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**A Review about the Use of the Memorization Strategy during the Learning Process by Students**

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**ABSTRACT**

The purpose of this study is to determine how are the attitudes of students to using memorization strategy in the learning process. For this purpose, students' attitude towards using memorization as a learning strategy was examined. In the study a "relational survey model" of the general survey models was used to determine attitudes of participants for the memorization strategy. Research, was conducted with the students who were in the 7-8. classroom at secondary school. "The Scale of Student Attitudes towards Memorization Strategy" was developed to determine student attitudes. With this developed scale, it was determined how the attitudes of the students towards the memorization strategy are. SPSS 15.0 program was used to analyze the data. Value of the obtained data for The Kaiser-Meyer-Olkin (K.M.O.) was found as 0.81. Since the Barlet test is significant ( $p = 0.000$ ), it was determined that factors can be analyzed. "Anlamlı Suratları Kullanma Tutum Ölçeği" (Attitude Scale for Using Emoticons/ASK TO) developed by the author has been used to show the convergent validity of the developed "The Scale of Student Attitudes towards Memorization Strategy". According to the findings reached, students have a positive attitude towards the memorization strategy. At the same time, it has determined that using memorization is appropriate for most students as a strategy in learning cases. Because during the memorization process students are at the center of learning.

**Key Words:** Students' attitude, using memorization strategies, learning process.

## 1. Introduction

Researchers examine this issue in different ways to determine how the learning process takes place and what needs to be done for more effective learning. Especially studies about the effectiveness of models, strategies, methods, techniques and materials to be used for more effective learning. In this study, the role of memorization used as an old strategy in the learning process was examined according to student attitudes. Depending on the research questions, the research consists of three parts. In the first part, a scale was developed to determine students' attitudes towards memorization. In the second part, the attitudes of the boys and girls about memorization are examined. In the third part, the characteristics of student attitudes are examined depending on three factors. This research is important for the learning process because it examines students' attitudes toward memorizing in detail from and in different directions.

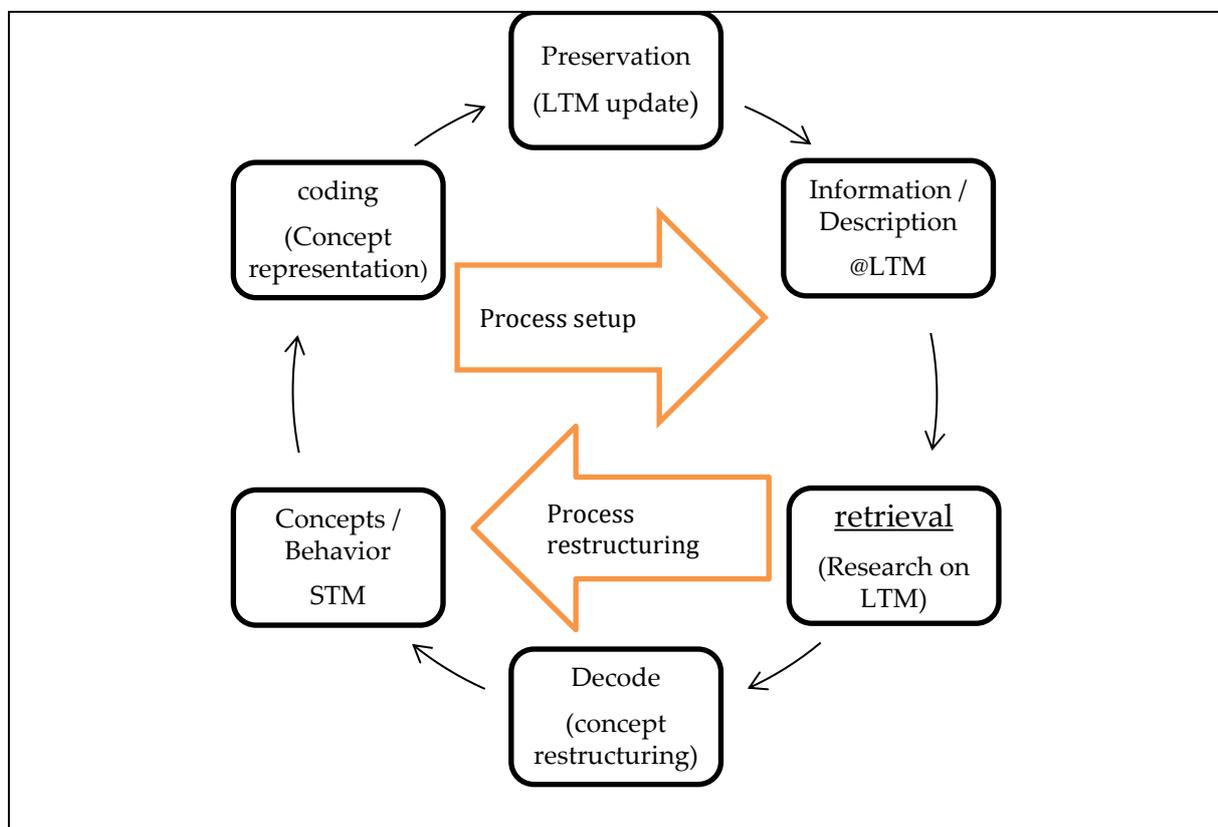
Before the findings of the study, the process of memorization was realized cognitively and the role of this strategy in education was given. In this chapter, it is explained how memorization is met as a strategy in the world and how it is used in the learning process. Wang (2009), explains how this

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process develops and how the memorization as a cognitive process occurs in the human mind: the memory at the center of the memorization process is a physiological organ that enables the retaining and retrieving of information in the brain. Memorization is a cognitive process that reconstructs and restructures in long-term memory by encoding and preserving information in the meta-cognitive layer of the brain. Therefore, the memorization process involves encoding, knowledge representation, long-term memory retention and storage, LTM search, and information reforming. The information must be repeated cyclically or re-audited before the memorization process is completed (Wang, 2009). In this way, the information will be remembered and recalled and a successful process will be realized. Figure 1 shows how the memorization process occurs in a closed loop between long-term memory (LTM) and short-term memory (STM).

**Figure 1.**

The process of realization memories between LTM and STM



Typical functions of memory play an important role in this process. These include the following stages that structured and restructured the information in a systematic cycle between short and long-term memory: categorization, organization, clustering, acronym/acrostics, interactive imagery/interactive visualization, visualization, highlighting, repetition/rehearsal and details/elaboration. Among these stages, it is very important to rehearse and re-talk the information. Because, if they are done in the process very much and deeply, memorization process is more effective and permanent. In addition, when the memorization process is advanced, both the concentration and the timing need to be separated. Another important factor in the memorization process is sleep. Wang (2009), emphasizes

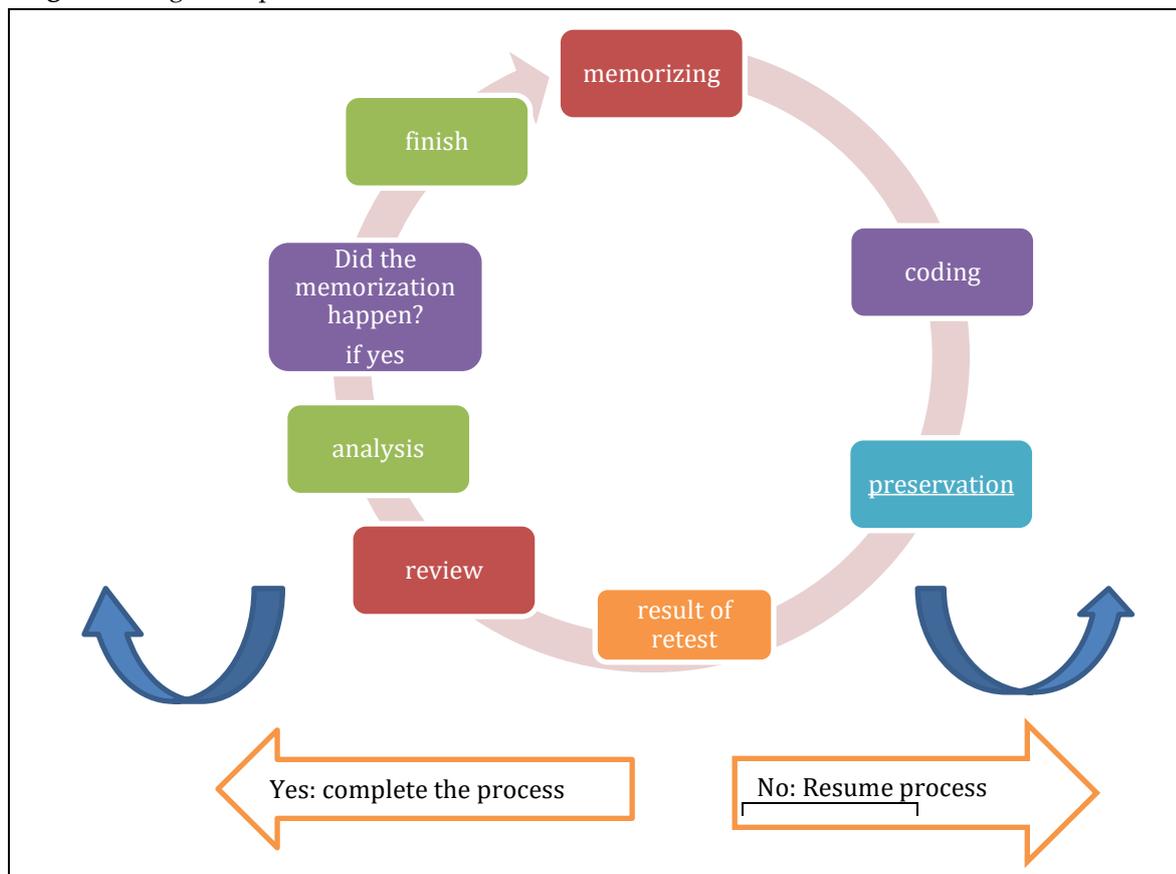
the role of sleeping in the memorization process. Because information stored in STM is transferred to LTM during sleeping in the subconscious process.

In Figure 2, it is shown that how the process of memorization is transferred from the short-term memory to the long-term memory and from starting the coding of information in a cognitive process until holding information and doing rehearsals (rehearing). At the question to determine the quality of memorization at the end of the cyclical memorizing process "Is the memorization sufficient?"

- If the answer is "no", so the process is started again and the process returns to the first step.
- If the answer is "yes" (memorization is sufficient), the next step (retrieval of information) is passed.

After the information is retrieved from the LTM, the passwords must be decrypted and replayed. If the answer of the question "Is memorization completed successfully?" is "yes", this process called "repetitive memorization" is concluded. If the answer to this question is "no", the process is restarted from the first step coding. These repetition processes also involve two important evaluations during the memorization process. The first evaluation is based on the process and rehearsal that is the stage of repeat test. The second is the stage of evaluating which are the process of memorizing the last step of the process and decoding the information's ciphers (Wang, 2009).

**Figure 2.** Cognitive processes of memorization



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Students have different strategies in the learning process. For example, while some students are focused on abstraction rule; some students are especially focused on memorizing for learning that there are sample-based situations (Little and McDaniel, 2015, p. 289). It shows how individual differences lead to the learning process. Because, while some students do not tend to summarize the information in the learning process; some students rely on memorizing information (Little and McDaniel, 2015, p. 289). In this process the concept of confidence in memorization is very important. Because the most important reason of confidence in memorizing is sufficient for learning needs. It means that memorizing could be in the target time without all of the information pieces. This allows to persons to work whenever they want that the information is not understood or it is not used completely. The ability to direct information in this way can provide important advantages to the person who is learning (Cook, 1994). These advantages not only give students the confidence to learn during process but also give them the opportunity to manage the learning process.

One of the areas where memorization is influential is the second language learning process. It has been seen that students who memorize sentences in the second language they reach on the course objectives (Moore, 2006, p. 115). Student qualifications such as modeling, imitation, tactile hearing and performance are mandatory for both state and Qur'an courses. As a result of the study, it was determined that the students in both groups used assisted strategies based on memorization and create new skills (Moore, 2006, p. 115). Grenfella and Harris (2015) have examined how adults learn a second language using the memorization strategy. In this review it was found that in addition to helping learners this strategy has also a special advantage over different skills. It was found students who did not use the memorization strategy have difficulty to articulate or transfer a listening text correctly in second language. On the other hand, it was found students using the memorization strategy have more control when using the second language. At the same time, it has been seen that these learners have seen it as an advantageous strategy of memorization in the process of learning a second language, and they prefer it (Grenfella and Harris, 2015).

In another study, memorization on the second level according to Wray's model, was found to be in the different needs of individuals in a new language learning process (Fitzpatrick and Wray 2006, p. 55). Because memorization could vary according to individual differences, it cannot be said that memorization is equally effective on everyone. It has been observed how the second language students use the materials learned by memorizing in practice. According to the conclusion reached, some participants seemed to be more able to adapt the practice of memorizing according to others (Fitzpatrick and Wray, 2006, p. 50). It has been investigated how memorization helps students who learn English as foreign language and teachers who teach it (Oanh and Hien 2006, p. 14). While the researchers determined the memorized assertions made by students to use in communication, it was seen that some teachers participating in the study thought that the teaching (communication) realized by memorization was not academic. This contradiction, according to both teachers and students, led to a debate about whether memorization would be regarded as a strategy when English was taught as a foreign language. In the study, 85% of the teachers said that the memorization strategy helps to students to speak fluently and confidently. 83% of the students who participated said that they had confidence in themselves to memorize. 77% of the students stated that they learned to speak faster by memorizing. Thus, they have shown close emotions and thoughts with the teachers. At the same time, the students and teachers indicated that they had memorized "to remember what they said" (Oanh and Hien, 2006, p. 14). In another study, students see memorization as a useful strategy when learning

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a foreign language (Yu, 2014, p. 672-73). According to the students, the memorization strategy facilitates themselves in the linguistic direction, memorization strategy creates a positive psychology by reassuring in the foreign language learning process and the memorization strategy creates a sense of accomplishment to them. For this reason, according to them, memorization strategy is useful.

That's why, it is emphasized that the memorization strategy cannot be removed from the education process and this cannot be rejected in the study. Memorization as a strong or weak strategy always matches the needs of learners in the language learning process. The memorization strategy forms part of the learning habits of the students. Especially in the language learning process, it is not possible for both students and teachers to deny and refuse to memorize. Dues to it, it has been emphasized that more effective ways of use should be reached in order to help as a strategy in the learning process, rather than rejecting or denying memorizing in the research (Oanh and Hien, 2006, p. 14).

Franco (2014) who has examined the most effective training processes in learning, emphasizes the effects of memorization. He has studied how memorization strategies are effective to learn the names and symbols of elements by making them funnier with educational games. In the study it has been found that students better memorized the names and symbols of the elements and learned the periodic table more easily by this way (Franco, 2014).

In another research, it was also determined that when university students learn anatomy they applied memorizing for their superficial and deep learning, they use strategies of understanding keywords. In this study, it was observed that students learned more easily the combinations of anatomical by memorization and understanding. As a result, it was seen that the memorization strategy could be a part of deep learning (Pandey and Zimitat, 2007, p. 13). Gijbels, Seger and Struyf (2008, p. 433) point out that, when students refer to strategies such as understanding, implementing, correlating with previous or other topics for deep learning; they use strategies such as memorization for superficial (low-level) they also used strategies such as rote learning. As seen, the memorization strategy is gaining importance depending on the knowledge of the person, the learning ability of the person and their needs. Because students tend to use different aspects of learning and creating a learning material (Senemoğlu, 2011, p. 66). Despite the fact the memorization is welcome by students and teachers, as seen in the above researches in some studies memorization is defined as an "unrewarding in learning terms" concept (Maley, 1983, p. 102 cited in Yu, 2014, p. 672-73). In the following findings, it was evaluated how the memorization strategy criticized by this axis was met by the students.

**Purpose of the research and research questions:** The purpose of this study is to determine how are the attitudes of students for using memorization strategies in the learning process. In response to this aim, the following research questions were sought:

- How can students' attitudes towards memorization strategies be measured?
- What kind of effects memorization has on female and male students' attitudes?
- How are the attitudes of students towards memorization?

## 2. Method

### 2.1. Method and Sample

In the study general survey models was used to determine attitudes of participants for the memorization strategy. The purpose of the survey models is to explain the current situation. In this study, it was aimed to explain the attitudes of the students on using the memorization strategy as it exist. Therefore, the aim of this research is adequate with the purpose of survey models. The research process of the general survey models, which is one of the types of survey models, has been used. The general survey models is a procedure on a set of samples or samples taken from all or part of the universe in order to arrive at a general judgment about the universe in a phase consisting of a large number of elements (Karasar, 2008, p. 79). The "relational survey model" of the general survey models was used to determine the relationship between memorization strategies used by learners in the learning process and student attitudes toward memorization. In the relational search model, the aim is to determine the degree of change that occurs between two or more variables (Karasar, 2013, p. 81). A relational model was used in the research according to sex and attitudes of the students which are dependent variables according to the developed attitude scale, which is an independent variable of the research, were examined.

The sampling method was examined for research before identifying the study group. Data detection and control difficulties between the limitations of the survey model are considered. It has been studied how to reach the samples according to these limitations. It has been found that the "appropriate sampling" method, which is one of the purposeful sampling types, is suited to the purpose, method and limitations of this research. According to this method, the process of determining the sample depends on the existing conditions. Therefore, the sample selection is done according to the research conditions, time, money, and availability of the study (Merriam, 2013, p. 78). In this study, it was determined that the sample group had a homogeneous structure (according to interviews with school officials and teachers). The sample group consisted of 315 students, 143 (45%) male and 172 (55%) female, selected by appropriate sampling method and volunteerism.

The following steps were taken to determine students' attitudes towards the memorization strategy according to the research process of the general survey model:

1. The development process of the measurement tool was studied to determine the attitudes of the students about the memorization strategy. The validity and reliability of the designed measuring instrument was examined.
2. The designed measuring tool was applied to the working group.
3. The data from the participants were analyzed.
4. The results reached according to the analyzes made are interpreted.

## 2.2. Data collection tools

"Student Attitudes towards Memorization Strategy Scale" was used to determine participants' attitudes towards the memorization strategy. Attitude scale consists of two parts. In the first part there is participants' demographic information. In the second part, there are forty-three items prepared in order to determine the memorization strategy in the learning process. These items are rated with a five point likert type rating ranging from "I absolutely agree", "I agree", "I undecided", "I do not agree", "I absolutely do not agree". Frequency, arithmetic mean and percentages are used in the description of the data. The level of significance of the difference between the means of the attitude scores was analyzed by t-test and one-way analysis of variance. Attitude scale was given to 325 students and 315 students returned. The data from ten participants were not evaluated because they did not reflect the seriousness of the study.

Before the data collection tool was developed, a preliminary draft of the subject distribution and scale of working was prepared as a result of interviews with teachers and thirty students. Four experts from the Departments of Educational Sciences and Turkish Language Teaching reviewed the prepared attitude scale. As a result of the pilot study with fifty students, the scale was reviewed to eliminate some items because they were not suitable for the purpose of studying and very close to other items. Thus, the attitude scale consisting of forty-three items was completed and applied to the sample group.

## 3. Findings

### 3.1. Findings related to "How can the students' attitudes towards to using memorization be measured?" research question

#### 3.1.1. Analysis of data

After the application SPSS 15.0 and MS-Excel 2007 programs were used for statistical analysis of data collected. As a result of the factor analysis, two items (item 9 and item 18) were eliminated from the scale. Analyzes were made with 40 items. As seen in Table 1, it was found that the factors were suitable to be analyzed because of the Kaiser-Meyer-Olkin (K.M.O.) value (0.803) and the Barlet test ( $p = .000$ ) (Büyüköztürk, 2008). In the analysis, it is determined that the sample size is suitable for the factor analysis at the "good" level as a result of the Kaiser-Meyer-Olkin value higher than 0.50 (Çokluk, Şekercioğlu and Büyüköztürk, 2012, p. 207). Based on this result, it is seen that the data come from the highly variable normal distribution and that there is enough relationship between the variables to do factor analysis.

**Table 1.** KMO and Bartlett's test results of "Student Attitudes Scale for Memorization Strategy"

Kaiser-Meyer-Olkin measure of sampling adequacy.		,803
Bartlett's test of sphericity	Approx. Chi-Square	3861,553
	Df	820
	Sig.	,000

**Table 2.** Results of reliability analysis of "Student Attitudes Scale for Memorizing Strategy"

Subscales	internal consistency (Cronbach's Alpha)	N of items
First factor	,788	22
Second factor	,812	17
Third factor	,667	7
Whole scale	,801	41

Cronbach's Alpha is a statistical test that determines the degree to which the items in a scale are related to each other. For this purpose, Cronbach's Alpha value was examined to determine the reliability of the scale in the study. As Table 2 shows, Cronbach's Alpha value (801) indicates that the items in the scale are highly related to each other (Büyüköztürk, 2010).

**Table 3.** The results of Varimax rotation to determine the construct validity of "Student Attitudes Scale for Memorizing Strategy"

Component Matrix (a)				Rotated Component Matrix (a)			
	Component				Component		
	1	2	3		1	2	3
item1	,708			item1	,693		
item2	,683			item2	,671		
item3	,305			item3			
item4	,649			item4	,637		
item5	,690			item5	,665		
item6	,739			item6	,705		
item7	,610			item7	,596		
item8	,537			item8	,523		
item10				item10			
item11				item11	-,326		
item12			,626	item12		,498	-,377
item13			,717	item13		,566	-,432
item14			,805	item14		,594	-,552
item15			,706	item15		,541	-,473
item16			,606	item16	-,341	,482	-,336
item17	,353			item17	,364		
item19		,399		item19		,435	
item20		,447		item20		,389	
item21	,545			item21	,532		
item22			-,375	item22			,436
item23	,390			item23	,344		
item24	,420			item24	,367		
item25	,420			item25	,415		
item26		,351		item26		,419	
item27		,348		item27			
item28		,331		item28			
item29		,560		item29		,442	,380
item30		,542		item30		,491	
item31		,615		item31	-,331	,525	
item32		,577		item32	-,353	,468	

item33	,536			item33	,496		
item34		,385		item34		,430	
item35	,491			item35	,471		
item36	,533			item36	,535		
item37	,495			item37	,478		
item38		,528		item38		,461	
item39	,456			item39	,484		
item40		,379		item40		,348	
item41		,428		item41		,355	
item42	,517			item42	,483		
item43		,631		item43		,588	
Extraction Method: Principal Component Analysis. a 3 components extracted.				Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a Rotation converged in 5 iterations			

According to the explanatory factor analysis performed to determine the structural validity of the scale, it was determined that the scale had three factors before returning Varimax (Table 3 left part). It has been determined that there are nineteen items in the first factor (positive attitude towards memorization strategy), fourteen items in the second factor (negative attitude towards memorization strategy) and six items in the third factor (attitude about the permanence of knowledge learned by memorization strategy). As a result of the Varimax rotation analysis, the scale was three factors (Table 3 right section). In the first factor (positive attitude towards memorization strategy) there are twenty-two items, in the second factor (negative attitude towards memorization strategy) there are seventeen items and in the third factor (attitude towards information persisted by memorizing strategy) there are seven items.

The following conclusions were reached regarding the item-total correlations and factor loads given on the right-hand side of Table 3: It is seen that the item-scale correlations in the chart change in the range of (-,353) to (,705). After returning Varimax (the right part of the plot) the following results are obtained for the loads taken of first factors, second factors and third factor. 1, 2, 4, 5, 6, 7, 8, 11, 16, 17, 21, 23, 24, 25, 31, 32, 33, 35, 36, 37, 39<sup>th</sup> and 42<sup>th</sup> item which are in the first factor these are about the positive attitudes of the students in the study to use the memorization strategy in the learning process. The second factor contains 12, 13, 14, 15, 16, 19, 20, 26, 29, 30, 31, 32, 34, 38<sup>th</sup> and 40<sup>th</sup> items which are about their negative attitudes towards the use of the memorization strategy in the educational process. The attitudes of the learners towards the permanent knowledge of the memorization strategy in education were evaluated by the 12, 13, 14, 15, 16, 22 and 29<sup>th</sup> items, which were loaded from the third factor.

In order to determine the scale's convergent and discriminant validity, the analysis results of another scale ["Anlamlı Suratları Kullanma Tutum Ölçeği" (Attitude Scale for Using Emoticons/ASK TO)] gathered in the same sample group were compared. The data were collected from the same sample group in both research. The similarity of these two scales about their underlying causes, difficulty ratings, direction, scoring, item counts and interpretations are close to each other. It has been determined that the "ASK TO" developed by the author is highly reliable and valid. The result of the analyses gave a Cronbach's Alpha value of (,844), suggesting a high reliability for the scale. In the factor analysis, KMO value was found to be (,872) and the Barlet test was (p= ,000) found significant,

suggesting that the factor has a good homogeneity. This research is in the publication process of another journey. "Anlamlı Suratları Kullanma Tutum Ölçeği" (Attitude Scale for Using Emoticons/ASK TO)<sup>2</sup>. The results of this scale are very close to the results of the "The Scale of Student Attitudes towards Memorization Strategy".

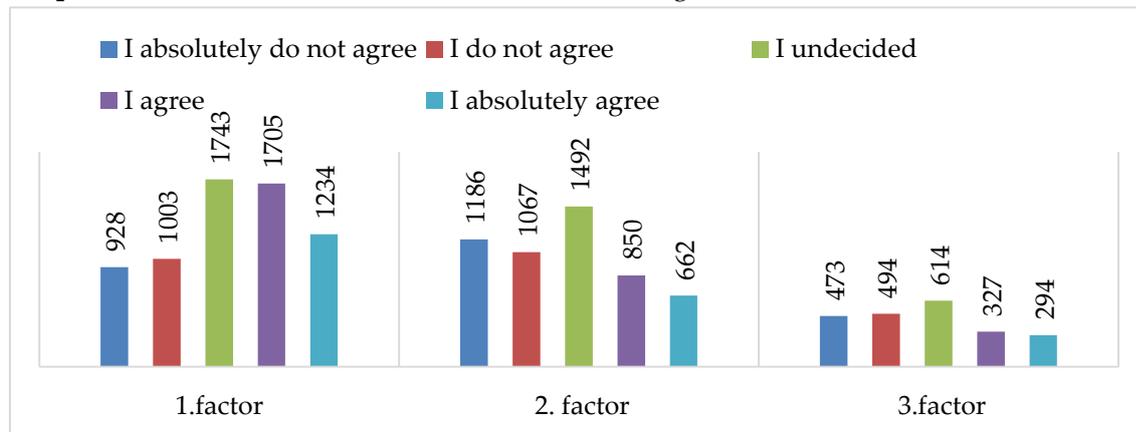
**Table 4.** The results about correlations of the half of in the scale

		second half	first half
second half	Pearson Correlation	1	,429(**)
	Sig. (2-tailed)		,000
	N	315	315
first half	Pearson Correlation	,429(**)	1
	Sig. (2-tailed)	,000	
	N	315	315

\*\* Correlation is significant at the 0.01 level (2-tailed).

At the same time to determine the internal reliability (internal consistency) of the scale the method of the split-half reliability were used. The basic assumption of this method is that all the items in the scale are the same to measure the same property. Correlation values between the two half were calculated. According to the data obtained from Pearson product-moment correlation a signification relationship was found between the two half of scales [ $r = ,429$  ( $p < 01$ )].

**Graphic 1.** Distribution of student attitudes according to factors towards memorization strategies



Looking at the distribution ratios of these three factors in Graph 1, it is seen that participation is mostly in the first factor, then in the second factor and at least in the third factor. The tendency of attitudes in the first factor suggests that most students are positively approaching the memorization strategy in the learning process. Therefore, it can be said that most of the students are willing to use this strategy during the training process. Because the proportion of the answers "I agree, I strongly agree" in the factor related to the use of the memorization strategy in education is more than the answers "I do not participate, I absolutely disagree".

The important point that stands out both in first factor and in the other factors is the "undecided" answers. The main feature that draws attention throughout the graph is that there are many "undecided" against memorization in all three factors. When the negative attitudes towards the

<sup>2</sup> This article is in the publication process of Kastamonu University Kastamonu Education Journal.

memorization strategy are examined, the students in the second factor (student attitudes) show that they are generally negative and undecided. Because most of the students stated that they are not agree with the ideas that it is difficult to memorize and it is not a good and effective strategy in the learning process and they do not agree completely with these ideas by choosing "I disagree, absolutely disagree, undecided" in this factor.

When we look at the distributions of the attitudes in the third factor in which the information about the memorization strategies are not permanent, it is seen that the numbers of student who chose "I do not agree, I absolutely disagree, I am undecided" are more too. Therefore, it can be said that the students do not agree that the information they learn by memorizing is not generally permanent. This finding also supports the attitude in the second factor.

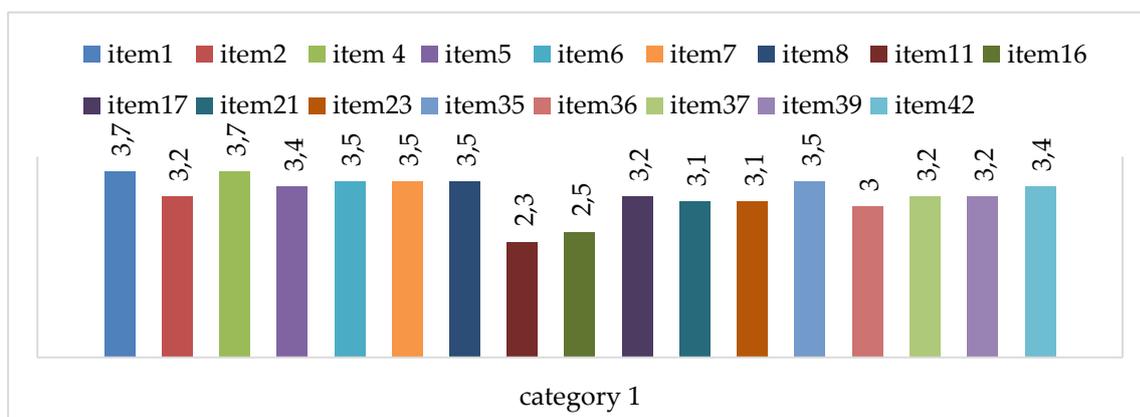
### 3.2. Findings related to "What effect does memorization have on female and male students' attitudes?" research question

In this section, it is aimed to determine the effect of the gender factor on the memorization strategy. For this purpose, t-test was used to examine whether the gender variable made a meaningful difference in students' attitudes towards using the memorization strategy. When results of the test given in the Annex (Annex 2) were examined, there was a significant difference ( $p < 0.05$ ) between the answers given by the girls and boys in Item 1, 2, 19, 25, 36 and 37 ( $p < .05$ ) but there was no significant difference ( $p > .05$ ) among the sexes in the other items. When we look at the level of significance of the items with significant differences, it has been determined that this relationship is not very strong in some items (Items 1, 2, 36).

It was noted that there was a meaningful relationship between male and female scores in some items (Items 19, 25 and 37). Gender is an important factor for these items. As a result, it was determined that the attitudes of male and female students to use the memorization strategy were similar, except for some items with a weak level of relevance.

### 3.3. Findings related to "How are the attitudes of students towards memorization?" research questions

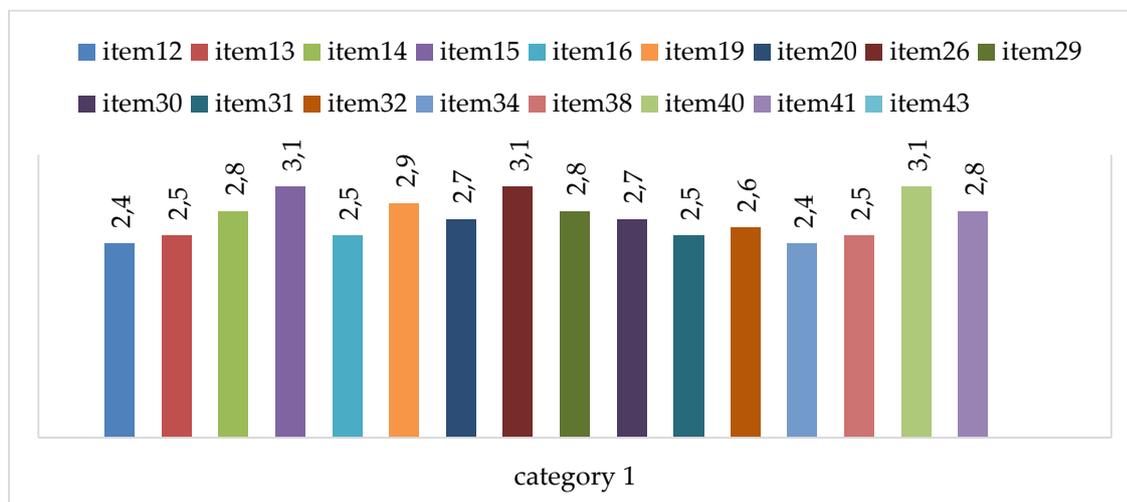
Graphic 2. Distribution of the items in the first factor



In this section a detailed examination the memorization strategy was given regarding the attitudes of students. When we look at the distributions of the answers given to the first factor of the items in Graph 2, it is seen that participation in this item is generally high. This high attendance demonstrates that students explicitly state their attitudes towards using the memorization strategy in the educational process. Among these, the substance with the greatest participation item 1 "The memorization that I do while studying makes it easier to learn", item 2 "I prefer to learn by memorizing the most when learning a topic" and item 35 " before we learn a subject, we have to memorize the basic concepts about it" shows that students benefit from a high level of memorization strategy while studying a subject or preparing for a course.

The second most frequently replied item 6 "When I do memorize, I find myself closer to success", item 7 "I memorize the memorization before the exam, such as the life of the test comes to help." and in item 8 "Memorization is an integral part of my education life" show that students think of the memorization strategy as part of their education. Item 5 "I am self-reliant when I do memorize", item 17 "I can memorize almost every subject", item 21 "For me it is the first phase of learning to learn something memorized." and in item 23 "I think it is our memorization of memories" seen that students are confident in the memorization strategy in the specific learning process and are willing to use it. The least responded in this factor item 11 "I do not trust memories I have made." and in item 16 "the memorization I made is completely erased from my head after the exam" the negative attitudes of students towards memorization are examined. Looking at the graph, participation in these items seems to be very low. In this finding, it was determined that the students did not participate in the negative attitudes towards the memorization strategy.

**Graphic 3.** Distribution of the items in the second factor



In the second factor, detailed reviews of the items in which the negative attitudes towards the memorization strategy are evaluated. Since the findings here are closely related to the previous episodes Graph 3 should be examined by comparing it with the findings of Graph 1. The items with negative attitudes towards memorization in Graph 1 (in the second factor) students mostly displayed undecided, strictly disagreeing or disapproving attitudes. In this section, it is determined that the students are the most undecided and the ones they did not attend. Thus, the direction of negative attitudes of students was evaluated in detail. Graph 3 shows that participation is the most likely item

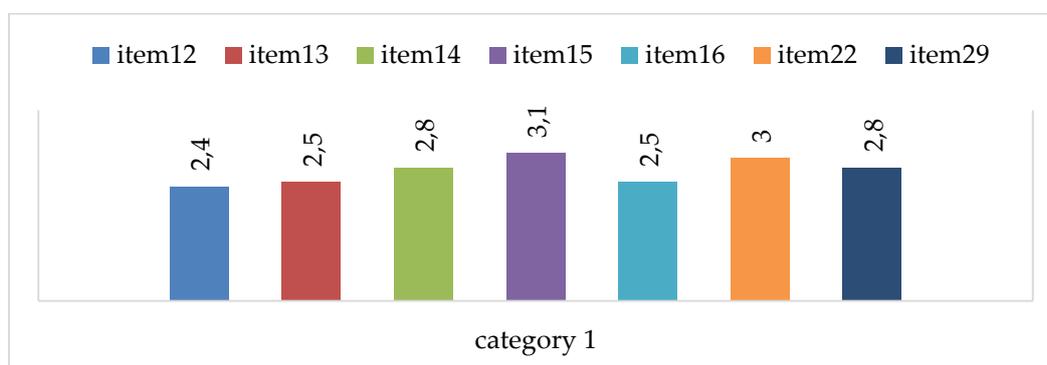
14 "I do not remember the information I memorized after a month", item 26 "I think memorization is not as simple as you thought it is" and item 40 "I do not think that everyone will memorize."

Students responded that they were undecided, strongly disagreeing or disagreeing with these items. Although it does not contain negative expressions about memorizing materials as seen, the direction of attitudes is positive. Therefore, it is seen that the answers given to these items by the students are not a difficult strategy to memorize, that everyone can use this strategy and that the memorized information is permanent.

Looking at the answers given in this section for item 14 "I do not remember the information I memorized after a month", item 19 "I think I need to have verbal intelligence to memorize." item 29 "Preventive measures should be taken to avoid learning" and item 41 "People are hiding what they do because they are criticized negatively" seen that students responded to them in a similar way to the previous division. It is seen that the students are undecided and do not participate in the idea that the information learned by the memorization strategy is not permanent. At the same time, the students did not seem to think positively, "Preventive measures should be taken to prevent the memorization strategy in education". In addition to these, it has been determined that students do not hide what they memorize despite negative reactions.

When we look at the items of least attendance item 12 "I do not remember the half of the information I memorized the next last day.", item 43 "I only make the memorization in areas where I am obliged.", item 13 "I do not remember the information I memorized the following week", item 16 "the memorization I have made is completely erased from my head after the examination.", item 31 "To crumble is killing my creative thoughts over time." and item 38 "I am having a when time memorizing a knowledge." observed that the students do not participate in these ideas too much. These answers show that students believe that the information they learn using the memorization strategy is permanent. Therefore, students think that memorizing does not kill their creative thinking skills. At the same time, students are showing an attitude that they do not have difficulty in memorizing the information with these answers.

**Graph 4.** Distribution of the items in the third factor



In this section, the areas of the answers given to the items in the third factor which reveal the negative attitude towards the memorization strategy are examined. Since it is closely related to the previous sections, it is necessary to analyze Graph 4 in relation to Graph 1. Items 12, 13, 14, 15, 16, 22<sup>th</sup> and 29<sup>th</sup> which rely on factor 3<sup>th</sup> of Chart 1, addressed the attitudes of learners in the training process in terms

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of the fact that the information learned by the memorization strategy is not permanent. As seen in Figure 1, students' participation in these items is very low. Attitudes of the students to the items they attend are undecided and disagree. When looked the distributions of the response rates of the items in Graph 4 most of the students responded to item 15 "I do not remember the information I memorized a year later" and item 22 "I still remember the information I memorized years ago."

In this phase, two opposite conditions are examined together. Because the majority of the students stated that they were undecided (95) and disagree (100) for item 15, on the other side the majority of the students stated that they were undecided (106) and agreed (102) for item 22. This result emphasizes that students remember the memorizing information after many years. At the same time, this finding shows that students do not agree that the memorized knowledge is less likely to be remembered.

For the second most common item 14 "I do not remember the information I memorized after a month", determined students were highly disagree (138) and they were undecided (78). Similarly, for item 29 "Preventive precaution should be taken for memorization in education", are determined students highly disagree (112) and they were undecided (126). In these two items, there are two opposite ideas about the memorization strategy. As a result of the answers given, because students believe in the permanence of the information they have learned by memorization strategy it can be said that the students want to see this strategy during the education process. The main reason why they have so many undecided attitudes is the negative judgments that students perceive about memorizing in their surroundings. Due to the general perception that memorization is a bad and ineffective strategy in society, the students are in doubt about how memorization in education should be. Therefore, students have not fully understood the idea that a strategy they already use "should not be".

In the third stage of this section, the students participated nearly to item 12, "I do not remember the half of the information I memorized in the next day", item 13 "I do not remember the information I memorized the following week" and item 16 "The memorization I made is completely deleted from my mind after the exam." For item 12, 197 students did not attend and 65 students were disagree. Because of this high level of response, it has been determined that students do not agree that they do not remember half of the information they memorize. At the same time, for the item 13, 169 students do not agree with the idea that the information which they memorized they did not remember the following week and 65 students were observed to be undecided in this regard.

For item 16, the last item of this section, it was determined that 174 students did not participate in the idea that the information they memorized after the examination was completely deleted and 69 students were undecided in this regard. From these findings, it has been seen that the students have confidence in the permanence of the information obtained by the memorization strategy and they have positive attitudes in this way.

## 4. Conclusion

### 4.1. Results, Discussions and Recommendations

In this research, the students' attitudes towards the memorization strategy are examined. Before looking at the attitudes of the students, literature review was done to try to determine the undefined aspects of this subject. In particular, a screening has been conducted on how and in what way this topic was searched, and which of the missing aspects would be included in this study. It has been seen that the memorization strategy has been investigated in some aspects in the literature survey. However, it has been determined that these studies are not sufficient for better clarification of the strategy.

For the scale development section, the analysis of the factor and the reliability were carried out in order to provide the standardization of the scales. Factor analysis was also performed because of the value (0.803 of the Kaiser-Meyer-Olkin (K.M.O.) and result of the Barlet test ( $p = .000$ ). The items of the scale were collected under three factors and the directions of the attitudes were determined as follows: in the first factor "Positive attitude towards the memorization strategy", in the second factor "Negative attitude towards the memorization strategy" and in the third factor "Attitude about the persistence of the information learned with the memorization strategy".

According to the answers given by the students for the first factor, it was seen that the students were confident in their memorization during the learning process as stated in previous studies (Yu, 2014, p. 665-66). Because a large majority of students have participated this factor, in which positive attitudes towards memorizing are examined. At the same time, students stated that they found the memorization strategy funny. This finding also supports previous studies (Cook, 1994, p. 139).

The second factor, in which negative attitudes towards the memorization strategy was examined, appeared to be largely not preferred by students. Therefore, students did not participate in the idea that the memorization strategy was not effective in the educational process. The other thing that draws attention here is that students have an undecided attitude towards negative thinking about the memorization strategy.

In the third factor, students' reactions to "the attitude towards the permanence of the information learned by the memorization strategy" were examined. From the answers, it was seen that the students did not participate much to these items. Therefore, students do not participate in thinking that the information learned by the memorization strategy is not permanent or they are undecided about this idea. As a result, it has been determined that students not agree whit the idea that about "To quickly forget information learned through memorization" which the criticisms about the memorization strategy is most focused on is not accepted by the students.

Every new theory usually evolves, develops and spreads in response to a previous one. While some of these approaches point out that they are influenced by the previous one they do not deny or reject it. At the same time it tries to further develop it, to add new dimensions to it, to find its unexplored aspects, and to synthesize the old experience with new knowledge to create an original product. There are also some approaches that ignore this accumulation of years by totally rejecting and denying the previous approach. Since the memorization strategy has been exposed to such a reaction over time

unfortunately, when the bad and unsuccessful educational process is exemplified, it is among the first mentioned topics. The reason for this is that the tradition of intense criticism in the first years is still maintained. On the other hand, the memorization that has a crucial role in the history of learning and which is especially required to be applied or used in some types of knowledge should not be perceived as bad. Reactions should be shown after these situations are well studied.

Some inadequate and misguided practices in education have led to perceived failure and ineffectiveness of the memorization strategy. In fact, this situation is also reflected in people's daily life, "ezber bozmak (go beyond the ordinary), ezbere iş görmek (do something in a hazard way), ezberden konuşmak (talk without knowing it) ..." has been subject to some sayings and proverbs. Of course, it cannot be assumed that this strategy is successful in all learning situations. But it cannot be said that it has failed completely. Because the learning process is not one-dimensional. For this reason, all the strategies, methods and techniques used in the learning process have their own success. Because people have found and used these strains depending on their learning needs. The essential element is the purpose of the learning, to determine which strategy should be used according to the nature of the knowledge and learned knowledge. For example, paragraph knowledge may not be learned effectively by the memorization strategy but the names of the elements in the periodic table can be learned more effectively by the memorization strategy. This may vary depending on the learning ability of some types of information.

Memorization, a strategy that some educational approaches not tolerate positively; it is perceived as a misguided, ineffective, ineffectual strategy that prevents the creativity of students and leaves behind the idea of thinking in the learning process. At the same time, this strategy is criticized negatively for reasons such as copying the information and forgetting the copied information in a short time. Students are often exposed to this negative criticism of memorization. This leads students to a contradictory situation. Because, student uses this strategy consciously or unconsciously during the training process, but on the other hand they see negative criticism about this strategy. Due to these two opposing and contradictory circumstances, students are in doubt in the learning process. As a matter of fact, this situation is also reflected in this work. Because some undecided attitudes are recorded in some negative memorization items. Therefore, students are undecided about whether the strategy they use is negative. Student needs determine whether or not this strategy is used. As a result, the student uses this strategy by adjusting to his/her individual learning. For this reason, it should not be ignored when the memorization strategy is examined.

According to the results of this study (students see memorization strategy as a need, positive reception, to be confidence, willingness to use, adjustment according to individual learning features, etc.) it is necessary to seek ways to use this strategy more effectively and usefully while seeking ways to quit this strategy in the education-training process (as this expectation is very difficult to achieve because of contradicting student needs)

Our recommendation is that where, how, and how far to use the memorization strategy should be determined according to the individual learning need of student. In the same way, this strategy should be used according to the nature of the given knowledge and learning domains. Hence it is necessary to identify in which learning processes this strategy is not suitable and in which learning processes this strategy is suitable for more effective learning.

As a result, memorization as a strategy cannot be excluded from the training process, nor can it be rejected in education. For this reason, it is necessary to focus on the effective and correct use of memorization as a strategy in education. In future researches, it will be necessary to search for more efficient ways of using the memorization strategy in order to make the learning process more successful. After all learning situations where this strategy does not affective should be determined this strategy can used in learning processes.

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## ANNEX

**Annex 1.** Examining the Attitudes of the Students Related to the Memorization Strategy Used in the Learning Process

Your age:    Your sex:    Your grade:                      What would you like to be in the future?

Your mother's education:                      your father's education:                      your father's job:

Your mother's job:                      Your monthly family income is: (500-1000TL), (1000-3000), (4000+)

Hello dear students, this study you are attending is for scientific research purposes. The study aims to determine your thoughts and feelings towards memorization (memorization strategy), especially in the process of education. For this reason, it is very important for the purpose of study that the answers you give to the following items are sincere and realistic. After you carefully read the following items, please indicate what you find closest to yourself from the "I agree absolutely, I agree, I undecided, I do not agree, I absolutely do not agree" options. The answers you will give here will **not affect your school success and will not use as exam grade**. At the same time, the information you have given will not be shared with anyone and will not be used outside of this research. Thank you for your interest in participating voluntarily in this research.

	I agree absolutely	I agree	I undecided	I do not agree	I absolutely do not agree
1. The memorization I make makes it easier to learn while studying.					
2. I prefer to learn by memorizing the most when learning a subject.					
3. When my friends learn something, they prefer to memorize the most.					
4. The memorization I make makes it easier for me to remember the information.					
5. My self-confidence is increasing when I memorize.					
6. When I memorize, I find myself closer to success.					
7. The memorization that I made before the exam is growing like a lifesaver.					
8. Memorization is an integral part of my education life.					
10. I do not think much about the information when I learned by memorizing.					
11. I do not trust to memorize that I made.					
12. I do not remember half the information I memorized the next day.					
13. I do not remember the information I memorized the following week.					
14. I do not remember the information I memorized after a month.					

15.	I do not remember the information I memorized after a year.					
16.	The memorization I made is completely deleted from my memory after the exam.					
17.	I can memorize almost every subject.					
19.	I think we need verbal intelligence to memorize.					
20.	I think some of the wit is blunted by the memorization.					
21.	I think, learning by memorize is the first step in learning something.					
22.	I still remember the information I had memorized years ago.					
23.	I think we have some memorization about memorization.					
24.	For some occupations, memorization is necessary.					
25.	I learn complex information by memorizing.					
26.	I think memorization is not as simple as you might think.					
27.	People can learn without ever having the ability to memorize.					
28.	You do not have to be interested in that topic to memorize it.					
29.	Preventive precautions should be taken in education.					
30.	I cannot memorize information these do not attract my attention.					
31.	Memorizing kills my creative thoughts over time.					
32.	Memorizing kills my critical thoughts over time.					
33.	Memorization is inherent in human learning.					
34.	Memorization is a declining skill over time.					
35.	Before we learn a subject, we have to memorize the basic concepts about it.					
36.	I'm eager to memorize whatever it is about.					
37.	I memorize complex things regularly by this way I keep them in my memory.					
38.	I have difficulty when memorizing a knowledge.					
39.	It's easy to memorize.					
40.	I do not think everybody will memorize.					
41.	Because it is criticized negatively, people hide what they memorize.					
42.	Memorization is a habit in time.					
43.	I memorize only in areas where it is necessary.					