

INFLUENCE OF LANGUAGE EXPOSURE ON MENTAL LEXICON

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Abstract

The present study highlights the relationship between English language exposure and lexical access with L2 mental lexicon. It also explores the factors which influence the L2 mental lexicon. For this purpose, the Bilingual Interactive Activation Model (Dijkstra & van Heven, 2002) is used as a theoretical framework to analyze the L2 mental lexicon of ESL (English as a Second Language) learners at the Intermediate level. Furthermore, the quantitative approach and correlation research design were utilized to investigate the association between English language exposure to formal education and self-practices in familiar and unfamiliar words, i.e., lexical words and non-words. One hundred ESL learners of intermediate levels were selected from five selected colleges using a non-probability convenience sampling technique. The results implicated a moderate positive association between formal education of English language exposure and lexical access to familiar words. However, the self-practice activities of English language exposure showed the strongest correlation and lexical access to familiar words. The findings show that traditional methods of activating words in the L2 mental lexicon are insufficient. The study concluded that it is quite helpful in learning and teaching distinct ways to improve the process of retrieval by exploring the influencing factors of the L2 mental lexicon.

Keywords: L2 Mental Lexicon, Lexical Access, English Language Exposure

Introduction

Lexicon plays a crucial role in the acquisition, comprehension, and retrieval of second language learning (Kavitha & Kannan, 2016). Xue's (2020), study asserts that the mental lexicon developed from the emerging field of psycholinguistics, which is interested in the permanent memory of the brain. Hulstijn, (2000), denotes the memory system in which a large number of words are assembled, and retrieved over a period of time. The mental lexicon is a broad and complex word store dictionary of the human mind (Aitchison, 1994). Colheart et al., (2001) assert that the term mental lexicon was first used by cognitive psychologist Treisman in 1961. Likewise, McCarthy (1990) finds that the mental lexicon works like a library, computer, encyclopedia, and word book. The nature of mental lexicon is dynamic and flexible as the lexicons continue to develop to form a network (Peppard, 2007). Knowledge of the mental lexicon is modified constantly due to the addition of new words, existing words are associated in a new way, and inactive words are often lost (Altmann, 2001). According to Wolter (2006), there is a strong influence of L1 in developing L2 mental lexicon. The L2 mental lexicon deals not only with how words are represented in the mind but also with how they are retrieved during writing (Rothman, 2009).

Lexical access is the process that deals with how the words are retrieved in permanent memory for instance, when an individual hears or encounters a word like black, the related knowledge about the given word for instance, phonological, syntactic, semantic, and morphological is activated in ESL learner's mental lexicon (Carroll, 2007). Lexical access is a significant linguistics skill that enables an L2 learner to transfer internal concepts into articulated words (Levitt, 1999). Lexical access depends on various attributes of lexeme like frequency, and age of acquisition of L2 learner (Hanulava, Davidson, & Lndefrey, 2011). Several variables can influence lexical access to the L2 mental lexicon such as; English language exposure, lexical ambiguity, syntactic concept, and morphological complexity (Carroll, 2009). Benson (2001) defines language exposure as a sort of learning activity outside the classroom in a natural context, and it also concerns self-pedagogy, self-improvement, and self-direction of L2 learners.

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Language exposure to English language plays a crucial role in learning English as a second language (AI Zoubi, 2018). Researchers investigated the language exposure of Spanish learners by using a questionnaire (Fernandez and Schmitt 2015). Bruin (2019) claims that it is an effective approach to finding out the age of acquisition, Language proficiency, and exposure of L2 learners. Recent studies like Roux (2013), Zhang and Liu (2014), He & Deng (2015), and Pranoto & Afrilita (2018) have examined the mental lexicon to highlight recent developments. Despite extensive research on L1, and L2 mental lexicon studies, however, there is a lack of understanding about the relationship between English language exposure and the lexical access of ESL learners at the Intermediate level.

The current study aims to investigate not only the relationship between English language exposure and L2 mental lexicon but also what are the factors that influence the L2 mental lexicon of ESL learners at the Intermediate level by contributing to the developing field of psycholinguistics. It is further crucial as it utilizes the Bilingual Interactive Activation Model (Dijkstra & van Heven, 2002) to examine the correlation between English language exposure and words and non-words in the L2 mental lexicon of English learners by using a Lexical Decision Task. Besides, it is quite helpful for L2 learners and English practitioners to adopt new psycholinguistic approaches to overcome lexical ambiguity and enhance their exposure of second language learning. In order to address the phenomena three research questions are formed which are given as below:

- i. How does English language exposure to formal education and self-practices influence the lexical access of familiar words in the L2 mental lexicon at the Intermediate level?
- ii. How does English language exposure to formal education and self-practices influence the lexical access of unfamiliar non-words in the L2 mental lexicon at the Intermediate level?
- iii. What is the difference between the English language exposure of formal education and self-practices in the lexical access of words and non-words at the Intermediate level.

Literature review

Learning a second language involves the complex processes of accessing words within the mind of an L2 learner. Jiang (2000), illustrates the importance of developing new theories to analyze and show the association between language acquisition and processing in second language learning. In addition, various researchers investigate the mental lexicon distinctly. Traditionally, this field is concerned with three main areas of language such as; acquisition, production and comprehension of language. Early psycho-linguists explain language comprehension and production according to the rules argued by linguists (Foster, Bever, & Garrett, 1974). However, modern psycholinguistics deals with the use of linguistic knowledge and the cognitive processes involved in language storage, and retrieval. In addition, it also explores different experimental paradigms such as semantic priming and experimental tasks to analyze the learning of second language learners. Hence, the field of psycholinguistics which is an emerging field of cognitive sciences that explore the relationship between psychology and language, also laid the foundation and development of modern psycholinguistics.

Several researchers explore different models of lexical access. For instance, Forster's model (1976, 1979), focuses more on the orthographic and phonological properties of a word. However, the logogen model focuses more on the sensory input and contextual information to retrieve a certain word. The lexicon is the essential link in the processing of a language and it consists of three stages of lexical access. The first one is accesses, the second one is selected and the last one is integration. As in the first stage, all the lexical candidates related to a particular word are activated which is also known as the word-initial cohort. Then, one item is

selected for further analysis. However, this process continues until the final item is interwoven according to the semantic and syntactic context (Cohort's model, 1989).

The Interactive Activation Model (Rumelhart, and McClelland, 1981), consists of four levels to the lexical access of a word such as features, letter, and word, and each level consists of units. The first layer elaborates on the features of the letter, the second one explains the individual letters and the last one represents the word representation. For example; in the words see /s/, /i:/, the initial layer comprises orthographic features of the letter like how it represents visually. Then, it elaborates the further individual letters and also activates the other competitive neighbor nodes of the letter as well such as; saw, sleep, etc. In addition, the third layer focuses more on the word and then language level as the activation is spread throughout the whole network. Thus, the word see is activated, selected, and integrated from the other ones due to it comprises the strongest activation features related to the term in the mental lexicon of ESL learners. Then, the Bilingual Interactive Activation Model (Dijkstra & Heven, 2002), the updated version of the Interactive activation model focuses more on the lingual rather than the monolingual interactive activation model. Besides, it explains the interference of two languages in the processing of lexical activation in L2 mental lexicon due to distinct phonological and other dimensions of a word.

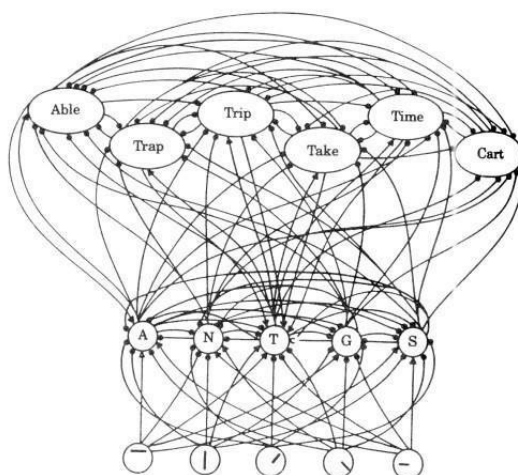


Figure: 2 *Illustration of Interactive Activation Model*

Note: Representation of Interactive Activation Model (Rumelhart, and McClelland, 1981)

Sequin, (2015) studied the relationship between word association and learner's vocabulary acquisition between American L1 and Croatian L2 learners. Likewise, the study by Keuleers, et al. (2015) examines the factors affecting the size of vocabulary of L2 learners. Besides, the study was conducted by Lehmann (2019) to investigate the models of mental lexicon such as; Morton, Logogen, and Cohort model, and highlights different approaches related to lexical processing, and mental lexicon. The study by Ly & Jung (2013) draws a contrast and examines the lexical-semantic relations of L1, and L2 in the L2 mental lexicon.

The study by Haman et al, (2020) explored the processing in lexical access of monolinguals, and bilingual children. Moreover, it illustrates the various factors such as; the age of acquisition, image-ability, and frequency in the lexical access of a word. Furthermore, this study utilizes picture recognition and picture naming tasks, and results show that these factors influence the response rate of both monolinguals and bilinguals. The responses collected from respondents displayed that the percentage of bilinguals is more influenced in contrast with monolinguals in characteristics of a word. However, this study provides a new direction for scientists and scholars to investigate how monolinguals and bilinguals show

responsiveness towards approaches of psycholinguistic factors and how it changes with the age, and language exposure of native, and L2 learners. El- Dakhs, (2015) investigated the English language exposure and collocational competence in L1, and L2 lexicons for native speakers of English and Arab EFL (English as a foreign language) learners. Domingo (2020), explored that English language exposure plays an essential role in learning a second language. The findings showed the mean scores of higher English language exposure levels were 92, moderate (73), and lower level (41) learners at Visaya State University.

Despite its significance as a global phenomenon, L2 mental lexicon has not yet received much awareness in the context of Pakistan. However, there is a deprivation of research on the L2 mental lexicon of ESL and how the interference of the first language (Urdu or Punjabi) creates difficulty in the lexical access of the English language. This study provides significant ways to explore the relationship between English language exposure and processing of lexical access of familiar words and unfamiliar non-words in L1 (Urdu or Punjabi), and L2 (English) mental lexicon. Moreover, the variance in L2 mental lexicon is dependent on several factors such as the level of proficiency and language experience of the L2 learner. It also aims to address this gap by investigating the factors that foster second language learning at the Intermediate level in the Pakistani context. It also provides insightful ways for L2 instructors in the Pakistani context to transform their methodologies of teaching after comprehending the processing of lexical access in the L2 mental lexicon.

Research methodology

The current study utilizes a quantitative approach and correlation study design to analyze the factors and relationship of English language exposure and the lexical access of L2 mental lexicon at the Intermediate level. One Hundred Intermediate students of private and government colleges were selected for this study. English language exposure was taken as an independent variable and the response rate of lexical access was included as the dependent variable in the present study.

The study has used two research instruments for the collection of data. One is the English language exposure questionnaire (Luksaneeyanawin et al, 2016) and lexical decision task to answer the research questions related to the examine variables of L2 mental lexicon and the relationship of English language exposure and lexical access in L2 mental lexicon. Moreover, the scaling method employed for this study such as; the Likert scale, and it consists of five options such as; 1 = never 0%, 2 = rarely 1-25%, 3 = sometimes 26-50%, 4 = often 51-75%, 5 = extremely often 76-100% to calculate the response rate in learning English as a second language. Moreover, closed-ended questions were used to ask demographic part, and open-ended questions were employed to examine the response rate related to exposure to English language learning.

We also utilized Pearson Product Moment Correlation to analyze the scores of English Language Exposure of ESL learners and the lexical access of words and non-words to find out the positive or negative association between them.

Data Analysis

Table: 1 Descriptive Statistics of the respondents' scores in the Lexical decision task and ELE questionnaire

	Number of participants	Minimum	Maximum	Mean	Standard Deviation
WF	100	22	25	23.51	1.059
NWUF	100	20	25	22.54	1.359
Com	100	16	22	19.21	1.486
sum1					

Com	100	20	25	23.43	1.139
sum 2					

Note: WF stands for familiar words and NWUF stands for unfamiliar non-words

Table 1 explains the descriptive statistics of the respondents' scores in the lexical decision task and ELE questionnaire. The minimum scores achieved in the lexical decision task of familiar words were 22 while the maximum scores in the lexical decision task of familiar words were 25. However, the minimum scores of lexical decision tasks in unfamiliar non-words were 16 while the maximum scores were 22. The respondents show more variability in the lexical decision task of familiar words as compared to unfamiliar non-words. Moreover, the mean of familiar words was 23.51 while the mean of unfamiliar non-words was 22.54. Likewise, the standard deviation of familiar words was 1.059 while the unfamiliar non-words was 1.359. Furthermore, the scores of participants in the com sum 2 of self-practice learning activities of English Language Exposure show more variability as compared to com sum 2 of formal education of English Language exposure. The minimum score was 20 and the maximum score was 25 for formal education of com sum 2. On the other hand, the minimum score of formal education in Com sums 1 was 16 and the maximum was 22. Additionally, the total responses of familiar words in a lexical decision task 1 was 2351 while the unfamiliar non-words in lexical decision task 2 was 2254. The scores of formal educations in the ELE questionnaire were 1921 while the self-practice learning activities were 2343.

Table 2: Analysis of formal education of ELE questionnaire

Statements	N	R	SM	O	EO	M	SD
Have you ever studied other subjects in English Language? (other than English subject)	29	21	39	10	1	2.15	.989
Have you ever used the English language in spoken during classroom discussion	43	36	21			1.78	.773
Have you ever given a presentation in the English language?	39	36	20	4	1	1.92	.918
Have you ever studied English from a foreign language teacher?	42	32	19	5	2	1.93	.998
Have you ever written a short paragraph or essay in English?	43	29	17	7	4	2.00	1.119

Table 2 explains the analysis of statements of formal education (1 to 5) of ESL learners to answer the first research question of the study. Statement 1 shows that the majority of respondents responded Sometimes (39%), Often (10%), and Extremely often (1%). The highest mean value (2.15) indicates the experience of ESL learners in studying other subjects in the English language. However, the value of the standard deviation indicates moderate variability in the difference in responses of ESL learners. Moreover, statement 2 indicates the majority (79%) of respondents responded Never (43%) and Rarely (36%). This suggests the respondents never or rarely used spoken English language during classroom discussions. A small proportion of participants responded sometimes (21). The mean score (1.78) indicates respondents used the English language infrequently in classroom discussions while the standard deviation (.773) shows moderate variability in responses.

The next statement shows the majority (75%) of participants responded 39% Never and Rarely 36%. However, a small ratio of respondents answered 20% sometimes and 4% often. Whereas, the mean scores of respondents were 1.92, and the .918 standard deviation showed moderate variability in responses. Besides, it also indicates that ESL learners are inclined to use presentation activities infrequently. Furthermore, statement 4 displays that the majority (74%) of respondents responded Never 42% and Rarely 32%. A small number of respondents responded 19% sometimes, 5% often, and 2% extremely often. The mean score of 1.93 and the standard deviation of .998 show moderate variability. However, it also shows English language exposure of ESL learners at the Intermediate level. Statement 5 demonstrated that the majority (72%) of participants responded 43% Never and Rarely 29%. The second highest mean (2.00) indicates respondents are inclined to write a short paragraph or essay infrequently, while the standard deviation (1.119) shows moderate variability by displaying the difference in written experience of ESL learners.

Table 3: Part (B) Analysis of formal education of ELE questionnaire

Statements	N	R	SM	O	EO	M	SD
Have you ever summarized or taken notes in English?	41	33	18	6	2	1.95	1.009
Have you ever written emails in the English language?	36	41	17	5	1	1.94	.908
Have you ever written applications in the English language?	51	28	16	3	2	1.77	.962
Have you ever experienced reading comprehension activity in English language?	36	36	20	8		2.00	.943
Have you ever read novels and other books in English?	46	34	17	8		1.77	.839

Table 3 explains the remaining statement of formal education (5 to 10) of the ELE questionnaire. Statement 6 shows that the majority (74%) of respondents answered Never (41%) and Rarely (33%). However, the responses of sometimes (18%) and extremely often (2%) show a significant proportion. The mean (1.95) and standard deviation (1.009) show moderate variability in the difference in summarizing and note-taking experience of ESL learners. Statement 7 shows that the majority (77%) of respondents responded 36% Never and 41 % Rarely. The mean value (1.94) and standard deviation (.908) show moderate variability by showing the difference in the writing email experience of ESL learners in the English language. Moreover, the next statement demonstrates that the majority of participants responded 51% Never and 28% Rarely. However, the proportion of sometimes (16), often (3), and 2% extremely often plays a significant role in displaying the writing application experience of ESL learners. The mean score (1.77) and standard deviation (.962) show moderate variability in responses.

The statement 9 shows that the majority (72%) of ESL learners responded Never 36% and Rarely 36%. However, the proportions of Sometimes (20%) and Often (8%) show a significant part. The second-highest mean value (2.00) and standard deviation (.943) indicate moderate variability, as they show differences in responses among ESL learners during the reading comprehension activity. The next statement displays that the majority (80%) of ESL learners responded Never 46% and Rarely 34%. Whereas, several respondents responded sometimes (17%) and often (8%). The mean value of 1.77 and the standard deviation of .839 showed moderate variability by showing the difference in the experience of reading novels of ESL learners.

Table 4: Part (A) Analysis of self-practices of ELE questionnaire

Statements	N	R	SM	O	EO	M	SD
Have you ever used English–English Dictionary	27	32	28	11	2	2.29	1.097
Have you ever played any games such as scrabbles or crosswords using the English language?	24	29	31	16		2.39	1.024
Have you ever watched American or British game shows such as Lingo?	21	33	36	9	1	2.36	.948
How frequently do you use new words in your daily routine?	23	38	28	9	2	2.29	.988
Have you ever used social media networks to learn new words?	16	30	37	15	2	2.57	.988

Table 4 describes the analysis of statement of self-practices (1 to 5) of ESL learners for the second research question of the present study. Statement 1 shows the majority (41%) of respondents responded Sometimes (28%), Often (11%) and extremely often (2%). The mean value (2.29) indicates significant experience of ESL learners in using English to English dictionary. Whereas, the value of standard deviation shows moderate variability in responses of ESL learners. The next statement demonstrates the majority (47%) of ESL learners responded Often (16%) and Sometimes (31%). The mean value (2.39) indicates the experience of ESL learners in playing games using the English language. The value of standard deviation (1.024) displays moderate variability in the difference of responses of ESL learners.

Statement 8 indicates the majority (46%) of ESL learners responded such as Sometimes (36%), Often (9%), and extremely often (1%). The mean value (2.36) and standard deviation (.948) show moderate variability by showing the difference in experience of ESL learners in watching American or British game shows. Moreover, statement 9 shows that the majority (39%) of ESL learners responded Sometimes (28%), Often (9%), and extremely often (2%). The mean value (2.29) and standard deviation (.988) show moderate variability in the responses of participants. The next statement shows the majority (54%) of respondents responded Sometimes (37%), Often (15%), and extremely often (2%). The highest mean value (2.57) indicates the experience of ESL learners in using social media to learn new words. Moreover, the value of standard deviation (.988) shows moderate variability in responses of ESL learners at the Intermediate level.

Table 5: Part (B) Analysis of self-practices of ELE questionnaire

Statements	N	R	SM	O	EO	M	SD
Have you ever talked with a native speaker in the English language?	31	26	35	8		2.20	.974
Have you ever done self-practice by listening to English conversations?	31	33	27	9		2.14	.964
Have you ever done online chat in English through social networks such as Facebook Messenger? Give captions i.e. titles instead of questions	24	37	26	12	1	1.77	.962
Have you ever spoken English with an ESL (English as a second language) learners outside the classroom?	43	24	23	10		2.00	1.035
Have you ever used social media networks to learn new words?	46	34	17	8		1.77	.839

Table 5 shows the analysis of statement of self-practices (6 to 10) of ELE questionnaire. Statement 6 shows that the majority (54%) of ESL Learners responded Never 31% and rarely 26%. However, a small proportion (43%) of respondents also responded sometimes (35%) and Often (8%). The values of the mean (2.20) and standard deviation (.974) show moderate variability in the difference of responses of ESL learners' interaction with native speakers of the English language. The next statement indicates the majority (64%) of ESL learners responded Never (31%) and Rarely (33%). However, a small percentage of respondents significantly responded such as Sometimes (27%) and Often (9%). The value of mean (2.14%) and standard deviation (.964%) show moderate variability in the difference of responses of ESL learners' experience of listening to news in the English language

Statement 8 indicates the majority (39%) of ESL learners responded Sometimes (26%), Often (12%) and extremely often (1%). The value of mean (2.29) and standard deviation (.998) show moderate variability in difference of experience of ESL learners' listening activity of English conversation. Moreover, the statement 9 demonstrates the majority (35%) of ESL learners responded Sometimes (27%) and Often (8%). However, 65% of respondents responded Rarely (42%) and Never (23%) for the experience of online chat in the English language through social networks. The values of mean (2.20) and standard deviation (.888) display moderate variability in the responses of ESL learners. The next statement indicates the majority (67%) of respondents answered Never (43%) and Rarely (24%). However, a small proportion of ESL learners also responded Sometimes (23%) and Often (10%). The values of mean (2.00) and standard deviation (1.035) indicate moderate variability in the difference of responses of ESL learners.

The researchers administered the English language exposure questionnaire (Luksaneeyanawin et al, 2016) consisting of 35 statements. However, the twenty statements of formal and self-practice activities of the ELE questionnaire for ESL learners were selected. The Independent variable (English language exposure of formal education, and self-practice activities) and dependent variables (responses to Familiar words and unfamiliar non-words,) were computed to analyze how does English language exposure of formal and self-practice activities influence the lexical access of words and non-words at the Intermediate level using the Pearson Product Moment correlation test.

Table: 6 *Representation of Correlation of formal education and self-practices activities of English Language Exposure with familiar words and unfamiliar non-words*

Correlations	Formal Education	Self-Practice Activities
Words (Familiar)	0.432	0.855
Nonwords (Unfamiliar)	-0.127	0.214

Note: Table: 6 shows the relationship of formal education and self-practice activities with the lexical access of familiar words and unfamiliar non-words in L2 mental lexicon.

The result indicates that there is a moderate positive association (0.432) between formal education and familiar words of the English language in the lexical access of the L2 mental lexicon. Likewise, responses to self-practice activities showed a stronger association (0.855) with familiar words of the English language in the lexical access of the L2 mental lexicon.

However, it also showed a weak correlation (-0.127) between formal education and unfamiliar non-words. The self-practice activities also showed a weak positive correlation (0.214) with unfamiliar non-words in the lexical access of L2 mental lexicon.

Discussion

The research has also applied the Pearson Product Moment Correlation test to answer the second and third research questions of the study and results show the association of English language exposure (formal education, self-practice activities) and familiar words and unfamiliar non-words in the lexical access of the L2 mental lexicon of ESL learners at the Intermediate level. Moreover, the description analysis was also applied to measure the frequency, mean, and standard deviation of statements of formal education and self-practice learning activities of the ESL questionnaire. Statement one of the formal educations of ELE questionnaire has the highest mean value which indicates the experience of studying other subjects in English. The second highest mean of statement five of formal education of ELE questionnaire shows the experience of those ESL learners in writing paragraphs or essays infrequently. However, statement two of the formal education of ELE questionnaire highlighted the significant gap in the use of spoken English during classroom discussions whereas statement nine also shows the second highest mean to display the experience of the majority of ESL learners in reading comprehension activity infrequently. Further, the mean of statement ten shows the moderate exposure of intermediate learners in reading novels and other books in English. Likewise, statement six of the formal education of ELE questionnaire indicates the infrequent experience of notetaking in the English language of ESL learners and its significance in enhancing English language exposure.

Moreover, statement three also shows the experience of ESL learners in presentation activities in the English language and also indicates the demand for the need to implement presentation activities in the English language during classroom discussions. On the other hand, statement five of the self-practice activities of the ELE questionnaire shows the highest mean and indicates the experience of the ESL learners who used social media to learn new words. Likewise, statement one shows the English language exposure of ESL learners differently who used English to English dictionary to enhance their lexical knowledge. Statement three has the third highest mean and highlights the significant responses of intermediate learners who watched American or British game shows like Lingo. Moreover, statement two of the self-practice activities of the ELE questionnaire indicates the second highest mean to highlight the significant responses of ESL learners who played games such as crosswords using the English language. Furthermore, statement eight shows the distinct experience of ESL learners involved in listening activities of English conversation.

The results also show a moderate positive association between formal education and familiar words of the English language in the lexical access of the L2 mental lexicon. It shows ESL learners who engage in tasks of formal education of English language exposure tend to be more familiar with the process of lexical access of words in the L2 mental lexicon. Besides, it also shows the strongest correlation between self-practices and familiar words of the English language in the lexical access of the L2 mental lexicon.

The findings indicate that self-practice activities are quite effective for enhancing vocabulary knowledge. Likewise, ESL learners who engage in more self-practice activities tend to have a larger collection of frequency of familiar words. On the other hand, the results show a weak association between formal education and unfamiliar non-words of English language in the lexical access of L2 mental lexicon. It indicates traditional ways of instruction are not enough to help the ESL learner at Intermediate level in developing a mental lexicon

and how the process of lexical access is influenced by the lack of English language exposure. Likewise, it also shows a weak positive relationship between self-practices and unfamiliar non-words in the lexical access of the L2 mental lexicon. The results provide evidence that self-practice activities of English language exposure are quite helpful in understanding the process of lexical access of the L2 mental lexicon for ESL learners. Besides, it provides an insightful way to unveil the relationship of how the activities of Exposure to the English language inside the classroom or outside the classroom help the learners and teachers to enhance their knowledge of lexical access and English language exposure to develop L2 mental lexicon by adopting new methods of learning or teaching.

Conclusion

It uncovers the correlation between English language exposure and lexical access for ESL learners at the selected government and private colleges. It is further significant because it provides insightful information on the lexical access of L2 English learners' mental lexicon. Moreover, it focuses on the association and the distinction between English language exposure to formal education and self-practices in words and non-words. Finally, psycholinguistic tests, such as the Lexical Decision Task, were used to analyze the lexical access of a word and non-words. In addition, three core research questions of this research were given related to the L2 mental lexicon, lexical access, and English language exposure of Intermediate students. The results show that the use of presentations, English to English dictionary and using word games such as crosswords etc. also play a positive role in enhancing the language exposure. In short, this study not only investigated how English language exposure influences the lexical access of L2 mental lexicon but also showed the contribution and practical implications of L2 mental lexicon and lexical access to help enhance the exposure to the English language.

References

- Ahn, H. (2022). L2 Processing of Linguistic and non-linguistic Information: L2 Speakers use definiteness if real-word knowledge is unusable. *Studies in Second Language Acquisition*, 44(2), 507-535., Cambridge University Press.
<https://doi.org/10.1017/S0272263121000322>
- Aitchison, J. (2012). *Words in the mind: An introduction to the mental lexicon*. John Wiley & Sons.
- Aichison, J. (2003). *Words in the mind: an introduction to the mental lexicon*. (3rd ed.) London: Blackwell.
- Aitchinson, J. (1987). *Words on the Mind: an Introduction to the Mental Lexicon*.
- Baker, E. (2001). Psycholinguistic Models of Speech Development and Their Application to Clinical Practice. *The Journal of Speech, Language, and Hearing Research*.
[https://doi.org/10.1044/1092-4388\(2001/055\)](https://doi.org/10.1044/1092-4388(2001/055))
- Barcroft, J., Sunderman, G., & Schmitt, N. (2011). Lexis. In *The Routledge handbook of applied linguistics* (pp. 591-603): Routledge
- Caroll, D.W. (2008), *Psychology of Language*
- Crystal, D. (2018). *The Cambridge encyclopedia of the English language*. Cambridge University press.
- Cremer, M., Dingshoff, D., De Beer, M., and Schoonen, R. (2011). Do word associations assess word knowledge? A comparison of L1 and L2, child and adult word associations. *Int. J. Bilingual*. 15, 187–204. doi: 10.1177/1367006910381189
- Cangir, S. Büyükkantarcıoğlu, S.N., & Durrant, P. (2017). Investigating collocational priming in Turkish. *Journal of Language and Linguistic Studies*, 13(2), 465- 486.

- De Sousa, L. B., & Gabriel, R. (2015). Does the mental lexicon exist? *Revista de Estudos da Linguagem*, 23 (2), 335-361.
- Dell, G. S., Chang, F., & Griffin, Z. M. (1999). Connectionist models of language production: Lexical access and grammatical encoding. *Cognitive Science*, 23(4), 517-542.
- Derman, A., & Eilks, I. (2016). Using a word association test for the assessment of high school students' cognitive structures on dissolution. *Chemistry Education Research and Practice*, 17(4), 902- 913. <https://doi.org/10.1039/C6RP00084C>
- El-Dakhs, (2015). The Effect of Language Exposure and Word Characteristics on the Arab EFL Learners's Word Associations. *Journal of Psycholinguistic Research* 46, 1033-1052, 2017, Springer Link. <https://doi.org/10.1007/s10936-017-9477-z>
- Ellis, N. C. (2002). Frequency effects in language processing: A review with implications for theories of implicit and explicit language acquisition. *Studies in Second Language Acquisition*, 24(2), 143-188.
- Fitzpatrick, T., & Thwaites, P. (2020). Word association research and the L2 lexicon. *Language Teaching*, 53(3), 237-274. <https://doi.org/10.1017/S0261444820000105>
- Fitzpatrick, T. (2007). Word association patterns: unpacking the assumptions. *International Journal of Applied Linguistics*. 17(3), 319- 331.
- Fitzpatrick, T., & Izura, C. (2011). Word Association in L1 and L2. *Studies in Second Language Acquisition*, 33, 373- 398.
- Fitzpatrick, T., & Thwaites, P. (2020). Word association research and the L2 lexicon. *Language Teaching*, 53(3), 237-274. <https://doi.org/10.1017/S0261444820000105>
- Giazitzidou, S., Padeliadu, S. (2022). Contribution of morphological awareness to reading fluency of children with and without dyslexia: evidence from a transparent orthography. *Ann. Of Dyslexia* 72, 509-531 (2022), Springer Link. <https://doi.org/10.1007/s1881-022-00267-z>
- Gairns, R. (1986). *Working with words: A guide to teaching and learning vocabulary*. Cambridge: Cambridge University Press
- Harrison, S. V. (2015). Word association: Exploring the L2 mental lexicon of Korean EFL learners. *The Asian EFL Journal Quarterly*, 461, 8-37.
- Hui, L. (2011). An Investigation into the L2 Mental Lexicon of Chinese English learners by Means of Word Association., 34 (1), 62-76. <https://doi.org/10.1515/cjal.2011.005>
- Hoey, M. (2005). *Lexical priming: A New theory of words and language*. London: Routledge.
- Jiang, N. (2000). Lexical representation and development in a second language. *Applied Linguistics*, 21(1), 47-77. <https://doi.org/10.1093/applin/21.1.47>
- Jiang, N., & Forster, K. I. (2001). Cross-language priming asymmetries in lexical decision and episodic recognition. *Journal of memory and language*, 44(1), 32- 51.
- Jabeen, R., & Shahzad, K. (2023). Organization of words in the mental lexicon: A psycholinguistic study. *Journal of English Language, Literature and Education*, 5(4):24-48 DOI: [10.54692/jelle.2023.0504200](https://doi.org/10.54692/jelle.2023.0504200)
- Khan, S., & Anjum, M. A. I. (2023). Words in Mental Lexicon: A Comparative Analysis of Word Association (WA) Responses of Pakistani L1 and Afghan L2 Speakers of Urdu. *Journal of Communication and Cultural Trends*, 5(1), 86-105. DOI: <https://doi.org/10.32350/jcct.51.05>
- Ly, T. H., & Jung, C. K. (2013). An exploration of the mental lexicon of Korean EFL learners., 6(2), 3-28.

- Levelt, W. J., Roelofs, A., & Meyer, A. S. (1999). A theory of lexical access in speech production. *The Behavioral and brain sciences*, 22(1), 1–75.
<https://doi.org/10.1017/s0140525x99001776>
- Mulder, E. (2018). Context, word, and student predictors in second language vocabulary learning. *Applied Psycholinguistics*.
<https://doi.org/10.1017/S0142716418000504>
- Pranoto, B.E., & Afrilita, L.K. (2019). The organization of words in mental lexicon: evidence from word association test. *Teknosasatik*, 16 (1), 26-33
- Roux, P. W. (2013). Words in the Mind: Exploring the relationship between word association and lexical development. *Polyglossia*, 24(8), 80-91.
https://www.researchgate.net/publication/265294911_Words_in_the_Mind_Explo
- Worathumrong, S., & Luksaneeyanawin, S. (2016). Interlanguage pragmatics study of compliments among Thai EFL learners. *Journal of Pan Pacific Association of Applied Linguistics*, 20(1), 157-182.
- Wolter, B. (2006). Lexical Network Structures and L2 Vocabulary Acquisition: The Role of L1 Lexical/Conceptual Knowledge. *Applied Linguistics*, 27(4), 741–747. <https://doi.org/10.1093/applin/aml036>
- Xue, W. (2020). Recognition and application of mental lexicons among learners of English as a foreign language. *Revista Argentina de Clínica Psicológica*, 29(2), 288
- Xiang, L., & Nam, H. (2022). L1 mediation in Chinese English learners' mental lexicon: Evidence from word association tests. *Language Teaching Research*, 0(0).
<https://doi.org/10.1177/13621688211066017>
- Yamashita, J., & Jiang, N. (2010). L1 influence on the acquisition of L2 collocations: Japanese ESL users and EFL learners acquiring English collocations. *TESOL quarterly*, 44(4), 647-668.
- Zhang, X., & Nannan, L. I. U. (2014). Exploring the second language mental lexicon with word association tests. *Cross-Cultural Communication*, 10(4), 143-148.