25~	,000	,7038	1,7036
			3rd grader	,9842	,3021	,001	,3882	1,5803
		1st grader	prep class	-9741	,2547	.000	-1,4766	-,47H
			2nd grader	,22Y<	,262(	,383	7,2883	,7476
			3rd grader	I,014E-O2	,3095	,974	-,60ll	,6214
		2nd grader	prep class	-1,2037	,25~	.000	-J,703(	-,7038
			1st grader	-,229~	,2626	,383	-,7471	,2883
			3rd grader	-,2195	,3088	,478	-,828(	,3896
		3rd grader	prep class	-,9842	,3021	,001	-1,5803	-,3882
			1st grader	-1,0142E-OO	,309~	,974	-,6214	,60ll
			2nd grader	,2195	,3088	,478	-,38%	,828~
	DunnettC	prep elass	1st grader	,9741	,2547		,3559	I,5923

			2nd grader	1,2037	,2534		,5724	1,8350
			3rd grader	,9842	,3021		6,181E-02	1,9066
		!st grader	prep class	-,9741	,2547		-1,5923	-,3559
			2ndu,nider	~	,2626		-.4&~	,9427
			3rd grader	1,014E-f?	,3099		-,9700	,9903
		2nd grade!	prep class	-1,203;	,2534		-1,835 0	-,5724
			1st ,u-ader	-,229E	,2626		-,9427	,4834
			3rde;rader	-,2195	,3088		-1,2080	,7690
		3rd mcier	ım:o class	-,9842	,3021		-1,900	-6,1812&0.?
			1st zrader	-1,0142E-02	,3099		-,9903	,9700
			2nd zrader	,2195	,3088		-,7690	1,2080
METAE	LSD	ereo class	1st zrader	-,3745	,3145	,235	-,9949	,2458
			2nd grader	,2819	,3129	,365	-,3352	,8991
			3rd ımıder	,4524	,3730	,227	-,2835	1,1&&2
		1st grader	nree class	,3745	,3145	,235	-,2458	,9949
			2nd,ıu-ader	,6565	,3241	,044	1,703E-O?	1,295S
			3rdgradeı	,8269	,382<	,032	7,227E-O?	1,SSH
		2nd grader	prep class	-,2819	,3129	,36?	-,8991	,335?
			1st ımıder	-,6565	,3241	,04.4	-1,2959	-l,7026E-02
			3rd zrader	,1704	,381?	,655	-,5816	,9224
		3rd grader	prep elası	-,4524	,373(	,227	-1,1882	,2835
			1st ırrader	-,8269	,382<	,032	-1,5816	-7,2266E-Q2
			2nd zrader	-,1704	,381?	,655	-,9224	,SSH
	Dunnett( )	prep elası	1st 2rader	-,3745	,314<		-1,2887	,53~
			2nd zrader	,2819	,312S		-,5391	1,102S
			3rd ımıder	,4524	,373(		-,3206	1,2254
		1st e:rader	oree elası	,3745	,3145		-,5396	1,288T
			2nd grader	,6565	,3241		-,2757	1,588T
			3rd ımuier	,8269	,3825		-6,3301E-O?	1,7171
		2ndgraaeı	prep Clas;	-,2819	,312S		-1,1029	,5391
			1st zrader	-,6565	,3241		-1,588,7	,2757
			3tdımıdeı	,1704	,3812		-,623>	,964,7
		3rd grader	prep class	-,4524	,373O		-1,2254	,3206
			1st e:rader	-,8269	,3825		-1,7171	6,330E--02
			2nd 'Yrad"r	-,1704	,3812		-,964,7	,6239
CQG<	LS( )	erep class	1st e:rader	-,3762	,2474	,130	-,8647	,IIU
			2nd ırrader	,3598	,2461	,145	-,125E	,8453
			3rd grader	-,4465	,2934	,130	-1,0254	,1323
		1st zrader	prep Cl1155	,3762	,2474	,130	-,IIU	,8642
			2nderadeı	,738	,2550	,004	,2331	1,2391
			3rd zrader	•7,031SE--02	,3003	,815	-,663	,523
		2nd ızrader	erep class	-,3598	,2461	,14<	-,8453	,125(
			1st zrader	-,736(	,2550	,004	-1,239<	-,2331
			Ird mıdeı	-,8064	,2999	,00E	-1,3979	-,2148
		3rd ımıder	ereę class	,4465	,2934	,13O	-,1323	1,0254
			lstgradeı	7,032E--02	,3009	,815	-,5233	,6639
			2nd grader	,8064	,2999	,00~	,2148	1,3979
	Dunnett C	orep class	1st grader	-,3762	,2474		-,9804	,2280
			2nd grader	,3598	,2461		-,3414	1,0611
			3rd e;rader	-,4465	,2934		-1,1330	,2400
		1st grader	prep class	,3762	,2474		-,2280	,9804
			2nd zrader	,736(	,2550		-4,5657E--03	1,4767
			3rd e;rader	-7,0318E-02	,3009		-,7970	,6564
		2nd grader	prep class	-,3598	,2461		-1,0611	,3414
			1st zrader	-,7360	,255(		-1,4767	4,566E-03
			3rd grader	-,8064	,2999		-1,6155	2,742E--03
		3rd mıdeı	prep elası	,4465	,2934		-,2400	1,133(
			1st ızrader	7,032E-02	,3009		-,6564	,797O
			2nd zrader	,8064	,2998		-2,7424E-03	1,6155
META7	LSO	preo class	1st ımlller	-,1223	,2341	,602	-,583<	,339?
			2nd 2111der	,6835	,2327	,004	,2244	1,1427
			3rd ımıder	-,5996	,2775	,032	-1,1471	-S,2210E-OO
		1st!ıtader	prep elası	,122<	,2W	,602	-,3392	,5838
			2nd grader	,8058	,2411	,001	,3301	1,2815
			3rd grader	-,4773	,284E	,095	-1,0388	8,406E--O?
		2nd mıdeı	nren elası	-,6833	,2321	,004	-1,1427	-,2244
			1st ırrader	-,80SE	,2411	,001	-1,281<	-,3301
			3rd grade!	-1,2X32	,283~	,000	-1,842'1	-,723,7
		3rd grader	prep class	,5996	,2775	,032	5,221E-O?	1,1471

			1st zradet	,4773	,2846	,095	-8,4061E-02	1,0388
			2nd l!Tadei	1,283;	,283t	,000	,7237	1,8421
	Dunnett(	orei> elasi	1st zradei	-,1223	,2340		-,7778	,533~
			2ndimidci	,6835	,2327		,1001	1,266J
			3rd imrlei	-5996	,2775		-1,3237	,12M
		1st aradei	oreo class	,122I	,2340		-,5332	,7778
			2nd zradei	,805E	,2411		,1475	1,4641
			3rd zradei	-4773	,284E		-1,2636	,3089
		2nd imrdei	ireo class	-,6835	,232J		-1,2662	-,IOE>f
			Ist PNIdCJ	-,805E	,2411		-1,4641	-,147'
			3rd aradei	-1,2832	,2836		-2,009E	-,5565
		3rd sradei	oren class	,5QQt	,2775		-,124	1,323,
			1st imulei	,4773	,284~		-,308Ç	1,2631
			2nd imdei	1,2832	,288~		,556~	2,0091
SOC6	LSD	prep elasi	1st zradei	8,807E-0:i	,2623	,737	-,42~	,6055
			2nd zradei	1,1597	,260!	,00(	,6450	1,6745
			3rd aradei	,3998	,3111	,20(	-,2140	1,0135
		1st zradei	eren elasi	-8,8069E-02	,2623	,73,	-,6055	,4294
			2ndl PrIIIlet	1,07IE	,270	,OX	,531L	1,6050
			3rd iradei	,3117	,3190	,33(	-,3177	,9411
		2nd zradei	oreo elasi	-1,159?	,ZSOS	,00C	-1,6745	-,6450
			1st zredei	-1,0716	,2704	,000	-1,605C	-,5383
			3rd zrade	-,15~	,3179	,018	-1,3871	-,132i
		3rd imdei	preo elasi	-,3998	,3111	,20(	-1,0135	,214{
			1st zredei	-,311i	,319C	,33(	-,9411	311,7
			2nd zradei	,759<	,3179	,018	,132,	1,3871
	DunnettC	pren class	I st iradei	8,807E-02	,262~		-,6062	,7823
			2nd zradei	1,1597	,2609		,5326	1,7868
			3rdl imdei	,3998	,3111		-,474t	1,2741
		1st izradei	pren class	-8,8069E-02	,2623		-,7823	,6062
			2nd PNrlet	1,onS	,2704		,3121	1,8312
			3rdPTIW:>	,3117	,3190		-,6620	1,2854
		2nd zrader	orei> elasi	-1,1597	,2609		-1,7868	-,5326
			1st izradei	-1,0716	,2704		-1,8312	-,3121
			3rdl gredei	-,7599	,3179		-1,6870	,1671
		3rd eradei	oree class	-,3998	,3111		-1,2741	,4746
			1st zradei	-,3117	,3190		-1,2854	,6620
			2nd 2Tadei	,7599	,3179		-,1671	1,6870
SOC7	LSD	prep elasi	1st arade	,2675	,263~	,312	-,2525	,7816
			2nd imdei	1,6118	262•	:roe	1,0944	2,1292
			3rd on.rlei	1,2385	,3127	,00C	,6216	1,8553
		1st erade	prep elasi	-,267'5	,2631	,31,	-,7871	,2525
			2nd erade	1,3443	,271.7	,00(	,808:i	1,8803
			3rd izradei	,97<Y,	,320,7	,003	,3383	1,6035
		2nd zrade	pren elasi	-1,61U	,26"3	,OX	-2,1292	-1,0041
			lst erade	-1,3443	,27li	,00C	-1,8803	-,808
			3rd zrade:	-,3733	,3191	,2M	-1,003i	,2571
		3rd i.rade	i>rei> elasi	-1,238'5	,312,7	,00C	-1,8553	-62H
			1st zradei	-,97~	,320,7	,003	-1,6035	-,3383
			2ndmiM	,3733	,31~	,24A	-,2571	1,0031
	DunnettC	oree clas	1st eradei	,2675	,2631		-,4654	1,0004
			2nd zradei	I,61ll	,2623		,928'	2,2952
			3rd aradei	1,238'5	,312;7		,4571	2,0193
		1st zrade	pren elasi	-,2675	,2631		-1,0M	,4654
			2nd imdei	1,344	zn7		,600'	z,esse
			3rdmilei	,970S	,320,7		,136:8	1,8051
		2nd midei	i>rei> elasi	-1.SIU	,2623		-2,295,?	-,928<
			lst iz:radei	-1,344~	,21[;7		-2,088(	-,6005
			3rd zradei	-,3733	,3191		-1,f64	,417,7
		3rdl imdet	eren class	-1,238!	,312,		-2,019~	-,457(
			1st imdei	-,97~	,320,7		-1,8051	-,1368
			2nd izradei	,373~	,31~		-,417,7	1,164,4
MEM7	LS[	oree elasi	1st eradei	6,514E-0i	,2691	,800	-,466i7	,597(
			2nd iiadei	1,257!	,268'.i	,00C	,7281	1,786'
			3rd eradei	,877!	,319!	,00i	,247(	1,508,7
		lst imdei	oreii elasi	-6,5138E-0:	,26~	,805	-597(	,466,7
			2nd iz:radei	1,192,7	,277S	,00C	,644'	1,740!
			~l!radei	,SIZ:	,327S	,014	,165~	1,459t
		2nd zradei	oreo class	-1,257E	,2682	,000	-1, 786S	-,728!

			1st grader	-1,192 7	,2779	,000	-1,740 8	-,6445
			3rd grader	-,3800	,3268	,246	-1.0246	,2647
		3rd grader	prep class	-,8778	,3198	,007	-1,508,7	-,2470
			1st grader	-,8127	,3279	,014	-1,459~	-,1658
			2nd grader	,3800	,3268	,246	-,264,7	1,0246
	Dunnett C	prep class	1st grader	6514E--02	,2696		-,6201	,7510
			2nd grader	1,2578	,2682		,5449	1,9707
			3rd grader	,8778	,3198		3,753E--02	1,7182
		1st grader	prep class	-6,5138E--02	,2696		•,7510	,6207
			Znd grader	1,192,7	,2779		,412E	19m
			3rd grader	,812,7	,3279		-8,5165E--02	1,7106
		2nd grader	prep class	-1,257 8	,2682		-1,970,7	-,5449
			1st grader	-1,192,7	,2779		-1,972t	-,4121
			3rd grader	-3K00	,3268		-1,298E	,518:1
		3rd grader	prep class	-,8778	,3198		-1,718.2	-3,7528E--02
			1st grader	-,8127	,3279		-1, 710(	8,516E--02
			2nd grader	,3800	,3268		-,538'7	1,2986
SOCS	LSC	prep class	1st grader	,1213	,2662	,649	-,403S	,6465
			2nd zrader	1,294(	,2649	,000	,771:3	1,&165
			3rd grader	,9293	,3158	,004	,3063	1,5523
		1st grader	prep class	•,1213	,2662	,649	-,646~	,4039
			2nd lITTlder	1,172,7	,2744	,000	,6313	1,7141
			3rd zrader	,808(	,3239	,013	,1691	1,4468
		2nd gnuder	prep class	-1,294(	,264Q	,000	-1,8165	-,7715
			1st grader	-1,172,7	,2744	,000	-1,7141	-,6313
			3rd grader	-,364,7	,3227	,260	-1,0014	,2719
		3rd zrader	prep class	-,9293	,3158	,004	-1,5523	-,3063
			1st grader	-,808(	,3239	,013	-1,4468	-,1691
			2nd unuder	,3641	,3227	,260	-,2718	1,0014
	Dunnett O	prep class	1st u;rader	,1213	,2662		-,5873	,8299
			2nd zrader	1,294(	,2649		,5765	2,0115
			3rd uader	,9293	,3158		,1675	1,6907
		1st zrader	prep class	-,1213	,2662		-,8295	,5873
			2nd zrader	1,1721	,2744		,4015	1,9435
			3rd lITTlder	,808(	,3239		-3,9006E--03	1,6199
		2nd unuder	pree class	-1,294(	,2649		-2,0115	-,5765
			1st zrader	-1,172J	,2744		-1,9435	-,4019
			3rd grader	-,364,7	,3227		-1,1843	,4549
		3rd izrader	prep elass	-,9293	,3158		-1,6907	-,1679
			1st grader	-,808O	,3239		-1,6199	3,901E-03
			2nd l!!'ader	,364i	,3227		-,4545	1,1843
METAS	LSD	prep class	1st zrader	,1758	,264,7	,501	-,3464	,6981
			2nd grader	,6004	,2634	,021	8,084E--02	1,11SS
			3rd zrader	,3232	,3140	,305	-,2963	,9427
		1st zrader	erep class	-,1751	,2647	,50,7	-,6981	,3464
			2nd arader	,424<	,272S	,121	-,113!	,9629
			3rd grader	,1474	,322(	,648	-,4879	,782,7
		2nd grader	prep class	-,6004	,2634	,024	-1,1199	-8,0840E--02
			!st grader	-,4246	,2729	,121	-,9629	,1137
			3rd unuder	-2172!	,3209	385	-,9102	,3559
		3rd zrader	prep class	-,3232	,3140	,305	-,9421	,2963
			1st zrader	-,1474	,322(	,648	·,7827	,487S
			2nd uader	,2772	,320S	,385	-,3559	,9102
	DunnettC	nren class	1st izrader	,1751	,264,7		-,5714	,923(
			2nd urnder	,6004	,2634		-7,1122E--02	1ZNS
			3rd zrader	,3232	,314')		-,5347	1,1811
		1st arader	prep class	-,1758	,264,7		-,9230	,5m
			2Iid arader	,4246	,272S		-,2748	1,12M:
			3rd zrader	,1474	,322(		-,7325	1,0273
		2nd unuder	prep class	-,6004	,2634		-1,2719	7,112E--02
			1st unuder	-,4246	,272S		-1,1240	,274~
			3rd muder	-,2772	,320S		-1,0938	,5395
		3rd erader	pree class	-,3232	,314(1		-1,181 1	,5347
			1st zrader	-,1474	,322(		-1.0273	,7325
			2nd unuiler	,2772	,3205		-,5395	1,0938
MEMS	LSD	prep class	1st zrader	9,638E-03	,268~	,971	-,5201	,53~7
			2nd 2111<1er	,2559	,2674	,340	-,271,7	,7834
			3rd grader	8,942E-02	,3181	,779	-,539'5	,7184
		1st grader	prep class	-9,6378E·O~	,268S	,971	-,539S	,5201

			2nd grader	,2462	,2771	,375	-,3003	,7928
			3rd zrader	7978E-02	,327(	,807	-,5652	,7248
		2nd grader	prep class	-,2559	,2674	,340	-,7834	,2717
			1st zrader	-,2462	,2771	,375	-,7928	,3003
			3rd zrader	-,1664	,325S	,610	-,8092	,4763
		3rd zrader	prep class	-8,9421E-02	,3188	,779	-,7184	,5396
			1st grader	-7,9784E-O2	,327(	,807	-,7248	,5652
			2nd grader	,1664	,3258	,610	-,4763	,8092
	DutmettC	prep class	1st zrader	9,638E-o3	,26sa		-,7183	,7376
			2nd zrader	,2559	,2674		-,4279	,9397
			3rd grader	8,942E-O2	,3188		-,8231	1,002(
		1st grader	prep class	-9,6378E-03	,2688		-,7376	,7183
			2nd zrader	,2462	,2771		-,462?	,9554
			3rd ıırader	7,978E-o2	,327O		-,8520	1,0115
		2ndgradeı	prep class	-,2559	,2674		-,9397	,427S
			1st grader	-2462	,2771		-,9554	,4629
			3rd ınıder	-,1664	,3258		-1,0641	,7312
		3rd grader	prep class	-8,9421E-O2	,3188		-1,0020	,8231
			1st grader	-7,9784E-O2	,327O		-1,0115	,852(
			2nd zrader	,1664	,3258		-,7312	1,064]
S0C9	LSO	prep elası	1st grader	9,472E-O?	,2482	,703	-,3950	,5844
			2nd grader	,1558	,247O	,529	-,3314	,643(
			3rd grader	,6505	,2944	,028	6,965E-02	1,2313
		1st grader	prep class	-9,4716E-O?	,2482	,703	-,5844	,395O
			2nd zrader	6,109E-02	,255S	,812	-,4437	,56Sa
			3rd grader	,5558	,302O	,067	-3,9890E-02	1,1515
		2nd arader	ı:ıreo class	-,1558	,2470	,529	-,6430	,3314
			1st ıuader	-6,1086E-02?	,2559	,81?	-,5658	,4437
			3rd mıdeı	,4947	,3009	,1Q2	-9,8896E-O2	1,0883
		3rd gradeı]	prep class	-,6505	,2944	,028	-1,2313	-6,9649E-02
			1st grade;	-,555~	,3020	,067	-1,1S15	3,989E-02
			2nd ıınıder	-,4947	,3009	,102?	-1,0883	9,890E-02
	Dunnett C	prep class	1st zrader	9,472E-02	,2482		-,5671	,7565
			2nd 11ıader	,1SSS	,2470		-,489~	,8014
			3rd grader	,650≤	,2944		-,118(	1,419C
		1st grader	prep class	-9,4716E-O?	,2482		-,7565	,5671
			2nd zrader	6,109E-02	,2559		-,6434	,7655
			3rd zrader	,5558	,3020		-,262?	1,3744
		2nd ı:rader	prep elası	-,1558	,2470		-,8014	,4898
			1st ızrader	-6,1086E-02	,2559		-,765≤	,6434
			3rd 11Tader	,4947	,3009		•,3100	1,3003
		3rd grader	prep class	-,6505	,2944		-1,419C	,1180
			1st zraöer	-,5558	,3020		-1,3744	,2629
			2nd ıırader	-,4947	,3009		-1,3003	,3109
META9	LSD	ı)rel) Clası	1st ınıder	4,320E-03	,34H	,990	-,669(≤	,6782
			2nd ızrader	-,2295	,339~	,500	-,899S	,440")
			3rd grader	,2268	,405?	,57~	-,5725	1,0261
		!st zrader	nren class	-4,3204E-03	,34H	,990	-,6782	,66~
			2nd grader	-,2338	,3521	,508	-,9284	,460~
			3rd zrader	,2224	,4155	,593	-,5973	1,0421
		2ndgradeı	prep elası	,2295	,339~	,50(	-,«OÇ9	,8999
			1st grader	,2338	,3521	,508	-,4608	,9284
			3rd grader	,4562	,4141	,272	-,360(≤	1,2731
		3rd zrader	prep class	-,2268	,4052	*sie*	-1.0261	,5725
			1st zrader	-,2224	,415≤	,593	-1,0421	,5973
			2nd zrader	-,4562	,4141	,272	-1,2731	,3606
	DunnettC?	prep elası	!st grader	4,320E-03	,34H		-,9306	,9393
			2nd grader	-,2295	,3398		-1,1148	,6559
			3rd grader	,2268	,4052		-,8811	1,3341
		lstgradeı	prep class	-4,3204E--03	,3416		-,9393	,9306
			2nd zrader	-,2338	,3521		-1,1467	,6791
			3rd grader	,2224	,4155		-,9077	1,3525
		2nd grader	prep class	*229≤*	,3398		-,655S	1,1148
			1st zrader	,*irn*	,3521		-,6791	1,1467
			3rdmıdeı	,456?	,4141		-,6332	1,5457
		3rd zrader	prep class	-,226~	,4052		-1,3347	,8811
			1st grader	-,2224	,4155		-1,3525	,'/077
			2nd grader	-,4562	,4141		-1,5457	,6332
MEMS	LSD	prep class	1st grader	1,3665	,2907	,000	,7935	1,9403

			2nd grade	1,257.!	,289'.)	,000	,686i	1,8276
			3rd grade	1,5921	,3443	,000	,911~	2,2722
		1st grade	prep class	-1,3665	,2907	,001	-1,9403	-,7935
			2nd grade	-,1097	,2996	,715	-,7001	,4813
			3rd grade	,225'.2	,3536	,525	-,4723	,9227
		2nd grade	prep class	-1,257?	,28~ !	,000	-1,827t	-,6867
			1st grade	,1097	,2996	,715	-,4813	,7008
			3rd grade	,3349	,3523	,343	-,3601	1,0299
		3rd grade	prep class	-1,5921	,344	,000	-2,2722	-,9119
			1st grade	-,225?	,3536	,525	-,9227	,4723
			2nd grade	-,3349	,3523	,343	-1,0299	,360?
	DunnettC	prep class	1st grade	1,3665	,290i		,5914	2,1364
			2nd grade	1,257?	,289?		,4782	2,036?
			3rd grade	1,5921	,3443		;6524	2,5317
		1st grade	prep class	-1,3665	,290i		-2,1364	-,5974
			2nd grade	-,109i	,299t		-,8871	,668?
			3rd grade	,225,!	,35:t		-,713	1,164(
		2nd grade	prep class	-1,2572	,28~ !		-2,0362	-,4782
			1st grade	,1097	,299~		-,6682	,887t
			3rd grade	,3349	,3523		-,61 [illegible]	1,2815
		3rd grade	prep class	-1,5921	,3443		-2,5317	-,6524
			1st grade	-,2252	,353t		-1,164(	,7137
			2nd grade	-,3349	,3523		-1,2815	,6117

* The mean difference is significant at the .05 level.