طرق حفظ القرآن الكريم
اقتراحات لتحسينها وتعلمها وتعليمها من وجهة نظر علم اللغة التطبيقي

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ملخـــص البحـث. دأب كثير من المسلمين على حفظ القرآن الكريم منذ نزوله على محمد صلى الله عليه وسلم إلى يومنا هذا. وقد لعب الحفظ دوراً مهماً في كثير من العبادات . وسأقدم في هذا البحث نتائج بعض الأبحاث التي تناولت طرق حفظ القرآن الكريم وتعلمها وتعليمها، آملا أن يستفيد منها القارئ المسلم.

ومما سيتم مناقشته في هذا البحث :

- دور الحفظ التقليدي في دراسة القرآن الكريم.

- طرق الحفظ في المدارس الإسلامية المعاصرة .

- قضية الحفظ كطريقة للاستذكار.

- أهمية الدافعية والفهم وعلاقتهما بالحفظ.

- وسائل مساعدة في الحفظ مثل الربط والضبط.

- نمط حفظ مؤقت مع بعض التطبيقات الصفية الممكنة.

وأملنا أن تساعد مناقشة هذه الأمور المعلمين ومصممي المناهج للتأكيد على اتباع طرق الحفظ الجيدة. إن طلاب القرآن الكريم الذين يتلذذون بحفظه ، يمكنهم الإفادة من هذا البحث وإضافته إلى ما اعتادوا عليه من طرق للحفظ ، والحكمة ضالة المؤمن أنى وجدها فهو أحق بها. نأمل أن يكون هذا البحث مفتاحا لبحوث أخرى في هذا الميدان ليفيد منها العلماء والمدرسون.

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throughout the memorization process because they will be able to understand and more deeply experience the mental processes they are applying. They will also be able to savor their ability to learn and sense their improvement as they go along, and hopefully, adjust their learning strategies and styles accordingly--thus making our schools and other Quranic institutions truly schools for training of the memorization of the Holy Quran. Further, when learners/memorizers of the Quran reach a high degree of skill in memorization techniques and their application, they could then go on to becoming excellent teachers themselves.

All of these suggestions for memorizing the Holy Quran require continuous and rigorous research studies, conducted not only on already-established practices but also on the promising ideas to be found in Islamic studies, psychology, educational psychology, applied linguistics, and whatever field that may be relevant. Supporting professional-level regional and international conferences on the memorization of the Quran is perhaps the first step in this direction. It is perhaps premature to come to any firm conclusions as to the particular techniques that are most suitable for the memorization of the Quran without years of application studies on Quran memorization itself. Allah's Book no doubt has, among other characteristics, its own specific characteristics in content, meaning, style, structure, language, and minor spelling differences that accordingly deserve a specific, well-designed model for reading and memorization. It is truly one of a kind text and should be treated only as such.

It is hoped that the information presented in this brief paper will serve as an aid to curriculum designers and open the door for further research into the topic of memorization so that scholars, teachers and learners can continue to build on the past. In the end, our desire is to help students carry out their job of memorization with greater efficiency and greater joy, making the Holy Quran a deep part of their personal awareness and grasping its fundamental meanings for a lifetime of devotion.

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learning strategies has, according to Nyikos, been linked to successful performance: the more one is aware of the reasons for his or her behavior, the better the chance that person has of amending that behavior to suit his or her personal educational goals. Work with a diary in the memorization context can greatly enhance the student's opportunity to reflect on his or her thoughts about learning style and memorization.

One further point should be mentioned in connection with learning strategies and memorization. Just because an individual may not be consciously aware of his or her style of memorization does not mean that he or she has not developed a personal strategy or strategies that work. In this regard it is highly recommended that students and teachers both make an effort to bring these personal strategies to explicit awareness so that they can be identified, classified, analyzed and then made public so that the Muslim world can make use of its own rich tradition of memorization.

Conclusion

Memorization has traditionally played a crucial role in many of the religious practices of Islam. In this paper, the Islamic reader was introduced to several concepts in the literature on memorization that could assist the individuals interested in enhancing their ability to learn and teach the skill of memorizing the Hoy Quran. These processes include the following: high motivation on the part of the learners and the appreciation of the meaning of what is being memorized, the ability to read with automaticity, understanding the basics of memory mechanisms and employing them, knowing the causes of remembering and forgetting and using them fruitfully, learning and employing strategies and learning styles, and being aware of errors and how to deal with them--that is, how to decrease the frequency of their occurrence and, once they do occur, how to eliminate them.

It is the author's opinion that many of these theories should be incorporated into the existing framework of techniques for the memorization of the Quran so that the teacher's and student's role can be more effective and enjoyable. It is true that the ministry of education, which is in charge of the tremendously difficult task of memorization training in Saudi Arabia, should be commended for their efforts, including the investment of so much time and money; nevertheless, it is a painful reality that students quickly begin to forget what they learn by the end of their schooling. As a result, at the end of their 9 to 12 years of school life they graduate with a certificate that belies what they have truly assimilated. It is for this reason that it has been suggested in this paper that the appropriate teachers and administrative authorities begin the quest for elements in current studies on memorization that might supplement our current techniques. It is this author's deep conviction that though this task might be difficult, it is certainly attainable.

Training workshops, for example, in such sites as mosque madrassas, mahdharas, as well as schools and other centers for learning in the Muslim world, would be a good place to begin. In this way, learners will be more likely to enjoy their endeavor

mean on all other topics, including long verses, were below 5.9: "Students memorized least well...verses containing resembling verses" (29, p. 197).

As a result of this relative difficulty of Suras, it stands to reason that memorizes will make more errors when the Sura or passage is difficult than when it is easy. Moreover, it is common knowledge that there are individual variations from one individual to another in the number and type of error made on any learned or memorized material. Even with the same individual, there will be variations in errors, for example, according to the time and effort he/she pus into learning or memorizing the material. For this reason, the material assigned to be memorized has more to do with the content and difficulty of the material than the somewhat arbitrary designation of a page a day, which is perhaps sometimes done with the aim of completing the entire Quran within a certain time. There are certainly other methods of carrying out this goal.

Diary Work and the Personal Exploration and Expression of Learning Styles

Still another issue connects memorization and learning styles: **diary work.**[22] In recent years, it has come to the attention of researchers, teachers and even students themselves that diary work can be extremely valuable in helping learners to become aware of their thought processes. The usefulness of diary work was brought to the attention of the academic audience with Bailey's work in 1983, as Parkinson and Howell-Richardson have pointed out in their article, "Learner Diaries." According to Bailey, "[t]he diarist provides an account of his or her personal language learning history." Bailey indicates that a diary of this type can include many aspects of the learning process. Among them are: an "overt. . . comparison of [oneself] with other students; ... [e]motive responses to such comparisons ...including emotional responses to other students...; [t]he desire to outdo the other students...; emphasis on tests and grades, especially with reference to the other students...; [t]he desire to gain the teacher's approval...; [a]nxiety experienced during the language class, often after making errors on material [the author feels he/she] should have known..., withdrawal from the language-learning experience when the competition was overpowering" (34, p. 137). As one can see from these suggestions for the content of the diary, the possibilities for the diary are nearly endless in terms of its ability to offer the writer and the reader a documented record of the author's/memorizer's thoughts as related to his or her personal experience. "Personal experience" is truly an operative phrase here, since what is focused upon in the diary will always depend upon what is considered important for the author. As is well-known, learning styles differ greatly from individual to individual, and it is important for students to become aware of their own type of learning style since this will "enable [them] to become more autonomous, self-directed and responsible for developing their own. . . proficiency" (31, p. 25). Further, being cognizant of one's

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[22] The following comments are taken for the most part from "Diary Work and the Memorization of the Holy Quran," 2002, forthcoming.

following: sources of errors, causes of errors, kinds of errors and correction of errors, two of which (sources and causes) will be exemplified here.[21] First, one source of error in connected with "erroneous learning," that is, learning something wrong in the first place and then attempting to correct that error in subsequent trials. For example, when you memorize something, you may add or omit a letter, a phrase, an entire verse or more, or you might likewise invert or "blend" one letter, word or phrase with another. Cause is also related to error, for example, when a person recites from memory, particularly at a fast speed, he/she sometimes will make a slip of the tongue, resulting in error. Among other causes are when an individual is too tired or too anxious, embarrassed or afraid of making mistakes in front of others. The environment can also have a negative influence on a person's ability to recite correctly, for example, when one is distracted by the sound of a cell phone, children's crying or laughter, etc. One's own mental state can play a role here as well. For example, if a person overly reacts emotionally to a passage, this may cause a momentary lapse in memory. Finally (although many other causes could be discussed), the relative difficulty of a passage for a particular individual, in terms of either structure or meaning, can also contribute to one's errors .

Error analysis has played a prominent role in the study of foreign language learning, since understanding the nature of a student's error can carry the teacher a long way down the road toward helping him/her with correction. As one scholar indicates *(Understanding ESL Writers)*, "ESL students make many sentence-level errors; many ESL students desire and expect correction for their errors. For teachers who intend to take on this task, it might help to know the source of some of these errors" (20, p. 108). Likewise with the memorization of the Holy Quran, it is common for students to want to have their errors corrected by a teacher who is qualified to do so; and familiarity with issues of error analysis and sources and causes of errors would greatly enhance the teacher's ability to deal with error.

It is common knowledge that memorizers of the Quran attest to the fact that some Suras or sections thereof are generally more difficult (or easier) to memorize than others. Reading specialists would also agree that reading passages can differ greatly in the degree of their difficulty or "readability." In fact, written material can actually be measured for structural, semantic, topical and stylistic ease or difficulty. This degree of readability can also be seen in the Quran. Al-Aqeedi asks: "What is the nature of the verses that students in the 3rd year, secondary school level for the memorization training for the memorization of the Quran either remember or forget" (29, p.194). He discovered that "short verses from short Suras were the ones that most students were able to memorize most easily [9.28 mean of correct responses on a test created to answer the question above]" (29, p.195). The next easiest for the students to remember, according to the study, were stories of the Prophets (peace be upon them), while the

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[21] The interested person is recommended to go to the literature on this topic for further information, perhaps particularly in applied linguistics, which has a huge body of knowledge devoted to this issue.

(30, p. 56).[17] In order to achieve this, we need to analyze and test these techniques in the classroom: "General suspicion and misinformation about mnemonics need to be overcome. While we as teachers are constantly telling students that this or that material is important and that they should remember it, we generally do not tell them how to accomplish this" (21, p. 8 of 10). It is through the active use of mnemonics, and other memory mechanisms, however, that we are able to do this.[18]

Several other issues are related to the question of memorization. However, only some of these are going to be referred to in passing: first, learning strategies and learning styles and how to identify and teach them. These are significant for at least two reasons. First, "they enable students to become more autonomous, self-directed, and responsible for developing their own language proficiency" (31, p. 25). Second, "research has linked the use of appropriate learning strategies to successful language performance" (31, p. 25). These authors also indicate that effective learning strategies can be taught for use both in and outside the classroom" (31, p. 25-6). It seems then that active learners are better learners, and that these strategies can be learned and transferred to new tasks (32, p. 59-60).[19] Learning styles are also significant, for it has come to the understanding of researchers that the way in which people learn has a powerful effect on the sort of mnemonics they "should consider using to store information" (33, p. 1 of 3). Among these styles can be included the visual, the auditory and the kinesthetic. For example, it has been stated in an internet article, "How Your Learning Style Affects Your Use of Mnemonics," that [v]isual learners make up around 65% of the population...auditory learners make up about 30% of the population...[and] [k]inaesthetic learners make up around 5% of the population" (33, p.1-2 of 3). Of course, no one uses these styles exclusively, and there is usually significant overlap in learning styles" (33, p. 1 of 3). Keeping this in mind could greatly enhance the effectiveness of the use of mnemonics in memorizing the Holy Quran.

Error Analysis

Another issue important to memorization is error analysis, which we have dealt with at length in another paper.[20] This is particularly important for the memorizer since it is largely through the recognition and correction of errors that he or she will make the most progress. In the literature on this topic, error analysis is typically divided into the

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[17] Further evidence for the possibility and efficacy of teaching memorization can be found in the following: Reigeluth, Charles M. Basic Methods of Instruction. Material written and produced by the author for R626 at Indiana University at Bloomington, 1996. (See also, the latest edition, 1998.) In that work, Professor Reigeluth sets forth what he terms a "module" for the instruction of memorization.

[18] It is interesting that Donald Gray points out that "[t]he subject of learning styles and strategies in ESL/EFL...touch peripherally upon the topic of mnemonics." He also points out that this link could be developed quite usefully. (See notes to article: Mnemonics in the ESL/EFL Classroom).

[19] See discussion on page 59-60 in The CALLA Handbook, 1994. This entire book is devoted to learning strategies and the way in which they can be taught.

[20] "Diary Work and the Memorization of the Holy Quran," 2002, forthcoming.

errors and less reliance on prompting cues. These methods are employed by experts, and as we saw from our discussion of learning strategies, they can be taught to novices. Another researcher (Carnine) indicates that information should be introduced cumulatively in order to avoid memory overload: "A preferred procedure is cumulative introduction, in which new pieces of information are introduced one at a time, after previously introduced information has been learned" (28, p. 603). He also points out that several studies support this finding. This implies that passages that are too long or perhaps too difficult may cause memory overload; shorter passages may be considered instead, especially when the passages are too difficult (students of the Quran are given one page a day regardless of difficulty). He also suggested that interference effects can be reduced by separating similar symbols (for example, "6 and 9, and b and d") by a time interval: "[t]hat interval allows the first symbol to be learned [well] so that the introduction of the similar symbol will be less disruptive;" that is, in order to thwart the negative effect of proactive, retroactive and interactive inhibitions (28, p. 604).

It is not enough for students to graduate from Quranic memorization schools with a high degree of skill, if fragmentary, in memorization: they have given us the prime years of their childhood and early adolescence--a total of 9 to 12 years. It is not fair to expect them to continually review the Quran and retain it for life by just telling them to keep reviewing it regularly (see Mauritanian model above). We know for a fact that a sizable number of them forget a large amount of the Quran. As Al-Aqueedi stated in a recent

(26, p. 57). Buzan likens this process to a snowball that "gets rapidly bigger the more it rolls and eventually continues rolling under its own momentum" (26, p. 57).

A Tentative Model and Possible Classroom Applications

Earlier in this paper we summarized, tentatively, some of the current memorization methodologies in Islamic schools, including the Saudi and Mauritanian models, and have mentioned the importance of bringing memorization techniques to the minds of learners rather then having them discover these techniques on their own through trial and error. There are a number of other international models as well, including those employed by learners whose mother tongue is not Arabic. Common among these models is the fact that learners are neither aware of, nor do they proficiently employ, elements and techniques that research has implied to be useful in the memorization of the Quran, such as reading with automaticity, knowledge of memorization mechanisms, knowledge of the causes of remembering and forgetting, and use of current technology such as computer software and applications from audio/visual techniques developed from studies in instructional systems technology .   Since teachers are likewise too little aware of these aspects of memorization theory, learners are more often than not left on their own, memorizing mostly by trial and error--with the teacher's role almost limited to assigning passages to be memorized and testing their verbatim recall. What is needed is a tentative model for training in the memorization of the Quran that will be most helpful to the learner. For this, it is perhaps best to take as direct approach as possible to the training of memorization. As Slavin says, "[i]t is usually much more efficient (that is, it takes less time) to teach students skills or information directly than to let them make discoveries for themselves" (10, p. 15).

With regard to the search for a model for repertory memory, one research study was able to delineate a tentative model that incorporates certain characteristics, as follows: (a) excellent verbatim recall; (b) large chunk size; (c) use of major not minor grammatical breaks as landmarks; and (d) minimal interpassage interference (27, p. 499). Moreover, this research compared novices and experts and found that "experts might adopt more effective retrieval strategies than other groups of subjects... these retrieval strategies would be manifested in the pattern of ..., repetitions, times and errors" (27, p. 496). This means that "the high performance of the expert-rote subjects was accompanied by a high number of cuing repetitions" (27, p. 497). For the authors there was a significant difference between experts and novices concerning "the speed with which the experts retrieve and utter... passages" (27, p. 497). The authors found, on the other hand, that when errors were made they concerned mostly internal substitutions and not cross-passage interference. Finally, the authors found that novices relied on the experimenter for prompting cues more often than the experts, "whereas experts, more than novices, produced their non-cuing repetitions" (27, p. 497).

If anything, this research clearly indicates that there are better ways to rehearse and memorize passages, leading to faster retrieval and utterance of passages, with fewer

Needless to say, we all know from experience that the time needed for review of passages already mastered gradually decreases and therefore less and less review time is needed to maintain recall. Moreover, since there are so many minute details one needs to attend to in each passage to be memorized, review is especially needed. With every review act more attention is directed to details that were missed in the previous reviews. No one has so very emphatically emphasized the importance of review acts, in words as well as in actual practice, as the Prophet Muhammad (pbuh). It is interesting to note that he made use of his knowledge of the Bedouin's daily life and environment to make them aware of the importance of review practices when he said, in essence, "Keep reviewing this Quran for, I swear by Him in Whose hand is my soul, it is more fleeting than camels tied with their ropes." Muslim scholars and educators have never since stopped emphasizing review acts, suggesting all kinds of methods. But as stated in the introduction, most learners and memorizers do not seem to heed this advice. Being under the pressure of time-demanding lifestyles, learners today find it so difficult to follow this advice on their own after school.

Changes surely need to be made so that review practice requirements can be incorporated into the curriculum, making it a daily habit, just as prayers are. Of the hundreds of thousands of Quran memorizers that have graduated, most do not take advantage of the practice review act, and it is of course nearly impossible to do so on their own after the Quran has already "fleeted" from their memory.[15] According to Al-Aqeedi, 96.5 percent of the students that responded to one of the questionnaires for his dissertation study said that they did no review practice at all on a daily basis and claimed that this was the primary reason for forgetting. When the material has escaped the students' minds in this fashion, it becomes extremely difficult and requires a great deal of time to relearn it and include it into their already busy schedules. We ourselves (educators, curriculum designers) have to take responsibility for helping our learners while they are in school so that the review habit can be instilled into their daily activities.

The significance of review cannot be overstated. According to Buzan, for example, if a person does not carry out the act of review, "[e]ach time he approaches a new learning situation his recall of previous knowledge gained will be at a very low ebb, and the connections which should be made automatically will be missed. This will mean that his understanding of the new material will not be as complete as it could be, and that his efficiency and speed through the new material will also be less" (26, p. 57). If the student continues in this way, according to Buzan, it will result in general despair. On the other hand, however, the advantages of reviewing are enormous. Again; according to Buzan: "The more he maintains his current body of knowledge, the more he will be able to absorb and handle. When he studies, the expanding amount of knowledge at his command will enable him to digest new knowledge far more easily, each new piece of information being absorbed in the context of his existing store of relevant information"

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[15] See page 201 of his dissertation.

relationship between learning, mastery and overlearning. In order to have mastery of something, for example, we have to learn it in the first place. Only then can we master it; however, it could be asserted that an act, memorization for example, does not reach the level of automaticity until it has been overlearned. Overlearning is going over the material again and again after the point of mastery. We have a gradation of awareness and of mastery then, from learning, through mastery to overlearning—and this can only be achieved, according to my experience, through repetition of the passage to be learned tens of times with no errors or hesitation whatsoever at an increasingly faster rate until a high degree of speed is achieved. (Typically, when an individual increases his/her speed of recitation, errors are made; when the recitation speed is increased in this way, however, the reciter should be able to recite the material without sacrificing accuracy.) It is necessary, then, to go over and over material before it can truly reach the level of overlearning and automaticity in the learner's mind. Mastery, then, is never sufficient unto itself. This should be clearly understood by students and strongly emphasized by teachers, who have the ability to instill this attitude in the minds of their students. It is recommended that this process be established as a standard for teachers in their instruction of the Quran.

If an individual does not go over the information just mastered, however, his or her ability to remember that passage decreases discouragingly fast. On the other hand, if after the point of mastery learners immediately go over that passage again and again--meaning overlearn it--they are likely to retain it in their long-term memory. This retention is enhanced even more, as it should be, when the learner continues to review the passage at a spaced review. In this way, the memorizer will have developed a firmer grasp of previously memorized material and will still have time to add new material to his/her repertoire. This practice should be carried out, without ceasing, if one is going to keep alive in his/her consciousness the huge amount of already assimilated scripture. This is what is meant in the literature as "continuous review" (8, p. 26). The two points relevant are, first, the new passage or pages must be mastered and overlearned before moving on to the following passage or pages. However, to help learners engrave these passages on their minds, they need to be reviewed periodically. When students leave school they should have memorized the material at a mastery level; this will help make it easier for them to apply the practiced techniques, overlearning and automaticity, indicated above in order to "space review" on their own regularly with great facility and enjoyment.

The Role of Time in the Memorization of the Quran: Spaced Review

The job of the memorizer does not end with the "simple" memorization of a passage, verse, chapter or entire text. His or her effort to commit the Quran to memory, and keep it there, can be considered a life-long process. It is in this sense that the concept of "spaced review" must be understood. Spaced review is a mechanism that may help the memorizer retain the part of the Quran that he or she has mastered; thus, reviewing significantly enhances retention.

Narratives and stories constitute two further mnemonic devices particularly relevant to Quranic memorization. There are so many stories in the Quran: whole Sura stories or parts of stories that are dispersed throughout. There are stories that are told in more than one Sura or several stories in a single Sura. Other mnemonic devices include **Loci and Spatial Positions**. It is very common to hear the advice that one should stick to a single edition of the Quran but often we are not told why. It is for this reason comforting that research supports that advice and explains the importance of doing so. Following this advice will help one's retention. Further, it is a surprisingly powerful mnemonic when one realizes that the very same page format [same number of lines, etc.] can act like diagrams or floor plans, one over the other, upon which thousands of words and verses are laid upon one another. Remembering the exact position of a passage then will greatly aid a person's memory of the phrase associated with that position. This also includes the relation of words and phrases to one another throughout the 604 pages of the Quran (as in the most popular edition in the world published in Medina in Saudi Arabia) [16]. A great many of these words can be visualized in the mind's eye--whether they are at the top or bottom of the page, or at the left or right margin, etc. Other terms of use are: **Key Words, Pegwords, Use of Mediators, Imagery, Organization, Categorization, Associations, Link, Serial and Free Recall, Visual and Auditory Techniques.**[13]

These are just examples of the many topics that await us so that we can improve our study, memorization and understanding of the Quran.[14]

The Role of Practice in the Memorization of the Quran

Are there ways by which memorization can better place information in long-term memory? The response to this issue in the literature has been positive. First, studies imply that frequent repetition of a Quranic passage, newly assigned for memorization, several times a day and interspersed with other activities is better for retention. This is known as **distributed practice**. The other common practice, which is perhaps less effective, is **massed practice**: repeating a passage over and over until it becomes memorized in one session. The next common practice strategy suggests that memorizing a newly-assigned passage, divided into two or more parts, may be easier (10, p. 192) and faster--in other words, takes less time (13, p. 28-9). This is what is known as **part learning**. The opposite method is to try to master a new passage as a whole: this is called **crowding**.

An extremely important memorization strategy is called **overlearning**. We discussed above with reference to the work of Koestler how awareness is a matter of degree and that we carry out many of our daily acts on a more or less unconscious basis. We also indicated that automaticity comes with the ability to relegate much of our action to the unconscious level of awareness with practice. We can find a parallel in the

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[13] We have dealt with this topic in greater detail in another paper, "Diary Work and the Memorization of the Holy Quran," 2002, forthcoming.

[14] As suggested throughout this paper, there are so many topics that invite exploration, such as the issue of memorization in the non-Arabic context.

It has been suggested, however, that mnemonics may have certain limitations. Slavin, for example, warned that "most of the research done on the use of mnemonic strategies have taken place under rather artificial, laboratory-like conditions, using materials that are thought to be especially appropriate for these strategies. Evaluations of actual classroom applications of these strategies show more mixed results and there are questions about the long-term retention of material learned by means of keyword. This attitude toward the qualification of the usefulness of mnemonics is repeated in the literature: "Consistent with most of the literature, learning and initial retention was superior for the keyword [a mnemonic device] subjects. However, these subjects forgot the new words at a much faster rate than the rote rehearsal control subjects and after a one week delay there was no significant difference in the number of words correctly recalled by each group" (24, p. 522).

Even though some of the literature seems to doubt the effectiveness of mnemonics for long-term memory use, it also seems to be true that the effectiveness of mnemonics can be enhanced if used in combination with other learning strategies. For example, Krinsky and Krinsky point out that strategies such as active rehearsal "may better subserve long-term memory" (25, p. 228). They also feel that "[v]arying mnemonic strategies along with active rehearsal strategies might be an even more fruitful avenue for future research with school children" (25, p. 228). Additionally, Wang and Thomas indicate, albeit in a study devoted to gifted children, that "extended practice using the keyword technique [for example] can minimize the long-term forgetting that would ordinarily occur with this strategy" (22, p. 105). As can be seen from these statements, it appears that it is not the limitations of mnemonics that should be focused on; rather, the researcher interested in helping the memorizer of the Quran should focus on the ways in which mnemonics can be made even more useful.

Weighing the pros and cons of this somewhat controversial issue and doing all the research it entails seem to be necessary if we are to perfect our memorization techniques of the Quran. At the very least we can abide by the injunction in Islam referred to earlier to do the best we can. Before we list below some of the mnemonic devices that the reader is likely to find useful, we must emphasize that the employment of most of these devices is directly helpful and relevant to the memorization of new Quranic or related materials. Moreover, due to the limitation of this paper, we will allude only in passing to several of these mnemonics that learners and memorizers may already apply in their learning practice. Here are some of these devices, with brief mention of the first two or three.

A Few Mnemonic Devices for the Memorizer of the Quran

The first two are **Rhyme and Rhythm**, which are deeply inherent and already built into the structure of the Holy Quran: at the beginning, at the end, and within verses. Both are required in reading and reciting the Quran aloud and are naturally employed at the same time by Muslims who read, rehearse and recite the Quran from memory.

fields, including the present author's field, applied linguistics.   Donald Gray, for example, has stated that "[t]he general scientific consensus is that mnemonics, under certain conditions, are quite effective ways by which information can be stored and retrieved" (21, p. 2 of 10). He further indicates that the numerous empirical studies that have been carried out "show that when an individual learns new material, he or she is not just a passive recorder of associations, but an active participant who manipulates information according to various 'control processes' (memory strategies, or systems). These processes are contingent upon what is being studied, the personal experience of the learner, and the kind of work at hand" (21, p. 2 of 10).

What, then, are mnemonics and the benefits of a mnemonics system? According to an article on mnemonic instruction and the gifted child, mnemonic devices are "organized learning strategies designed to serve as memory aids" (22, p. 104). Devices such as keyword technique, method of loci, and the pegword technique "make learning efficient because they organize new information and make it more concrete" (23, p. 46). In other words, mnemonic devices make abstract, difficult-to-remember information easier to remember by associating them with the familiar, as can be seen with chunking and semantic organization.

Regarding the benefits of mnemonics, Norman asserts that mnemonics "reduce long, unrelated strings of material into short, related lists. . . and provide us with the rules and techniques for shortening the sequence that is to be learned and finding meaning, even where there appears to be none" (12, p. 153). How do these mnemonic devices or memory enhancement techniques help? According to Norman, again, "it appears that the organization important for efficient learning is of two forms. One corresponds to the organization that is used in human storage itself. The other corresponds to the organization of the material to be learned: chunking and categorization" (12, p. 154). Norman goes on to say that if we had to state rules for efficient memorization, they might include "small basic units, internal organization, external organization, depth of processing" (12, p. 154). It is true that these techniques increase the amount of material that is to be learned, "but not significantly more than simply brute force memorization by rehearsal... [especially with regards to the] many factors [that] may distort and weaken accurate memory" (12, p. 154). Norman also indicates that "these additions [of effort and material] may actually, amount to a decrease in the amount of actual material that must be learned [making it easier to recall]" (12, p. 153).   We will never know what may be most useful to the memorizer of the Quran without looking into all of the memorization enhancement techniques and memory aids, alongside our accumulated methods: studying, analyzing, comparing, and applying them specifically to the memorization of the Quran itself and researching the results again and again.[12]

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[12] Usually in psychology, so many experiments and studies are carried out, and in time improvements are made or faults are found. In this way, progress is made in an endless process of fine tuning.

The implication for learners embarking on the memorization of the Quran is loud and clear: ease, speed and reading skill are absolute prerequisites. Automaticity in the skill of reading is required for Quranic memorization for several reasons. Among these, according to Hoover, "it is imperative that first reactions be checked for accuracy. Incorrect responses are difficult to control" (19, p. 267). Hoover also points out that when something is incorrectly learned, "[r]elearning, if it becomes necessary, is always an extremely difficult task since the initial learning pattern becomes 'imprinted' in one's mind, and the skill is performed incorrectly from habit" (19, p. 268). This same idea is common in the field of applied linguistics and has been iterated by Ilona Leki, who believes that "[f]ossilized interlanguage forms are particularly difficult to alter" (20, p. 112). It is these kinds of errors, among others, that cause difficulty, frustration and boredom for the learners. Second, some limited variation (including the syntactic and semantic structures as well as Arabic writing specific to the Quran) in such areas as spelling and reading can cause enormous difficulty, especially for beginning readers, unless attended to. It is also because of this reason among others that all educators in Quranic memorization agree and emphasize that one-on-one methodology in learning and memorizing the Quran is essential. However, because this is often not feasible, automaticity in reading becomes an absolute must. The reader must be able to read at a very high level of automaticity so that he or she will not be dependent on his teacher. This in turn will free the teacher to help students who are experiencing difficulties in reading and other related skills such as *tajweed*.

Aids to the Memorization of the Quran: Mnemonics

Memorization is particularly difficult for exact texts of substantial passages; and memorization is also made difficult when it becomes a daily practice where the mind "gets bored and wonders what all the fuss is about... [it] seems a pointless exercise to the student" (12, p. 66)"--hence the significance of the concept of mnemonics. Some believe that repetition and practice seem to be the only methods useful for Quranic memorization and this is indeed true for many memorizers. This idea, concerning the increased facility of memorization and recitation with time and practice, has in fact become a kind of received knowledge among practitioners. We find, however, that some scholars "question the common notion that memory is simply a skill that improves with practice (12, p. 131)." Repetition and practice are certainly necessary, but they are not sufficient by themselves. What we need are ways to help us store and retrieve information, as cognitive psychology has long recognized: "Cognitive psychologists have taught us a lot about storing information in long-term memory. In fact, we know more about how information can be stored for easy retrieval than we do about almost any other aspect of learning. Unfortunately, what we know is usually not taught in the classroom" (5, p. 1 of 7). We do not want children to learn only through trial and error, and as Jones says, quoting Zellman, we should make it our "mission to teach [mnemonics] to the children in our lives" (5, p. 1 of 7).

The importance of mnemonics has received recognition from a wide range of

words themselves that we are attempting to inculcate in the student of the Quran as he or she progresses in understanding and in the ability to recall large sections of scripture.

Automaticity in Relation to the Memorization of the Holy Quran

Automaticity in relation to the memorization of the Quran, then, would be when an individual is able to recite the Quran from memory--with ease, fluency, accuracy and speed, and without any delay or hesitation. A classic example of automaticity occurs with regard to the memorization of the first Sura in the Quran, Sura 1: Al-*Fatiha*, which is made up of 31 words. A Muslim by the age of 50 years or so, who prays regularly, will have recited this Sura from memory literally many hundreds of thousands of times, approaching half a million times and beyond. In a matter of days automaticity regarding this Sura can be fully attained, whether reciting it aloud or silently from memory, meaning that reciting this Sura from memory is performed with little or no awareness, attention or cognitive effort. It also means that interference (interactive, proactive and retroactive inhibitions) almost never occurs. Most importantly, in terms of memorizing large sections of the Quran, it clearly means that when a memorizer of the Quran does attain a level of automaticity, and when due to the thousands of resembling verses or parts thereof, two or more resembling verses come to the mind of the memorizer at once, he or she chooses automatically, *with awareness this time*, the verse that fits the Sura he or she is reciting at the time or the location thereof.

Memorizing the Quran or part thereof to a level of automaticity explains how some memorizers can recite it from memory while walking, driving, dozing off and even waking from sleep. They then realize that they have been correctly reading part of the Quran while performing another task. This is called dual-task performance in the psychological literature, and as we saw with Koestler above, this level of automaticity allows the individual to perform various tasks at the same time without distraction. In terms of the present discussion, this level of automaticity would allow a prayer leader to recite without distraction. A prayer leader, for example, may be under severe strain and tension, not only because of the size of the group (he can reach as many as a million individuals or beyond) praying behind him, but because of the emotional build-up before and throughout prayers, especially in the month of Ramadan. These emotions stem from one's interaction with the meaning of the verses. There are of course other problems, for example, volunteers praying behind who may erroneously prompt the leader without invitation, thinking that the prayer leader had made a mistake. Occasionally other interruptions occur, children interrupting, time intervals required by the prayer ritual when the prayer leader has to stop his recitation and pick up again from where he left off, and so many distractions from our high tech world, such as watches beebing, cell phones ringing, etc. In spite of the need for automaticity, we find that neither our present curriculum in teaching, learning and memorization of the Quran, nor our continually changing time-demanding lifestyles, prepares our learners--nor does it lead to the automaticity level expected or required.

a continuous scale of gradations of degrees of awareness. There is a gradation in human awareness, then, from the level of relative unawareness as we carry out the act of breathing, for example, to the more aware level of "tying one's shoestrings to...humming a tune absentmindedly" and finally checking a column of figures and "checking it...after a mistake has been discovered...with great attention" (17, p. 154).

What is most significant for the present discussion, however, is the fact that our awareness, according to Koestler, "decreases and fades away with our increasing mastery of a skill exercised under monotonous conditions" (17, p. 155): "Mastery of the code and stability of environment are the two factors which lead to the formation of habit; and habit-formation is accompanied by a gradual dimming and darkening of the lights of awareness. On the other hand, we may regard this tendency towards the progressive automatization of skills as an act of mental parsimony; as a handing-down of the controls to lower levels in the hierarchy of nervous functions, enabling the higher levels to turn to more challenging tasks" (17, p. 155). This is indeed the goal that the memorizer of the Quran sets for him/herself: to be able to make the recitation of the Quran a habit by gradually relegating more and more material to the level of unconscious activity while he or she is simultaneously fully aware of the location and meaning of the verse he/she is reciting at the time.

This parsimony that Koestler talks about has found empirical support in recent scientific work. For example, it has been found that "[r]ecent neurological studies show that the brain becomes more efficient as a person becomes a skilled reader (Eden *et al.*, 1996). A beginning reader with serious learning disabilities uses both auditory and visual parts of the brain during reading, trying laboriously to sound out new words. In contrast, a skilled reader uses only a small, well-defined portion of the brain relating to visual processing" (10, p. 191). It is important to dwell on the relation between automaticity and reading for a moment, since it can be asserted that skilled memorization of the Quran begins with skilled reading of it. Indeed, this connection has come to the forefront of much discussion of automaticity today. For example, in "Automaticity and Phonemic Representations: Perceptual and Cognitive Building Blocks for Reading," Naslund and Smolkin have said that "[s]ince the popularization of the theory of **automaticity** as it pertains to reading (LaBerge & Samuels, 1974), 20 years of interdisciplinary theory building and research has led to increasingly specific descriptions of the automatic reading process...The speed, accuracy, and strength of phonemic representations in decoding text is now believed to be one of the special linguistic functions that best predicts success in becoming an efficient reader" (18, p. 147). In other words, theorists now believe that they have a better idea of what makes good readers good readers, and from the perspective of the current discussion, good reading can be the basis of accurate memorization. According to Salisbury, numerous studies have shown that "in reading, speedy and efficient word-recognition and word understanding is a critical prerequisite for successful reading and must become automatized before the reader is able to concentrate on such things as concepts and theme" (8, p. 24). And it is just this ability to focus on theme rather than merely on the

proactive inhibition. This is suggested when the Quran has been memorized short of the automaticity level, therefore allowing for interference and inhibitions to emerge and making memorization arduous and difficult.

Another factor which can interfere with Quranic memorization is **proactive inhibition**, which occurs when one or more already-mastered verses interferes with learning new, similar verses. We have discussed two factors thus far: retroactive and proactive inhibitions. Considering the vast number of similar verses in the Quran, the picture of memorization problems presented as either retroactive or proactive tends to oversimplify the situation in which the memorizer finds him/herself. It is for this reason that we might coin the term "**interactive**" inhibition, which occurs when memorizing a Quranic verse interferes with learning similar verses or interferes with already-learned verses *at the same time*. Thus it acts in both directions, before and after, simultaneously. It is a term that would be useful for further discussion of the factors that influence memorization of the Quran. We would like to emphasize that so long as Quranic memorization has not been carried out to the level of automaticity (or is not continually reviewed on a strict schedule), these factors of retroactive, proactive, and *especially* interactive inhibitions will always be annoyingly and at times unexplainably present for some memorizers.

Two other factors that can exercise an influence on the quality of one's memorization are **proactive facilitation**, which refers to the "[i]ncreased ability to learn new information due to the presence of previously acquired information," and **retroactive facilitation**, which refers to the [i]ncreased comprehension of previously learned information due to the acquisition of new information" (10, p. 190). Both of these are supposed to help increase rather than decrease the memorizer's ability. **Primacy effect** also can play a significant role. This is the tendency to memorize the first section or part of an assigned page more easily. There is also what is termed **recency effect**, which is the tendency to memorize the last part of the assigned page more easily. The implication for teaching Quran memorization is that an assigned passage should be relatively short for more difficult passages so that the middle part of the assignment can also be short. In this way, the difficulty of memorization will be reduced and errors will be less likely to occur because of the primacy or recency effects. This would also reduce the accumulation of one group of poorly memorized verses after another throughout the Quran.

Automaticity

A final point that we will discuss now is **automaticity**, and we will give special attention to this topic since it is probably the most important for our discussion of the memorization of the Quran. The most eloquent spokesperson on automaticity remains the British author Arthur Koestler. In his book, he likened conscious events to "light," and unconscious ones to "dark," following the terms of the German philosopher, Leibniz; and he stressed that awareness is a matter of degree: "[c]onscious and unconscious experiences do not belong to different compartments of the mind; they form

decisions concerning where chunks occur according to meaning, parts of an idea, and so forth. This is not always as easy to achieve as it might appear. Further, it is sometimes difficult to determine the number of chunks that should be assigned. Needless to say, this need for decision-making may be related to the size and number of chunks of information, the topic involved, as well as to the readability level of the passage being assigned and the mental and chronological age of the learner.

Remembering and Forgetting: the Systole and Diastole of Memorization

Commonly included in scientific discussions of memorization are the factors that can either facilitate or interfere with this process, factors that either help us to remember or forget what we are studying and attempting to commit to memory. Over the years, researchers have identified several factors that make it easier or more difficult to remember information. Some of these factors that are most relevant to Quranic memorization include, for example, **interference**, which happens when information gets mixed up with, or displaced by, other information in one's memory. This factor is one that is most deeply inherent and specific to the memorization of the Quran. Interference is such a deeply-rooted issue, so specific to the Quran, that scholars have never ceased writing about it. To date numerous books have been published on this topic. Salisbury provides the example of an experiment that illustrates the "large effect on learning which can be produced by interference" (8, p. 24). In that experiment, subjects learned, and memorized, successive lists of items. The more lists they learned, the less recall they had of previously learned lists, resulting in a decline in retention, from 70% for the first list to only 5% for the 35th and 36th lists, for example (8, p. 24-5). This seems to be true of retroactive, proactive and interactive inhibitions as well (see below), including of course Quranic memorization, as is well known.

Another factor that can influence the quality of one's memorization is **retroactive inhibition**, which occurs when previously learned information is interfered with or lost because it is mixed up with new and similar information, thus decreasing the ability to retain previously learned information. Since there are partial or identical resemblances[11] between a great many Quranic verses in the same Sura (chapter) and throughout the Quran, two implications seem to follow. On the one hand, students should master all of the passages assigned for memorization before they learn the following assigned passages. On the other hand, when similar verses come up in the following passages (some students fail to remember the previous and similar verse or verses, or mix them up with the newly learned verse or verses), this would be a good opportunity for the teacher to explain gradually the causes of remembering and forgetting--in this case, retroactive inhibition. The teacher also needs to point out the essential differences between verses, and students must practice contrasting and discriminating between the two verses as closely as their mental development allows. This means that they may have to compare and contrast similar verses whenever they are confused and affected by **retroactive or**

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[11] The resemblances that are being referred to here concern the wording and not the meaning of the passages.

the index that provides him or her with all of the instances when that topic or story was mentioned. If you are interested in familiarizing yourself with the story of Joseph, for example, you need only consult the index and then study the passages for a unified overview of the chronologically presented events of the story. In this same way, the teacher of the Quran can call the attention of his/her students to a particular story so that the student can "chunk" the information and assimilate it in a holistic manner; or he or she can assist his/her student by continually relating fragments of stories of the prophets (peace be upon them), say, to the original context or event in which they occurred. It is common practice in many memorization schools to have students memorize a page a day. This is perhaps done as a matter of convenience; however, it is far better to have students work on material that is organized according to meaningful chunks, taking readability (relative ease or difficulty of material) into consideration.

It is fairly well-known now that one's short-term memory has the ability to hold only a discrete amount of information. For example, according to George Miller, "one's working memory' has a limit of 7 +/- 2 items. In other words, you can only productively work on memorization up to about seven items at a time. Much subsequent research has shown that learning proceeds more easily if a large list is divided into chunks of about 5-7 items and each chunk is mastered before the next chunk is taken on" (7, p. 25). This idea of chunking suggests that when learners of the Quran begin to memorize a new group or "chunk" of verses, they should repeat a certain number of related words, phrases, and ideas over and over until they master them and commit them to memory; then they can proceed to the next chunk or chunks according to the length and difficulty of the material to be memorized.

One sometimes encounters of course a single letter verse in the Quran, meaning a verse that is only one letter long, or two or several-letter verses, up to five. Likewise, there exist one, two or several-word-long lines or verses. While it is relatively easy to master a single letter or a one-line verse, it is obviously more difficult to master a page-long verse of several lines. That is, as the length of verses increases, mastering and memorizing them becomes gradually more and more difficult, requiring more and more time. This is why the idea of chunking—combining words, phrases, verses, ideas, stories about some prophets (peace be upon them all) or other topics according to meaningful relationships--should be studied in terms of its applicability to Quranic memorization.

Curriculum designers can benefit a great deal from employing the idea of chunking to help memorizers, students and teachers of the Quran to organize the meaning of the passages that are being memorized. It is necessary to memorize passages from the Quran as they actually appear in the text. There are ways to employ the idea of chunking, however, despite this. If the ideas in a story, for example, the life story of Moses (pbuh) are spread throughout the Quran, the teacher should always help the memorizers by supplying the students with the "contexts" of what they are memorizing and to place the events of a story in the correct mental context. Since the Quran is not always divided according to topics, curriculum designers and teachers should make

Chunking and the Importance of Organizing the Passages to be Memorized

It is a traditional idea in the history of discussions on memorization that it is of great benefit to the memorizer to be able to organize, in some coherent fashion, the material that he or she is attempting to commit to memory. Chunking ("[c]ombinations of items and relationships make possible what have come to be called 'chunks'" (13, p. 16)) is a term that is commonly used in the literature today to embody such a concept and this is certainly one of the most useful tools for the memorizer of the Quran. An excellent example of this has been presented by Slavin in his book on educational psychology (10, p. 178-9). In that book, he suggested how difficult it would be to memorize the following list:

flour	orange juice	pepper	mustard
soda pop	parsley	cake	butter
relish	mayonnaise	oregano	canned tomatoes
potatoes	milk	lettuce	syrup
hamburger	hot dogs	eggs	onions
tomato paste	apples	spaghetti	buns

Rather than attempting to memorize the items in this helter-skelter list, it would of course be much easier if they were organized according to a familiar and understandable organization, as in the following:

BREAKFAST	LUNCH	DINNER
Pancakes:	Hot Dogs:	Spaghetti:
Flour	Hot dogs	Spaghetti
Milk	Buns	Onions
Eggs	Relish	Hamburger
Butter	Mustard	Canned tomatoes
Syrup		Tomato paste
	Potato salad:	Oregano
	Potatoes	Pepper
	Mayonnaise	
	Parsley	Salad: Lettuce
	Beverage: Soda pop	
	Dessert: Apple	Beverage: Milk
		Dessert: Cake

The lesson for the memorizer of the Quran, and for the person helping someone to memorize the Quran such as the curriculum designer, is obvious: by organizing information into familiar patterns, the learner "need maintain only a few bits of information in [his] working memory [that is, one's short-term memory]" (10, p. 178-9). For example, in "The Holy Quran: English translation of the meanings and commentary," *de facto* chunking takes place in that the reader is given a list of topics in

conclusion is significant for the present discussion, for they indicate that "[t]here might be a form of deep memorisation in which meaning plays a key part" (2, p. 17 of 19).

Charles Reigeluth, another prominent figure in the field of learning, also points out the importance of meaning in relation to learning. According to him, one of the major kinds of cognitive theory regarding learning is "schema theory." This theory proposes that "when *new* [emphasis is author's] knowledge is encoded, it is organized into schemas, which are networks of related pieces of knowledge. . . But more importantly for the instructional purposes, specific elements of the invariant task can often be learned, or more accurately, *retrieved* (emphasis is author's), more easily by relating them to certain carefully selected prior knowledge, especially meaningful knowledge" (7, p. 9 in 2nd edition).

As we can see from the above authors, learning and memorization can be more effectively carried out when those activities are closely tied to the meaning of that which is being studied and memorized. In other words, "meaningful material is easier to learn and recall" (14, p. 251). In fact, the subordination of memorization to meaning can be seen in the Quran itself. For example, in verse 29 of the 38th Sura, it is said that "[Here is] is a Book which we have sent down unto thee, full of blessings, that they may *meditate* [emphasis mine] on its Signs, and that men of understanding may receive admonition." It is implied in this that the blessings that are contained in the Quran will be open to the person who meditates properly upon the signs that have been given--a person with understanding. Finally, Abdurrahman Bin Abdelkhaliq has characterized rule number 6 in The Golden Rules for Memorizing the Holy Quran (1407) in the following way, saying that "Understanding is the Road to Memorization" (15, p. 6).

Mention should be made of the differences between memorization in contexts where the Arabic language is natively spoken versus countries where it is not. In countries such as Mauritania, Indonesia and all other countries where Arabic is not the native tongue memorizers have no choice but to employ pure rote memorization. This is not an optimal situation for those who desire the spiritual understanding that the Holy Quran can provide; however, Quranic and memorization scholars owe it to these individuals to find ways to make their efforts more economical and ways that will eventually lead to this understanding. On the other hand, there are some advocates of the idea that those who are attempting to memorize the Quran in these non-Arabic and rote-memorization contexts should be used as models for the possibilities for the memorization of the Quran on the part of native Arabic speakers. This, in the opinion of the present author, should not be encouraged; in fact, it is, as mentioned at the outset of this paper, that one of the main theses of this paper is the fact that "meaning" is the alpha and omega of the study of the Quran, and this includes its memorization. The Holy Quran is a bounty of spiritual understanding, and it is through the blending of memorization and understanding that this knowledge will come to the minds of serious students.

to be successful. For example, the memorizer, whatever his/her age or station in life, needs a great deal of time, patience, persistence, mental struggle, knowledge and understanding of the methodologies related to memorization in order to achieve a motivation that is rooted in a deep spiritual understanding. It should be made crystal clear in the mind of the learner/memorizer that the intrinsic type of motivation, in the end, is the only kind of memorization that leads to true success. This should and can be instilled in the minds of all learners, beginning at an early age. There is no place for showing off in the memorization of the Quran, and if a person witnesses an individual who seems to place too much emphasis on his/her ability to recite the Quran from memory, that individual should be regarded with patience until he or she comes to a recognition of the significance of spiritual understanding. By the same token, the individual who succumbs to such feelings should also regard him/herself with patience and realize that it is a passing phenomenon and should merely continue to struggle on the spiritual path.

The Importance of Meaning in the Enhancement of the Memorization Process

Although motivation is significant in relation to memorization specifically and to learning generally, the important role that meaning plays in memorization cannot be stressed too highly. Indeed, the role that motivation plays regarding memorization has at times even been made subordinate to the role of meaning. In fact, one of the most famous scholars in the field of applied linguistics (Stevick in *Memory, Meaning and Method*) goes so far as to indicate that "Memory is a byproduct of Meaning " (13, p. 160). In other words, while accurate and automatic rote memorization may be an inherent and essential part of some disciplines, meaning and understanding of the material being memorized play an equally essential part in the mechanical act of memorization itself, especially at its early stages when new information is being instilled deep into short-term memory and later on in the long-term memory.

Here, once again, research can add to the wisdom with which we approach memorization of the holy scriptures of the Quran. Ultimately, the texts of the Holy Quran are memorized in order to broaden the spiritual life of the reader. In this sense, memorization without understanding would fall short of true spiritual understanding and profit. For this reason, according to theorists, it is not the "more usual lexical or linguistic sense of `meaning'" that needs to be emphasized; rather, it is the "personal, psychological, `deep' kind of meaning... [which] has received only passing mention" (13, p. 47-8) that requires emphasis.

When a person is deeply engaged with the meaning of what he/she is attempting to memorize, his/her motivation will be stronger. Mageean and Hai, cited earlier in the paper, for example, link rote learning, memorization and meaning. According to them, "[t]he intention to remember may bring about rote memory; the intention to understand may result in incidental deep memory; and the intention both to understand and memorise may produce intentional deep memory" (2, p.16 of 19). The author's

Motivation as Given in the Process of Memorization

It is appropriate to begin our quest for memorization techniques that are suitable for the Muslim memorizer by looking at a concept that is central to memorization and learning in general: motivation. In fact, according to some, it is impossible to deal adequately with the topic of memorization without dealing with the topic of motivation, for "[w]ithout continued, high motivation on the part of the subject, training may become unduly long and arduous. For example, what good is training word recognition skills using ART techniques if, in the final analysis, the learner comes to hate reading?" (11, p. 49). Emphasizing motivation, Norman says that "a subject must have that mysterious something called `intent to learn'. Given this intention, the act follows by a steady, slow heave of the will" (12, p. 133). There is no doubt that high motivation, directing a strong will, is an absolute must before attempting this great endeavor of memorizing the Quran.

According to the literature, there are basically two kinds of motivation and incentives for learning that psychologists, educational psychologists, and applied linguists often discuss in relation to learning and memorization. The first is **extrinsic or instrumental motivation**, which is satisfied by praise, rewards, feedback, grades or recognition: "It may also refer to the desire for a toy, a coin [money], or a piece of candy which someone has promised as a reward for satisfactory performance" (13, p. 48). The second kind of motivation is **intrinsic, or integral incentive**, which is the motivational value and usefulness of the content itself--it is an activity that people enjoy and find motivating (10, p. 378).

The extrinsic type of motivation has always been employed to motivate learners to memorize the Quran (for example, presents or awards are typically given for achievement), but has been recognized and acknowledged as interim and temporary. Literally thousands of schools and local, regional and international competitions are regularly held where rewards of all kinds, such as certificates, money, and gifts, are offered to competitors. It is not realistic to think that intrinsic motivation alone will keep children or even all adults motivated; however, neither Muslim scholars nor teachers have ever compromised the latter, the intrinsic incentive, in the least. Every scholar has emphasized one and only one specific intrinsic incentive: that Muslims have always to keep at the forefront of their minds total and sincere devotion and purity of faith. This deep intrinsic psychological incentive, however, takes a great deal of time and skill on the part of teachers, scholars and educators to instill in the mind of the learner. Moreover, fluctuations between intrinsic and extrinsic incentives are expected and accepted until the intrinsic is eventually achieved.

In the final analysis, the motivation of the memorizer of the Quran should be intrinsic, not extrinsic. It is true that in the early stages of memorization and perhaps with younger memorizers, extrinsic motivation in the form of rewards, as mentioned above, can play a useful role. But regardless of whether the individual is young or old, a great deal of inner qualities have to be brought to bear on the act of memorization for it

the higher educational goal of critical thinking" (5, p. 2 of 7).

Muslims, too, have accumulated rich experience and practical ideas from the very long application of Quran memorization that has been handed down from generation to generation. Learning to read the Quran to the level of automaticity, using memory aids in order to make memorization less difficult and demanding, and more efficient and enjoyable has always been a vital part of our tradition. Second, memorization of the Quran, including work in Islamic and other disciplines, is a skill that will help scholars and students achieve the foundation for other higher order scholarly work and understanding. The prophet (pbuh) says, in essence, that wisdom is something that is ever sought after, and one should take it wherever one finds it. In this sense, it is to our benefit to take advantage of the rich material available from research that can help us support and confirm our already rich tradition of memorization techniques. The Prophet (pbuh) also says, in essence, that when you do something you should try your best to perfect it. Therefore, it is strongly suggested that we first survey the vast research on memorization from scientific study and choose with great care the salient methodologies that are relevant to our religious goals. In this way, a student's important job of memorization can be carried out with greater efficiency and greater joy, and fundamental meanings can be grasped for a lifetime of devotion.

Because studies have been conducted extensively under lab conditions, we have to be very careful as to what results would actually be suitable for Quran memorization. "While memory for discourse has been studied extensively under lab conditions, there are very few systematic data on retention intervals longer than those convenient for lab study" (9, p. 611). Moreover, what we need is research on Quranic memorization itself for at least two reasons. In the first place, we need to draw upon this research in order to confirm the day to day practices we have been doing for years so that we can be certain we are doing the right thing. Knowing whether one is doing the right thing or not, at least in terms of learning, is not always so obvious. According to Slavin, for example, "[t]he goal of research in educational psychology is to carefully examine obvious as well as less than obvious questions, using objective methods to test ideas about the factors that contribute to learning" (10, p. 12).

According to Slavin, however, we must always take a common sense approach to the use of research. We need, for example, to keep in mind that "no theory, no research, no book can tell teachers what to do in a given situation" (10, p. 15). What we need to do is to carry out our own research on the memorization of the Quran and use "objective methods to test ideas about the factors that contribute to [its] learning" (10, p. 12). Second, we need to continue to search for feasible solutions for Quranic memorization problems that are compatible with today's time-demanding lifestyles and which can fine-tune our current practices. For this reason, among others, research and the application of that research is of the utmost importance.

These activities are followed rigorously until they graduate two to three years later when they will have memorized the entire Quran.

On the Idea of Memorization as a Method of Study

As we can see from the discussion of actual practices of memorization of the Quran in the world today, there is an apparent need for more specific training in memorization techniques, and for some of these techniques we may profitably look to the scientific tradition for assistance. It is interesting that even in scientific study the value given to a certain methodology can be cyclic. For example, for years the area of memorization was looked down upon, only later to be resurrected and placed once again into the repertoire of learning theories. Mageean and Hai, in "New Thinking on Automaticity and Memorization," for example, have pointed out that traditionally, "[r]eady, fluent, accurate and automatic performance of certain tasks has...been regarded as important in educational outcomes, though in recent decades the critics of an emphasis upon such outcomes have been very influential" (2, p. 1 of 19).

Consequently, many of the most up-to-date education and educational psychology books have entire chapters on memorization and memorization teaching, in addition to the hundreds of books and articles written on memory enhancement.[10] Included in this research has been the connection between mnemonics and a wide range of other fields, such as chemistry, biology, etc. For example, in an internet article entitled "Cognitive Applications," the author refers to a statement by Higbee, indicating that "[r]esearch has shown that a wide range of mnemonics can be used effectively by a wide range of people on a wide range of topics" (3 and 4, p. 871). Further, in "Educational Memory Aids: Review of Cognitive Research," Susan C. Jones speaks of the importance of memorization. She quotes O'Neil, who says that "memorizing basic facts is often essential... [t]he learning of facts and procedures is a legitimate and important part of a student's education" (5, p. 1 of 7). Jones goes on in her article to quote 45 teachers from a variety of disciplines on the importance of memorization (5, p. 3-7).

Finally, due to the importance currently accorded to memorization there are now suggestions from specialists in some fields to incorporate memorization techniques and methods into the curriculum (see Cook [6], 1994; Reigeluth [7], 1996,1998; and Salisbury [8], 1990). According to Salisbury, in an article devoted to drill practice and the computer (although he claims that what he says in the article applies equally well to other disciplines, such as medicine, geography, etc.), most specialists agree that "[c]ertain critical subskills must not only be well learned but overlearned, and through practice, be brought to a state of automaticity" (8, p. 24). The operative word here is automaticity, since "students should have attained automaticity on component subskills before going on to more sophisticated superordinate skills" (8, p. 24). In this way, "students can concentrate on

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[10] See, for example, *Educational Psychology: Theory and Practice* (10) by Robert E. Slavin, 2000, for an excellent survey of current research, p.535-574.

automaticity and is often acquired at home before joining *mahdharahs*. Then they write on their own portable wooden chalkboards of different sizes, read what is written for them by their teacher or what they have written themselves, rehearse it, memorize it and recite it to one another and to their teacher over and over again until they have learned it verbatim. This is what they do every day with every new passage of varied length according to their level.

Then they overlearn these new passages to the point of automaticity by repeating them over and over again, close to a hundred times or beyond. This typically leads to high fluency, accuracy, speed and automaticity with little or no understanding or awareness. Next this "new" passage is scheduled into a gradually spaced review plan incorporating the newly-added passages. This tablet is divided into four sections, two sections on each side, so that on the first day section one is filled up with a new passage and memorized.[8] The second day another new passage is written on the second section and memorized. This process is continued until, by the fifth day, the passage written on section one has to be erased to allow for a new passage to be written and memorized. However, by this time the erased passage is on its way to being engraved relatively permanently on the mind. Review practices still go on, although at a further spaced time. This is what they do in essence day in and day out, every school day for 2 hours or more on all previously memorized parts of the Quran. By the time they graduate, that is, have memorized the entire Quran, it will most likely be stored for life for easy retrieval. This process is also enhanced by testing the student on what they have memorized at least twice a week. (There are certain exceptions to this outline of behavior, but generally this is what takes place.)

All of this is done on a truly one-to-one basis. These children, as is their teacher, are totally devoted to the memorization of the Holy Quran, at least to the extent to which they are able at that stage of mental and emotional development. They do not have other obligations, other subject matters or other time-demanding activities that will interfere with this never-ceasing effort of memorization. In fact, it could be stated that much of the success of the memorization of the Quran in Mauritania can be attributed to what we might for lack of a better term call "culture," since the memorization of the Quran is such a deep part of the daily lives of the people who live there.[9] For example, competition is so high among students as to how much, how fast and how well they are able to commit passages of the Quran to memory. Additionally, many competitive techniques are employed to encourage learners to memorize, such as games related to the location and resemblance of a particular verse. For example, a verse might be given to a student and the student then has to remember the verse that comes either after or before it.

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[8] As students progress in their proficiency, the tablet is divided into two sections instead of four; in this way, the students are responsible for an entire page one day, the opposite side (page) of the tablet the next, and on the third day they would then have erased the first "page" and gone on to new material.

[9] It is common in Mauritania, for example, to see individuals walking on the street or riding busses reviewing passages from the Quran quietly to themselves.

assigned each school day to students, usually a whole page from a specific edition of the Quran.[6] The passage is read to them by the teacher or is played from a cassette recorder a number of times, and in turn is re-read by several students and then corrected by the teacher. This is done to make certain that the students are able to read the passage reasonably well when they leave class. This does not ensure that all of the students have really got the text right, however, since only a few students can be focused on during the time allowed to the teacher in a typical 45 minute class period.[7]

Following this introduction of the text, students are left with the entire responsibility of repeating the page or assignment verbatim and then reciting it to the teacher the following day one by one. They are prompted or given correct answers if they have trouble, are graded on their work, and then are assigned further texts from the Quran to be memorized one school day after another. The students then are tested a number of times during the school term and at the end of it are tested on the entire amount of work that they have done during the semester. In essence, although the teacher may make some recommendations as to how students should memorize the assigned passage, his or her essential role is to assign passages, read them and make sure that several students have read them reasonably well, listen to their recitation, and to grade and finally test them at certain intervals during the semester and at the end of it when the students are able to demonstrate their overall grasp of the material; and then, on with a new set of Quranic chapters (Suras) for the following term and so on until the entire Quran is learned.

As we can see from this characterization of the memorization methodology that is currently employed in memorizing the Quran in most of the Islamic world (some variations will occur), there is very little actual memorization training done at all. Rather, students themselves are given the entire responsibility for devising ways, often through trial and error, to satisfy the requirements for memorization given by their instructors.

The Mauritanian Model

At this point it is appropriate to mention some related characteristics of reading, rehearsing, mastering, overlearning and achieving automaticity in yet another model known as the Mauritanian model. In Mauritania, children as young as 4 to 6 years spend as many as 10 to 12 hours in *mahdharahs* (a "university" for all ages and all "arts") engaged in a number of activities related to Quranic memorization and some Islamic and Arabic language disciplines. These children first master the basic skill of reading, albeit often without understanding what they are reading because Arabic is not their mother tongue and because of their young age. Their reading skill is practiced to a high level of

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[6] Revised and edited by The Presidency of Islamic Researches, IFTA, CALL and GUIDANCE, King Fahd Holy Quran Printing Complex, Madinah.

[7] Even within this time other activities detract from the teacher's duties, such as classroom management, taking role, etc.

updated as perceived needs arise; this is not so, however, with the curriculum for the memorization of the Quran. These methodologies no longer seem to be fully compatible with today's information age, as educator Charles M. Reigeluth has suggested in his article: "The Imperative for Systematic Change." When we look at the ways society is changing as we evolve more deeply into the information age, we can see trends in the workplace, the family, and decision-making systems. From those changes, we can identify new features that an information-age educational system should have to meet the needs of society. Unfortunately, educators are not taking this kind of needs-based, systems-design approach to improving education. Without such an approach, we will almost certainly be condemned to a system that does not meet society's needs (1, p. 10).

It is ironic that despite the universal recognition of the importance of memorization to Islam, memorization has not been treated scientifically, which would certainly add to the experience of memorizers, school teachers, university educators and religious scholars (1, p. 10). The experience of those groups, from generation to generation, has formed the essence of present day memorization methodology and practice, and this practice, combined with the latest information and memory aid techniques that experts in the field of memory enhancement suggest, will certainly help the memorization of the Holy Quran to continue to flourish. How one should go about memorizing the Quran has become an ever recurring and persistent question in the mind of anyone attempting to commit passages of the Quran to memory. And once the Quran or parts of the Quran are memorized, how is this information to be retrieved at will? These are some of the questions that will be addressed below.

Two Models of Memorization Methodology in Contemporary Islamic Schools

Before discussing these questions, however, let us take a closer look at how memorization is approached in these schools, for it is an objective view of current memorization methodologies that will enable us to pinpoint areas in the curricula of these schools that could take advantage of the vast research on memorization that has been carried out. It should be remembered, however, that no model is complete, and it is the responsibility of the researcher and instructor of memorization to look for what is best in any models studied.

The Saudi Model

First, in Saudi Arabia and the great majority of Islamic schools elsewhere in the world, schools devoted to memorization of the Holy Quran are called "schools for training for the memorization of the Holy Quran."[5] What takes place in these schools that follow the Saudi "model," so to speak, essentially is that part of the Quran is

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[5] In Egypt, in Azhar University, a handout describing the curriculum for the year 1999-2000 is called "Curriculum for the Memorization of the Holy Quran assigned for the elementary level." This might be a more suitable name, as it more accurately describes what actually takes place in the schools since there is no indication of training.

classroom applications of the ideas presented in this paper, including a discussion of learning strategies, learning styles, and error analysis. One of the underlying themes of this paper is the idea that the more the student and teacher are aware of the reasons for their memorization activities, the more economical and pleasurable those activities will be.

The traditional role of memorization in the study of the Holy Quran and the possibilities of change

The memorization of the Holy Quran is as old as the inception of Islam: several years before the Hijra (lunar year of 1421), when the Quran was first revealed to the Prophet Muhammad (peace be upon him--from this point in the essay *pbuh* will be used for this phrase). Memorization has continued to play a vital role in some of the religious practices of Islam, and memorization of the Holy Quran will always be a requirement of our daily worship practices. For example, we must memorize a number of whole chapters and passages of the Holy Quran in order to pray five times a day, and these prayers require memorization. In addition, memorization is an absolute requirement for Muslim scholars as well.[2] Some limited memorization, then, is part of the essential daily practice of Muslims.

As a result of the significance given to memorization in Islam, literally thousands of schools of all kinds have arisen, including mosque madrassas (schools within a mosque), all over the world, whose curricula at the elementary and intermediate school levels are primarily devoted to the memorization of all, or part of, the Holy Quran. In some countries, such as Saudi Arabia, these memorization courses exist alongside other standard courses.[3] In fact, in some countries, like Mauritania, the majority of children are required to memorize the entire Quran before they are admitted to public primary school.[4]

Even with the noticeable increase in the number of these schools and their students, however, there seem to be elements missing from the existing curricula, elements that could enhance the learning and memorization of the Holy Quran. Changes in contemporary lifestyles (including high demands on time, thus making total devotion of time to Quran memorization unfeasible), for example, are making demands for the improvement of existing educational methodologies across the entire range of subjects, and indeed many changes have already been carried out and these changes continue to be

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[2] Arabic poets and scholars had practiced memorization of poetry and prose ages before the inception of Islam, and still do, although to a lesser degree.

[3] In the public school system in Saudi Arabia, which makes up the majority of the educational system there, however, Quran memorization is but a single course requiring much less memorization.

[4] This information was related to the author by Mauritanian individuals (Muhammad Fadel Weld Asheikh, Muhammad Ahmad Aljikani, and Mahfooz Weld Aienena) who have gone through this system of education. This model for memorization is followed as well by come countries that neighbor Mauritania, such as Senegal and Mali.

applied linguistic studies, for example, the primary research field of the present author, much of the work regarding memorization, teaching, and learning strategies and styles, error analysis and diary work may be usefully applied to the memorization of the Holy Quran. Such research will tell us what constitutes productive practice.[1]

The paper will begin with a discussion of the role that memorization has traditionally played, and continues to play, in Islam. Included in this discussion is a characterization of two models that are currently being used in Saudi Arabian (and many other countries, following that model) and Mauritanian schools. We will then look into some of the current ideas on memorization. Beginning our discussion will be an overview of the ideas of motivation and meaning as they relate to memorization and to the memorization of the Quran in particular. Obviously, the degree to which someone excels at an activity depends to a great extent on his/her motivation. And further, the student's understanding of the meaning of what he/she is attempting to memorize plays a controlling influence on his/her retention of the information in long-term memory. Next we will discuss two concepts that are significant in a discussion of memorization: remembering and forgetting. Included in this discussion will be certain ideas that might be particularly useful in relation to the memorization of the Quran, such as the idea of interference, retroactive inhibition, proactive inhibition and automaticity.

The idea that the material to be memorized should first be organized in some coherent, memorable fashion is as old as memorization itself, and in contemporary memorization studies this is typically referred to as "chunking." We will discuss this concept as it relates to the memorization of the Quran; and we will also touch upon the notion of mnemonics, which is a concept of long traditional standing that suggests that there are certain learning strategies and techniques that serve as memory aids, such as rhyme and rhythm, narratives, loci and spatial positions, pegwords, categorization, visual and auditory techniques, etc. These will be discussed briefly in turn.

Following this discussion we will focus on the practice of memorization: how an individual can best place passages and even chapters from the Quran into his/her long-term memory. Included will be a discussion of the ideas of distributed and massed practice, i.e. whether memorization best takes place when it is interspersed with other activities or carried out in one intensive session, as with distributed and massed practice respectively. We will then move to a discussion of the concept of spaced review: a mechanism involving the periodic review of what has been memorized in order to enhance retention.

Next, after introducing to the reader a tentative model of repertory memory that might enhance the models that are already in place, we will look into the possible

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[1] Rather than devoting a special section to current research, because of the complexity of the issues surrounding the concept of memorization, research on memorization and theories relevant to the memorization of the Quran will be mentioned throughout the paper when appropriate as each topic is dealt with.

An Applied Linguistics Approach to Improving the Memorization of the Holy Quran: Suggestions for Designing Practice Activities for Learning and Teaching

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Abstract. The memorization of the Holy Quran is as old as the inception of Islam, and memorization has continued to play a vital role in many of its religious practices. In this paper we intend to introduce to the Islamic reader some of the information from research on memorization and some of the methodologies from educational theory that may enhance the already advanced practices of memorization in the Islamic world. Some of the issues that will be discussed are the following: the traditional role of memorization in the study of the Holy Quran; methodology in contemporary Islamic Schools; on the idea of memorization as a methodology of study; motivation and meaning as they pertain to memorization; techniques such as chunking and mnemonics that assist the learner in his/her effort at memorization; a tentative model for repertory memory and possible classroom applications. It is hoped that the discussion of these issues will assist teachers and curriculum designers in confirming the good practices that are already in place, in improving practices that are found to be less useful, and in eliminating some practices that are seen to be counterproductive. To paraphrase the Prophet Muhammad (pbuh), we may take wisdom wherever we find it. It is hoped that the information presented in this brief paper will open the door for further research into the topic of memorization for scholars and teachers so that we can continue to build on our great past.

Introduction

Memorization has traditionally played a vital role in the study of the Holy Quran, and students of the Quran have certainly amassed a vast amount of expertise in their effort to understand it and to impart its meaning to younger generations. This is not to say, however, that there is not more to learn. In this connection, science is able to contribute a great deal to the Muslim's effort of memorization, and in this paper we will look into several of the theories that can be employed to enhance the practice of the memorization of the Quran. The fields of psychology, educational psychology and applied linguistics will be drawn upon in an effort to introduce to the Muslim reader some of the salient methodologies that can be marshaled to improve his or her memorization training. It will be seen that a vast amount of theoretic and scientific research has been generated. In