AL-QALAM القلم
ISSN 2071-8683 E-ISSN 2707-0077
Volume 25, Issue, 1, 2020
Published by Institute of Islamic Studies,
University of the Punjab, Lahore, Pakistan.

A Study of Language Dependent Recall in Bilinguals

i. Tamkeen Zehra Shah
ii. Ubaidullah Qazi
iii. Saadia Fatima
iv. Amer Akhtar

i. Department of English, Foundation University Islamabad (FUI), Islamabad, Pakistan
tzehras@gmail.com
ii. Department of English, Foundation University Islamabad (FUI), Islamabad, Pakistan
ubaid.qazi@fui.edu.pk
iii. Department of English, Foundation University Islamabad (FUI), Islamabad, Pakistan
iv. Affiliation: Assistant Professor, Department of English, Foundation University Islamabad (FUI), Pakistan

Abstract

The theory of language dependent recall posits that retrieval from memory is facilitated when the language employed during recall coincides with the language of encoding. This theory presupposes the linguistic encoding of events. The present research takes a divergent view, proposing instead that events stored in episodic memory lose their linguistic relevance over time and are instead encoded in a conceptual language, a Language of Thought (Fodor, 1975). In such case, both the language systems of a bilingual should be able to access this conceptual base with comparable ease irrespective of the language of encoding. To test this hypothesis, the research elicited autobiographical accounts from Urdu-English bilingual subjects who had an equivalent level of proficiency in both languages. Each participant narrated two anecdotes: one was recounted in the same language as the contextual language of encoding while the other was related in the bilingual's alternate language. The accounts were analyzed quantitatively as well as qualitatively along five parameters. The findings of the study are consistent with other renowned theories in linguistics and have implications for the organization of memory in bilinguals. The study also sheds light on the role of inner speech in encoding and furthermore provides evidence for the cultural specificity of language.

Introduction

This research project attempts to explore whether events stored in long-term memory experience retrieval differently depending on which of the two known languages a bilingual participant uses to speak about them.

The research is an effort to determine the role of ambient linguistic context in the encoding and retrieval of event-centric memories. It focusses on bilingual subjects, whose episodic or autobiographical experiences emanate from two different linguistic environments. The

alternating exposure a bilingual receives to two languages presumably provides the individual not just with two different sign-systems for recording memories, but with two different cultural frames coded in the respective language, each of which serves to represent and rationalize events to the bilingual speaker in a particular way. In view of such differentiation of experience owing to language, it becomes a matter of interest to investigate how effectively bilinguals are able to access and integrate their past experiences when they attempt to recount them in their other language which was absent from the context of an event when it occurred.

Therefore, this research undertaking specifically seeks to ascertain whether bilinguals are equally adept at recollecting an episodic memory in both of the known languages, irrespective of the language of encoding, or whether their recall is dependent on coincidence between the language of encoding and that of recall.

Although existing literature seems to suggest a necessity for such a coincidence in order to facilitate recall, the present research takes a diverging perspective in light of some striking observations, and questions the very premise that episodic memory is configured to a linguistic arrangement.

The theory of language-dependent recall presupposes that linguistic data pertaining to an autobiographical event is encoded and retained in long-term memory. The present research contests this view, positing instead that events in long-term memory lose their linguistic relevance. To illustrate, the researcher has observed that even for explicitly linguistic events, one is unable to remember the lexical and syntactic structures involved after a certain period of time has elapsed. For instance, four years down the line, it is difficult to recall any aspect of the wording of an essay encountered in the first semester of MA, even though the essay had been read and scrutinized intensively for a presentation. What survives in memory instead is some general drift of the meaning. Similarly, in our context of societal bilingualism where code-switching between Urdu and English is the norm, one frequently encounters quips or witticisms in either language that become salient in memory for their humor or intellectual worth. However, it is noteworthy that although the meaning of the utterance persists in memory, one is often not able to remember which of the two languages was used to verbalize it. In support of these observations, the Stanford Encyclopedia of Philosophy states that linguistic processing involves "the successive elaboration of myriad representations (of various types: phonological, lexical, syntactic, etc.) of the stimulus, but of these only the final product—the representation of the meaning of what was said—is consciously available."

If linguistic details cannot be recalled about events that are explicitly linguistic in nature, it is reasonable to posit that for autobiographical events which occurred well in the past and where language formed only the context, the linguistic relativity would be even weaker, if not non-existent. Instead of a verbal encoding of events, our observations seem to suggest that such events take on a semantic encoding in a non-verbal representation. Such an encoding is advocated by Fodor's Language of Thought Hypothesis (LOT). Using its reasoning, it can be assumed that non-verbal representations of thought would turn into long-term memory when neural pathways within this representation system endure over time.

If the contents of episodic memory are not really verbal, then the recall of long-term memories should not be language-dependent. For an individual who is equally proficient in two languages, memories in long-term storage should be just as accessible to one system of

language as they would be to another. This is precisely the underlying hypothesis of the present research, which it aims to test.

Literature Review

For effective recall, the need for an equivalence between the linguistic context of encoding and retrieval was first suggested by Tulving and Thomson's Encoding Specificity Principle (1973). The principle theorizes that generally, the recollection of an event depends on the 'overlap' between the surrounding context present at memory-formation and at retrieval. In other words, memory recall is triggered by the similarity between input and output conditions. Such conditions imply circumstances ranging from internal, emotional states, to tangible conditions of the environment. The principle is readily observable in everyday life. For instance, individuals often report that certain odors evoke memories from the past. It is also a common phenomenon that a revisit to a place after a long time vividly brings back details of the first visit, which could not be recalled in a different setting. Research efforts have also experimentally manipulated physical contexts to test their effects on recall. Godden and Baddeley (1975) tested context-dependency by asking divers to listen to two word lists, one on land and one underwater. It was found that words heard underwater were recalled better in the same environment than in the alternative one, and similarly for the words learnt supra-terrestrially.

Although Tulving's experiment used linguistic cues rather than environmental stimuli to induce recall, and the context for a cue consisted of its semantic 'sense' rather than the physical environment, he extended the explanatory reach of his theory to include a broader view of context and the role of non-linguistic contextual cues in triggering recall. Also, Tulving worked within a unilingual framework. Applying his general 'principle' to the language use of bilinguals, subsequent research in the area has reasoned that if a certain language forms one aspect of 'context' surrounding an event, a memory of the event would be more easily retrieved if one were to attempt recounting it in the same language in which it was initially stored. The linguistic interpretation of context and the bilingual focus has served to transform Tulving's principle into the more specialized theory of *language-dependent recall*.

Most of the research that has proven the language-dependency of recall has dealt with information in short-term memory that had explicit linguistic content, such as academic material taught to bilingual participants in one language so that their immediate performance could be tested in both of the known languages. Marian and Fausey (2006) exemplify this approach. Their study proceeded to teach academic information on History, Mythology, Biology and Chemistry to Spanish-English bilinguals in both the languages, and concluded that recall of the information was more effective in the same language as was used to teach the content. However, in such an arrangement that utilizes short-term memory and explicitly linguistic data, it is foreseeable that receptive input in one language would lead to more effective productive output if the output occurs in the same language.

Encoding specificity and language-dependency of recall would be better tested with respect to events naturally residing in long-term memory. Such events might not contain explicit linguistic content, but language would have formed the ambient 'context' of encoding, which was Tulving's interpretation of context in the first place. Marian and Neisser (2000) state that

very little work has been done to explore the role of language in 'episodic' or 'autobiographical' memories of this kind, and attempt to do so in their experiment with Russian-English bilinguals. The present study addresses this concern also by focusing only on long-term episodic memory and autobiographical accounts.

However, the present research differs from the study on autobiographical/episodic memory by Marian and Neisser (2000) on an important metric. Marian and Neisser provided prompts in each of two languages (Russian and English) to their bilingual subjects and discovered that participants responded with anecdotes from a period in their lives when the dominant language was the same as that of the prompt. Yet their method entailed a problem - it did not rule out the possibility that the language-specific prompts could in fact bias the response of the subjects, encouraging them to make a selection of anecdotes that pertained to a particular time period indicated by the prompt. Thus their study only proves that language serves to classify memories – that language is one piece of metadata about the memory itself, along with temporal, cultural and environmental data. The research does not prove or disprove the linguistic encoding of the event as such. In order to prove linguistic encoding and the resulting language-dependency of recall, it would be necessary to prove how well or how vividly a memory is recollected in a particular language. In parallel, one would also have to prove that past events pertaining to one language cannot be recalled as easily in the other language.

Marsh et al. (2015) corroborate this concern to account for the vividness of recall in the original language of the memory as well as the alternative language. They attempt to demonstrate vividness of recall in Spanish-English bilinguals by calculating, for every narrative, the ratio of the total nouns, verbs and adjectives used to the total number of tokens. The ratios are calculated for both narratives by an individual, one in each language, and compared. The study concludes that recall was more vivid when the language of encoding and retrieval matched, favoring the language-dependency effect.

The present study uses a research arrangement similar to that of Marsh et al. (2015) to determine vividness of recall in both languages available to a bilingual, recognizing this as the key factor in differentiating between possible linguistic tagging or classification of autobiographical memories, and actual linguistic encoding, which would be a prerequisite for language-dependent recall.

In the event that language-dependent recall is unable to be proven, we would need to take recourse to some alternative theory to explain observed outcomes. The Language of Thought Hypothesis (Fodor 1975) and Hassan and Aziz (2019) provide such a substitute. It refutes the claim that thought or memory has verbal content. It posits instead that thought in the human mind consists of a non-verbal representation, a symbolic language, which involves its own syntactical and logic operations that form the thinking process. However, the representations are mapped to lexical counterparts when efforts are made to express oneself. Fodor's theory seems to hold special relevance to episodic/autobiographical memory, as it posits that thought-representations are dependent on an individual's propositional attitude towards that representation, such as "believing, desiring, hoping, wishing, and fearing," which are "relations between a subject and a mental representation" (Internet Encyclopedia of Philosophy). Since all autobiographical experience involves a personal interpretation and stance in relation to perceived events, we presumably see Fodor's "propositional attitude" at play in the domain of

thought that is episodic in nature. Since this theory does not support the view that thought or memory is verbal, it implicitly negates the possibility of language-dependent recall.

The polarization between Fodor's theory and that of Tulving and Thomson can be reconciled somewhat through existing models of bilingual memory described in available literature, which provide middle-ground. These models predate the aforementioned theories, essentially postulating that memory has both a verbal and a conceptual component.

Weinreich (1953) proposes the compound model and coordinate model for memory. In the compound model, the bilingual speaker supposedly uses two linguistic signs for the same referent, or expresses the same concept in two modes. In the coordinate model, the verbal signs as well as the concepts are separate sets for each language. Ervin and Osgood (1954) elaborate that the compound model is possibly evidenced when both languages are learned together in the same settings, such as the school or home, and the languages acquired in accordance with the compound model would likely experience interference. On the other hand, the authors are of the opinion that the coordinate model would grow out of a situation where the two languages are learnt in culturally or environmentally different contexts. The two sets of referents of the coordinate model would, theoretically speaking, enable the two languages to be kept separate.

With reference to the research area of the present study, it is possible that bilinguals who acquired their two languages in culturally distinct contexts in a configuration predicted by the coordinate model might experience the language-dependency effect, as in their case, their languages would presumably be related to two completely different sets of experience which have their own cultural imprint that might not find expression in the alternative language.

All of such possibilities deserve to be further investigated, as they each seem to be partly supported, at least in theory, by existing literature.

Research methodology

This is a qualitative, empirical study that utilizes autobiographical narratives elicited from bilingual participants in order to make a comparative analysis based on specified criteria (explained below).

Procedure

Each participant was asked to select either the L1 or the L2 linguistic context of past experiences, and relate two anecdotes pertaining to that context, one in Urdu and one which would use English. To control for memory attrition, the participants were required to provide both narratives from roughly the same period of time in the past.

The narratives were recorded using a digital recording device after prior consent had been obtained from the participants. The participants were assured of complete confidentiality of their narratives and were informed that only the analyzed attributes about the narratives would be reported. After participants had finished with both the narratives they were individually supposed to recount, the researcher elicited their judgements on whether they were able recall memories in both English and Urdu equally well, or whether one language performed better in the recall task. Then, each participant was asked to identify whether the chosen linguistic context of the anecdotes was Urdu or English. In this way, a participant's data set consisted of

one narrative whose encoding language matched the language at retrieval (Urdu context + Urdu narrative or English context + English narrative), and one narrative whose encoding language differed from the language at retrieval (Urdu context + English narrative or English Context + Urdu narrative).

The recordings were later transcribed so as to aid the researchers in verifying the personal judgements of the subjects along specific parameters. There parameters were the *length of the narrative, emotional intensity, the number of direct quotes used, fluency* and *lexical density*.

The first two of these parameters, i.e. *length of the narrative* and *emotional intensity*, are found in Kaushankaya and Marian (2007) as a measure of how vividly a memory is recalled. According to the authors, vividness is signaled through the elaborateness of the account as well as the emotional involvement of the subject in recounting it. The next two variables, constituting *the number of direct quotes* and *fluency* respectively, were deemed important variables by the researchers in determining vividness of recall. The fifth parameter, *lexical density* was adopted from the study by Marsh et al. (2015) and Hassan and Dzakiria (2019), where it constituted the ratio of the total nouns, verbs, and adjectives used to the total number of words in the narrative.

In the present study, the length of each narrative was determined in the form of a word count.

Emotional intensity of each narrative was subjectively assessed by the researchers. Narratives in which the participants seemed deeply involved and where they expressed emotions such as joy, excitement, fear, anger or injury scored higher on emotional intensity. Emotionality was detectable not just through the choice of words used but through fluctuation in the tone of voice as well. Since the narratives for the two languages had to be compared for emotional intensity, they received a relative value, i.e. “Less intense” for the narrative exhibiting lesser emotional intensity and “More intense” for the counterpart narrative. If both were at par, then a value of “equally intense” was awarded to both.

The number of direct quotes used constituted a discrete variable whose value was determined by a simple count.

Fluency was again subjectively assessed by the researcher. Fluency was rated on two aspects: temporal fluency, which is indicated by how smooth and continuous the rate of speech is with respect to time, and dysfluency markers, such as trivial fillers, redundant expressions and false starts. The audio recordings were assessed to see if any one language induced longer pauses or dysfluency states, which would be an indicator of impeded recall. Again, comparative values of “more fluent”, “less fluent” or “equally fluent” were allotted.

Lexical density was calculated as a proportion of total number of nouns, verbs, and adjectives in each narrative to the total number of tokens. The count was done manually as the error rate of POS tagging software is too high to be able to give acceptable results for the limited length of the narratives under scrutiny. Also, currently there is no POS tagging software available for the Urdu language.

Participants

The subjects of the study were Urdu-English bilinguals of Pakistani origins.

The present research required responses from balanced bilinguals only, whose language skills in both of the known languages were comparable. Equivalence in skill level was surmised to be able to control for variation in responses that might not be due to language-dependency of recall, but may arise due to differing levels of comfort or confidence in speaking the two languages if one language is more dominant.

Instead of using language proficiency test scores to determine an equivalence in skills, the study approached individuals who had availed higher education in a system which used English as the medium of instruction, and who were currently employed as professionals in their field, which enabled them to make regular use of both English and Urdu at the workplace. Two of the participants were English teachers in higher education, one was a software engineer, one was a practicing lawyer who had studied Law in the UK, and one was a financial analyst living in the UK. In all, there were five participants, three of them female and two male. Of these, three had lived outside Pakistan and could provide narratives from a non-Urdu social context.

The age of the participants fell within the bracket of 26-45 years.

Sampling

The participants were selected through judgement sampling, as the researchers needed to identify individuals who fulfilled the educational and professional criteria stated above.

Data analysis

The data obtained was tabulated as under:

Participant 1

Context – predominantly Urdu

Participant's Judgement – The participant intimated that she was able to relive the entire experience in both the languages, and could practically visualize the incidents exactly as they had happened. For her, both languages served equally well to recall the original incidents.

	English Narrative	Urdu Narrative
Length	610 words	458
No. of direct quotes	7	8
Emotional intensity	equally intense	equally intense
Fluency	equally fluent	equally fluent
Nouns	141	73
Verbs	97	47
Adjectives	26	23
Lexical density	0.432	0.461

Analysis: The participant's own judgement is supported by the attributes of the narratives tabulated above. The two narratives are comparable in all respects except for the length, as

the English narrative was more elaborate than the Urdu one. Since one variable alone is an insufficient indicator of any substantial difference between the two narratives, it can be concluded that this case does not support the theory of language-dependent recall.

Participant 2

Context – English, residence in UK

Participant's judgement – She thought she was able to relate the English narrative better. The Urdu narrative had used too many English terms.

	English Narrative	Urdu Narrative
Length	756 words	1043 words
No. of direct quotes	4	1
Emotional intensity	more intense	less intense
Fluency	more fluent	less fluent
Nouns	191	202
Verbs	113	144
Adjectives	53	56
Lexical Density	0.472	0.385

Analysis: The English narrative described an academic event which involved linguistic exchange in English. Although this was the shorter narrative of the two, it was very descriptive and rendered in great detail with remarkable fluency. The higher lexical density also attests to the descriptiveness of this account.

For the Urdu narrative, the participant chose to speak about inner feelings and cultural inhibitions at another University event. An important issue surfaces here: in determining language-dependent recall, apart from the language of the environment, the language of inner speech at the time of encoding must also be taken into account. In this case, since there was a mismatch between the contextual language (English) and the chosen language of recall (Urdu), the participant subconsciously selected an incident which had been filtered through an inner state created by the native culture and language, even though the incident was contextually an "English" event. The participant found it convenient to express in Urdu thought processes that were specific to the native Pakistani culture. These thoughts can be presumed to have a certain amount of linguistic content, or else they would not have been preferred for narration in Urdu. This finding seems to suggest that the language of encoding consists of more than just the ambient language of the surroundings; it also includes the language of inner speech, which may be the more salient language of the two. Larsen et al. (2010) and Hassan and Dzakiria (2019) also discovered that the language of inner speech is tied to cultural contexts that have been cognitively internalized over a length of time, and aids recall when it is matched by the language of retrieval.

Participant 3

Context: Childhood memories abroad in a bilingual context.

Participant's Judgement: The participant was able to point out the effect of inner speech himself. He explained that although his first language was Urdu, both the narratives were

"coming" to him in English, and one had to be "turned into Urdu" with significant effort. He further elaborated: "I think I do better justice to my memories when I think about them in English, if I recall them in English or narrate them in English. And perhaps that's just down to vocabulary and command over the language. But I feel it's a little bit more than that being able to think about those memories in English, translate them in my head even if they were made in Urdu, those things that were all those years ago said in Urdu….being able to process all of that in English, I feel that the memories become more vivid. I can retain them for longer and make better sense of them."

	English Narrative	Urdu Narrative
Length	401 words	332
No. of direct quotes	1	2
Emotional intensity	more intense	less intense
Fluency	more fluent	less fluent
Nouns	89	73
Verbs	62	47
Adjectives	28	23
Lexical density	0.446	0.431

Analysis: The participant's own judgement is supported by the data obtained. The narrative in Urdu was not only shorter, and lacking in emotional intensity, it also contained unnatural expressions which seemed like translations from English. Although the contextual language of encoding was a uniform mix of both Urdu/Hindi and English, retrieval was more effective in English than in Urdu. This can possibly be attributed to the fact that the bilingual uses inner speech in English to rationalize his experiences. As in the case of the previous participant, it can be surmised that recall is facilitated when the language of inner speech and the language of retrieval coincide.

Participant 4

Context: Predominantly Pakistani/Urdu

Participant's judgement: He felt he could recall both incidents with ease.

	English Narrative	Urdu Narrative
Length	414 words	213 words
No. of direct quotes	3	0
Emotional intensity	more intense	less intense
Fluency	less fluent	more fluent
Nouns	81	47
Verbs	59	23
Adjectives	17	16
Lexical density	0.379	0.404

Analysis: For the Urdu narrative, the subject chose to narrate an experience of being at one with nature, which did not involve any explicit linguistic content. The English account

pertained to the workplace, which formed a more bilingual context. Here, we see a subconscious effort by the subject to match the language of retrieval, even if marginally, with the language of encoding. This effort is likely to be more than just coincidental, being indicative of some relationship between linguistic conditions of storage and retrieval. However, it is difficult to say categorically if any one language fared better in retrieving information. The English narrative scored higher on emotional intensity, elaborateness and details such as verbatim quotes, while the Urdu narrative was more fluent and consisted of more compact and lexically dense sentences. It seems that the participant's own judgement must be taken at face value, that both languages served equally well to recall events which took place in a predominantly Urdu context.

Participant 5

Context: Urdu

Participant's judgement: The participant thought both her narratives were recalled with equal vividness.

	English Narrative	Urdu Narrative
Length	560 words	850 words
No. of direct quotes	4	0
Emotional intensity	Equally intense	Equally intense
Fluency	Equally fluent	Equally fluent
Nouns	140	152
Verbs	103	118
Adjectives	25	27
Lexical density	0.479	0.349

Analysis: Again, this participant does not prove language-dependency of recall one way or the other. Although the Urdu narrative was lengthier, the English narrative included direct quotes and had a higher lexical density. Both narratives exhibited an equal degree of fluency and emotional involvement.

Conclusion

This study concludes that the recall of memories seems to be language-dependent in balanced bilinguals where their two language systems are tied to two separate cultural and environmental contexts. It was predicted earlier in this research that the coordinate model of bilingual memory (postulated by Weinreich), which is supposed to stem from exposure to two different cultural contexts and contain separate referents for the two language systems, would be likely to experience language-dependency effects. In such a model, each language is linked to its own set of culturally-specific experiences which might not lend themselves to definition in another language as readily. Any experience to be recounted would be so compartmentalized in its own individual environmental, cultural and linguistic frame that the alternative language would experience difficulty accessing it. Such a case has been borne out by the present study with reference to Participant 2, who could recount an exclusively "English" memory better in English, and could use the Urdu language only to speak of her

culturally-determined feelings in reaction to another "English" event. In a way, this finding indirectly supports the Whorfian Hypothesis, but in a reversed manner. Although Whorf claims a direct effect of language on thought, this research expands that relationship to state that *thoughts are culturally framed and respond to the language that embodies the culture.*

For all the other participants, whose two languages were in use within the same cultural context (i.e. both their languages used the same set of referrents), recall of a certain memory did not seem to depend upon a match between the language of encoding and that of retrieval. This can be explained through the compound model of Weinreich (1953). When two language systems are mapped to the same set of referrents, they are both able to access those referrents with ease. Even if a certain context is experienced in one particular language, the fluidity of a bilingual's language system and the practice in using the two languages interchangeably for expression enables him or her to recall context-specific events equally well in either language. Here, encoding-specificity seems to become irrelevant as concerns recall. If Fodor's Language of Thought is seen as equivalent to the "referents" or conceptual-base of an individual, we find that this conceptual system "speaks" to both languages.

It was also a notable finding of this study that where a bilingual resorts to one particular language of inner speech to filter experiences related to either language, the language of inner speech will be the one to facilitate recall of any event, irrespective of the language of the contextual environment.

References

Fodor, J. A. (1975). *The language of thought*. Harvard University Press.

Godden, D.R., & Baddley, A.D (1975). *Context-dependent memory in two natural environments: on land and underwater*. British Journal of Psychology, 66(3):325-31.

Hassan, M.U. and Dzakiria, H. (2019). The University Students' Beliefs towards Corrective Feedback in Learning English as Foreign Language in Pakistan. *International Journal of Recent Technology and Engineering, 8* (3), 4094-4100.

Hassan, M.U. and Dzakiria, H. (2019). Pakistani EFL Adult Learners' Beliefs towards Corrective Feedback in Cooperative *Learning Strategy. Journal Social Sciences Research*. *S-5,* 749-753.

Hassan M.U and Aziz, A.A. (2019). Investigating the use of Computer Technology for E-learning in Pakistani Maddaris: Case of Religious Teachers. *International Journal of Distance Education and E- Learning, 5* (1), 44-56.

Kaushanskaya, K., & Marian, V. (2007). *Language context guides memory content.* Psychonomic Bulletin Review, 14(5):925-33.

Katz, M. (2017, Apr 28). *The language of thought hypothesis*. The Internet Encyclopedia of Philosophy, ISSN 2161-0002. Retrieved from http://www.iep.utm.edu

Larsen, S. F., Schrauf, R. W., Fromholt, P., & Rubin, D. C. (2010). *Inner speech and bilingual autobiographical memory: a Polish-Danish cross-cultural study*. Memory, 10(1):45-54.

Marian, *V.,* & Fausey, C. M. (*2006*). *Language-dependent memory in bilingual learning*. Applied Cognitive Psychology, 20(8), 1025-1047.

Marian, V., & Neisser, U (2000). *Language-dependent recall of autobiographical memories.* Journal of Experimental Psychology, 129(3):361-368.

Marsh, B. U. (2015). *The language dependent recall effect influences the number of items recalled in autobiographical memory reports.* Journal of Cognitive Psychology, 27(7):1-15.

Tulving, E., & Thomson, D. (1973). *Encoding specificity and retrieval process in episodic memory.* Psychological Review, 80(5):352-373.

Weinreich, U. (1953). *Languages in Contact*. New York: Linguistic Circle.