

**Memorization in a Foreign Language: The Role Semantic
Memory in Quran Memorization**
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Abstract

Literature suggests that phonological memory on its own would be inadequate because it is associated with short term memory STM. Information encoded phonologically is of limited duration and capacity. Taking the nature and working of working/phonological memory into account, it can be assumed that people memorizing text in a foreign language might not be deploying working/phonological memory to help them internalize the text. However, if it is assumed that the text memorized in a foreign language ends up in LTM, how does information get encoded there, and does memorization in foreign language meet the conditions for LTM storage, as typically understood in the research literature? This paper looks at the role of semantic memory and examines the nature and status of information in there with reference to some models of long term memory in relation to Quran memorization by non-Arabic speaking memorizers. We explore the process of memorization and ask whether the Quran text ends up as part of the memorizers' integrated knowledge in long term semantic memory, associated

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1. Introduction

Literature on memory argues that working memory is a means of acquiring information from sensory channels. Working memory is phonological in nature and only accommodates a limited amount of information which if not rehearsed fades away quickly (Baddeley 2010). Although the capacity of working memory is normally limited to seven plus or minus two elements of information, it can be increased by organizing information into units of higher order. For example, familiarity with text enables a learner to chunk (i.e. create higher order units of information) which is vital for efficient memorization: chunking increases processing efficiency (Ellis 2001; Sinclair 1991). Although it is typically assumed that knowledge of the language system and meaning is necessary for chunking in relation to committing information to memory, it may not be absolutely essential. Chunking can be the result of perceptual relatedness too. Someone who knows nothing at all of the language, except the phonology and/or orthography,

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is obviously at a disadvantage (in terms of encoding and recall at will) as compared to a proficient speaker who can exploit natural sequential associations inherent in a language to form chunks. One can, however, use other cues to chunk and commit text to memory. Familiarity with the sound and structure of a language may be one such cue. In addition, features such as word-likeness, phontotactic similarity, and frequency of occurrence, also help in chunking and committing text to memory. Sounds that are chunked 'meaningfully' might be easier to articulate than sounds without any pattern. This study looks at the unique case of Quran memorization by people who do not know the language of the Book and are still able to correctly recite the text committed to memory over a long period of time. The study develops a theoretical perspective by exploring how memorizing in foreign language in general and the Quran memorization in particular works and what happens to the text over a period of time. The discussion is driven by two questions: According to current research knowledge, what would Quran memorizers have to be doing, in order to integrate the Quran text in long term memory? (b) Or, if it is not feasible that the Quran memorizers are able to do this, is it possible that the Quran is in fact not stored in long term memory?

2. Semantic Memory- the store house of knowledge

Different models of semantic memory (Collins and Quillian 1969; Rosch and Mervis 1975; Collins and Loftus 1975) show that knowledge in semantic memory is organized in conceptual terms, that is, LTM requires semantically-based storage. Given that the Quran memorizers have no access to the meaning of the text then it is reasonable to explore other possibilities which might facilitate the long term retention of the Quran text. Tulving's (1972) definition of semantic memory underscores the importance of the relationship between form and meaning. For words to be in semantic memory one has to have the knowledge of the meaning of words at the conceptual level, and the relationship and associations of the words to each other i.e. syntactic or grammatical knowledge. According to Tulving's view, 'words' empty of meanings would not be integrated in the mental lexicon. Also, information in semantic memory is part of integrated knowledge and does not need to be often rehearsed. However, Tulving's implicit definition of meaning is restricted to linguistic meaning and perhaps that is simply too narrow. That is, under different conditions meaning may include different things. The concept of form paired up with linguistic meaning may not be warranted under all conditions. Quran memorizers, for example, may pair up form with other kinds of 'meaning' such as location i.e. where it appears on the page, or what precedes it by or where and when it was learnt (Saleem and Umer 2021).

From the perspective of levels of processing (Craik and Lockhart 1972; Craik and Tulving 1975), there is certainly a possibility of remembering text over the long term in the absence of linguistic meaning. Processing of text at phonological and

orthographic levels might result in long lasting memory for the sound and visual features. Although the model of the levels of processing originally interpreted long term memory in terms of meaningful coding and integration of information into the already existing semantic structure, variations of the model and different interpretations of it have certainly indicated that under certain circumstances meaning in the narrow sense may not be paramount for long term recall. An obvious corollary of this line of argument is that one has to define the purpose of long term retention. If the target is to remember meaning, as is the case in most everyday settings, then all the cognitive efforts will be directed at remembering the meaning, and information will be semantically processed and elaborated. In contrast, if the objective is to remember the form, then all the cognitive efforts will be focussed on processing the surface features. This is in line with the theory of ‘transfer- appropriate processing’ (TAP) (Morris et al 1977), and the ‘encoding specificity principle’ (ESP) (Tulving &Thompson (1973), which entail that one remembers what one has stored, and retrieval is best when acquisition and test modes match.

Furthermore, in order to ensure a strong memory trace, it might be possible to encode text at various levels such as phonemic, graphemic/orthographic, syntactic, and semantic to make multiple representations at the same time. The advantage of having simultaneous multiple representations is that several routes are available to the learner to access the information: if one route fails, another is still available to retrieve it. The same rationale is behind the dual coding theory (Paivio 1986, 1991) which posits that dual coding is superior to single-coding as far as remembering information is concerned.

3. Where does the Quran text might end up in the long term memory?

In theory the Quran can get into semantic LTM, but how could we ascertain whether it really has? What would it look like? Is there a way to distinguish between text stored in, and drawn from, semantic LTM and text that is not? One way might be in relation to claims made about how LTM memories become consolidated and grow over time. Bolander (1989) reasons that “when the number of prefabs stored in memory is large enough, syntactic rules are derived as help for the memory to economize and rationalize processing” (p. 85). This means that in order to decrease the burden on the memory system, language data are restructured and reorganized according to grammatical rules for efficient processing. It implies that the language system including grammatical rules, could emerge as a natural by-product of memorization. The consequences of this claim are enormous for Quran memorization and the consequent emergence of language learning. If the Quran memorizers have such a large text in their long term memory, it might be possible for them to derive rules

from the stored text to streamline their memory. This puts us in a position to hypothesize that the Quran memorizers would have developed an insight into/awareness of pattern recognition of Classical Arabic (Saleem 2015; 2018a). If, on the other hand, the Quran memorizers fail to show any such ‘knowledge’, it would suggest that the text has not been integrated and reorganized along ‘grammatical’ lines in semantic long term memory and rather stays in some other part of memory. So where could it stay? Given the current literature on human memory, the alternative candidate for Quran storage would be STM. However, we have already noted that STM cannot hold the Quran because it is limited both in duration and capacity.

It can be suggested that the Quran text might end up in episodic long term memory. Episodic LTM contains information in multiple codes and depends on rehearsal for maintenance and retention (Saleem 2015), but unlike STM it requires less frequent and less regular rehearsal. That is, we don’t need to constantly rehearse information as with STM, but we also won’t remember it forever—usually because we don’t need to. We seem to have somewhere to store such information that will tide us over between recalls. Information in episodic LTM seems to be available for comparatively long intervals without becoming part of semantic long term memory because the conditions for semantic LTM are never met. As long as we access such information intermittently, we can remember it over the long term.

STM and LTM are two discrete memory stores with qualitative differences in that information needs to be reformulated and reorganized to stay in LTM. As far as episodic and semantic LTM are concerned, information is assumed to lie on a continuum i.e., from episodic to semantic memory. Instead of making a discrete store with qualitatively different material, episodic LTM makes a stage in formation of general long term memories. Information in episodic LTM is half way down on the road to semantic long term memory. In this way, episodic LTM may act as a bridge between STM and permanent memories.

In order to be able to recall the text, one uses several tentacles to hold onto it. Meaning, we know, is the strongest of all tentacles. But if the meaning tentacle is not there, the others need to be stronger and sturdier to ensure successful recall. The Quran memorizers might be using different tentacles, such as semantics (if they happen to know the meaning of the text), episodic memory (i.e. location and time of learning, people they were with, etc.), short term memory (i.e. repetition), sensory memory (sound, auditory, visuals, etc.) and associative memory (such as mnemonics, images, etc.) for encoding and retaining the text in memory (Saleem 2015; 2018b;2021). The memorizers’ successful retention and retrieval of the Quran text over time might thus be a result of these multiple means of grasping or holding on to the text. Different tentacles/hooks may be used to different degrees though. This idea

is consistent with models of learning based on frequency of exposure (Hopper 1987; Ellis 2002). Information in episodic LTM is in form of detailed episodes in multiple modalities (i.e. visuo-spatial, temporal, and phonological details). Unlike semantic LTM which is abstract and conceptual in nature, episodic LTM has been argued to store only minimally abstracted examples rich in details. This is what Taylor (2012) and Port (2007) say about the detailed nature of the mental lexicon. If their view is accepted, the notion of a discrete, reorganised LTM gets muddled. Episodic LTM offers a plausible explanation for the Quran memorizers' long term recall. The Quran memorizers manage to pack a huge amount of phonological material into memory which is hooked there using a range of associations that constitute 'meaning' in a broader sense than just linguistic meaning. The memorizers can recall it with 100% reliability over the long term. Successful and reliable retrieval of the text may be due to constant and regular rehearsal to strengthen the memory traces in episodic LTM—regular rehearsal results in lowering the activation threshold, making the text easily available and accessible. If so, couldn't the memorizers go beyond the phonetic code to transfer the text from episodic LTM to semantic LTM so that they can dispense with the constant rehearsal?

The research also suggests an alternative explanation to episodic memory: storage in procedural memory might make an extended text available to the learner as skilled knowledge. Such knowledge is performance based and lies outside the conscious awareness of the learner. It is possible that as a result of the memorizer's constant practice and rehearsal the Quran text is stored as proceduralized knowledge and they recall it automatically. However, if the knowledge is procedural, then, arguably, it falls outside the domain of linguistic investigation. For this reason, the present study focuses on linguistically-relevant options, but without excluding the procedural explanation.

In sum, we arrive at three competing explanations for Quran memorization: 1. It is stored in the mental lexicon. 2. It is stored in an episodic LTM with hooks other than standard meaning 3. It is stored in procedural LTM as an automatic skill. Explanation 1 requires some kind of 'semantic' aspect to memory and, as Quran memorizers do not understand the text, we have had to broaden the definition of 'semantic' to include other 'hooks' that are meaningful to the learner—essentially, mnemonic devices. However, such mnemonics may have to do with experiences in learning the text, which would make them episodic (explanation 2). Alternatively, the 'meaning' aspect may be incidental to the main process of learning—a temporary device that is discarded once procedural fluency has been achieved (explanation 3)—much as a learner driver needs to remember 'mirror, signal, manoeuvre' but only until the process has been ingrained and automatic. All three of these possible explanations for storage could entail a developing sensitivity to the shape of Classical Arabic, but make different predictions about how and why it would manifest: Explanation 1: Mental

lexicon The mental lexicon collects individual items, but organises them into patterns and networks, including semantic sets. Most grammatical theories accommodate the ability to separate off recurrent morphological material so that the root form can be used more flexibly. The morphological material itself is stored with a function/meaning, and rules for how it attaches to roots. Prediction: Quran learning would entail looking for opportunities to identify such patterns, so as to reduce the load on memory. Explanation 2: Episodic Long Term Memory Individual exposures to linguistic material build into memory traces that create frequency based knowledge of what is likely to occur in the future. Typically in learning a foreign language, there is incidental exposure to many inaccurate forms, as produced by the learner and others in a class. However, Quran learners have only minimal exposure to inaccurate forms. Prediction: Quran learners would have extremely accurate memory traces of the patterns into which the language falls, and therefore should be very much able to identify anomalous patterns that they have never previously encountered. Explanation 3: Procedural memory Memorization is a matter of motor training, through repetition. It will entail extreme sensitivity to rhythm and sequences: the ‘correct’ moves will be familiar, while ‘incorrect’ moves feel anomalous. Prediction: When a Quran learner reads aloud a sentence in Classical Arabic that involves a sound-sequence never produced before (that is, one that begins in a familiar way but continues in an unfamiliar way) he should be able to notice it (Saleem 2015; 2018).

4. Conclusion

This paper argues that if one just repeats and recalls information at the phonological and orthographic level, then it is shallow processing, and it doesn't last. Yet with Quran memorizers it does last. Why? A potential answer to this question could relate to the Quran memorizers' constant repetition practices. However, they neither repeat constantly (STM) nor never (semantic LTM), yet they repeat sufficiently to be comparable with what would, for other kinds of learning, lead to the laying down of permanent LTM traces. It should be noted that these three models proposed above are not as exclusive as they first seem. Researchers such as Port (2007) and Taylor (2012) propose that the mental lexicon (explanation 1) is actually the repository of traces from built up episodic memory (explanation 2). Meanwhile, procedural memory (explanation 3) can be recognised as inherent to the production of material from the mental lexicon and developed on the basis of individual episodes of practice. It has been suggested above that ‘meaning’ might include other hooks that the Quran memorizers may indeed be using. It can be argued that memorization needs to be conceptualized as a set of requirements that can be in different balances. While typical memorization entails both deep processing and regular (albeit not too frequent) repetition, one can get the same effect through not doing one and doing more of the other. In other words, if one doesn't have the deep processing, one can compensate by changing the regularity of the repetition, to what would be, with deep processing, non-optimal. If so, then we would be able to see differences in the memorization

practices of Quran memorizers who do and don't know modern Arabic. Although modern Arabic is not identical to Classical Arabic, it is certainly closer to it than languages like Pashto, Urdu and English which we might expect to offer learning advantages that reduce the memorization burden.

References

- Baddeley, A. (2010). Short-term memory. In Baddeley, A., Eysenck, M., and Anderson, M. (eds.) *Memory* (pp. 19- 40). Hove: Psychology Press.
- Bolander, M. (1989). Prefabs, patterns and rules in interaction? Formulaic speech in adult learners' L2 Swedish. In Hyldenstam, K., and Obler, L. (eds.) *Bilingualism across the Lifespan: Aspects of Acquisition, Maturity, and Loss* (pp. 73-96). Cambridge: Cambridge University Press.
- Collins, A. M., and Loftus, E. F. (1975). A spreading-activation theory of semantic processing. *Psychological Review*, 82 (6), 407- 428
- Collins, A. M. and Quillian, M. R. (1969). Retrieval time from semantic memory. *Journal of Verbal Learning and Verbal Behavior*, 8, 240-247.
- Ellis, N. (2001). Constructions, chunking, and connectionism: The emergence of second language structure. In Doughty, J. and Long, H. (eds.) *Handbook of Second Language Acquisition* (pp. 05-66). Oxford: Blackwell.
- Ellis, N. (2002). Frequency effects in language acquisition: A review with implications for theories of implicit and explicit language acquisition. *Studies in Second Language Acquisition*, 24, 143–188.
- Hopper, P. (1987). Emergent Grammar. *Proceedings of the Thirteenth Annual Meeting of the Berkeley Linguistics Society*, 139-157.
- Lockhart, R. S., and Craik, F. I., (1972). Levels of processing: a framework for memory research. *Journal of Verbal Learning and Verbal Behaviour*, 11, 671-84.
- Lockhart, R. S., Craik, F. I., and Jacoby, L. L. (1976). Depth of processing, recognition, and recall. In Brown, J. (ed.) *Recognition and Recall*. London: Wiley.
- Morris, D., Bransford, J. D., & Franks, J. J. (1977). Levels of processing versus transfer appropriate processing. *Journal of Verbal Learning & Verbal Behavior*, 16, 519–533.
- Paivio, A. (1986). *Mental Representations: a Dual Coding Approach*. Oxford: Oxford University Press.
- Paivio, A. (1991). Dual coding theory: Retrospect and current status. *Canadian Journal of Psychology*, 45 (3), 255-287.
- Port, R. F. (2007). How are words stored in memory? Beyond phones and phonemes. *New Ideas in Psychology*, 25, 143–70.
- Rosch, E. and Mervis, C. B. (1975). Family resemblances: studies in the internal structure of categories. *Cognitive Psychology*, 7, 573-605.
- Sinclair, M. (1991). *Corpus, Concordance, Collocation*. Oxford: Oxford University Press.
- Taylor, J. R. (2012). *The Mental Corpus*. Oxford: Oxford University Press.
- Saleem, A. (2015). *Does memorization without comprehension result in language learning?* PhD thesis, Cardiff University, UK.
- Saleem, A. (2018a). Formulaic memorization as barrier to language learning. *Kashmir Journal of Language and Research*, 21 (1), 11-27.
- Saleem, A. (2018b). Memorization without comprehension: a window onto the 'Extremities' of the capability of human brain. *Al-Idah*, 36 (1), 25-40.
- Saleem, A., & Umer, M. (2021). Memory for Text: The relationship between form and meaning. *Global Language Review*, VI (II), 24-29
- Tulving, E. (1972). Episodic and semantic memory. In Tulving, E. and Donaldson, W. (eds.) *Organization of Memory* (pp. 381-403). New York: Academic Press.
- Tulving E., Thomson D. M. (1973). Encoding specificity and retrieval processes in episodic memory. *Psychological Review*, 80, 352–373.