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LEXICAL RETRIEVAL IN MULTILINGUALS AND ITS RELEVANCE WITH EXECUTIVE FUNCTIONS

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ABSTRACT

Lexical retrieval is a fascination phenomenon in multilinguals as each language the multilingual knows or masters would compete for lexical selection. This study investigated lexical retrieval across three languages Kannada, Hindi, and English in young balanced multilinguals using a conditioned naming test specially designed for the study. A total of 40 nouns with a colour dot associated with the target. Based on the colour of the dot (red for Kannada, blue for English, and green for Hindi), the participants required to these nouns in the stipulated language. The results showed that the median percentage scores of 71% for Kannada, 67.34% for Hindi, and 77.65% for English. Statistic (Friedman's test) revealed significant differences in lexical retrieval between Hindi and English, and Kannada and English, while there was no significant difference was found between Hindi and Kannada. Further Error analysis was carried out and it demonstrated that participants frequently used English to name the pictures presented with a dot requiring them to name in Hindi and Kannada. These findings suggest that proficiency alone may not determine the direction of lexical retrieval but the exposure also matters. Linguistic factors like the word frequency influenced the word retrieval. Better performance observed in English may be attributed to a primacy effect. This study emphasises on complexities involving the multilingual lexical retrieval, this further highlights the need for further exploration of cognitive mechanisms dwelling into language competence.

Keywords: Word retrieval, lexicon, lexical access, competition, exposure.

1. INTRODUCTION

1.1 Background

Lexical retrieval in multilingual is a debatable topic the area of language research, as there is no clear stand on issues like the number of lexicons possessed by multilinguals and the process of retrieving words from the lexicon. Lexical retrieval refers to the ability to choose words from the vocabulary. This process is often complicated for a multilingual as the words in the lexicon may offer competition for the process of lexical selection. Research has shown that bilingualism and multilingualism can facilitate certain executive functions, such as response inhibition and cognitive flexibility. The availability of words from different languages provides flexibility to the multilingual to switch between the language as mix the two languages when required (Bialystok et al, 2004)

Additionally, a study by Costa et al. (2008) highlighted the role of executive function in the process of lexical retrieval. In this study the participants were asked to name objects in either their first or second language in response to the pictures shown, the results showed that the process of selecting the appropriate language for producing the verbal output involved the investment of significant cognitive resources. In other words, the lexical selection enhances the

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executive function. In addition to the cognitive processes and executive function, language proficiency also shapes the process of lexical selection and it is assumed that greater the proficiency better would be the executive functions (Kormi-Nouri et al. 2008). In the current study the lexical selection was tested through conditioned naming task,

Need for the study: Lexical retrieval and executive functions in multilinguals is a well-researched topic, however there is a clear sparsity in terms of such studies within the Indian context. Multilingualism in Indian context is quite different as most of the individuals are bilinguals with varied level of proficiency in second and third language and the word retrieval becomes a matter of interest as the number of lexicons possessed by the multilingual is still debate and vary based on the proficiency level hence the current study becomes contemporary in tapping lexical retrieval in multilinguals.

Aim of the study: To investigate lexical retrieval in multilinguals using conditioned naming task

Participants

A total of 40 multilingual adults (16 males and 24 females) in the age range of 18-30 years were considered for the study. Most of these participants were university students with exposure to Kannada, Hindi and English. The order of acquisition varied across the participants with Kannada/Hindi as L1 in some participants English as L2 and Hindi/Kannada as L3. LEAP Q (Ramya & Goswami, 2009) was administered on the participants and the self-rating of proficiency on L1, L2 and L3 was the same for almost all the participants making them balanced bilinguals.

Stimulus and Procedure

Conditioned naming test was administered on the participants where the participants were required to name the pictures in L1, L2 and L3 based on the colour of the dot associated with the picture. A total of 40 pictures (nouns) were considered. 12 pictures were presented in Kannada and English respectively and 16 pictures were presented in Hindi. The stimulus was associated with red dot, blue dot or a green dot. When the picture was associated with a red dot, the participants were required to name in Kannada and when the picture was associated with blue and green dot, the participants were asked to name in English and Hindi respectively The order of presentation of pictures were randomised and presented. The inter-stimulus duration was kept constant (5 seconds)

Scoring: A score of 1 was given for every correct response and a score of 0 was given for an incorrect response. The response was considered correct when the participant named the picture correctly in the stipulated language, while the response was considered incorrect when the participant either named the stimulus incorrectly or did not name in the stipulated language

2. RESULTS

The maximum score for the conditioned naming task was 40, the maximum score of Kannada and English was 12 while the maximum score for Hindi was 16 since the maximum score was different across the three languages aforementioned, and the scores were converted into percentage. The median percentage scores for Kannada, Hindi and English was 71%, 67.34% and 77.65% respectively. In order to verify if there was any significant difference between the three languages, Friedman's test was carried and the X^2 obtained was 2.33 and the corresponding p value showed significant difference between the three languages. Further pair-wise comparison was carried out using Wilcoxon's signed rank test and Z scores obtained on comparing Hindi with Kannada, Kannada with English and Hindi with English was 1.34, 2.07

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and 2.34 respectively and the corresponding p value showed significant difference between Hindi and English; Kannada and English while there was no significant difference in the median percent values of Kannada and Hindi. The error analysis revealed that the errors in Hindi and Kannada arouse because the participants named them in English instead of naming in Hindi or Kannada showing that the lexical retrieval in Hindi and/or Kannada was difficult to the participants due to the inhibition imposed by English. The study clearly shows the distinction between the lexical retrieval in balanced multilinguals showing that the lexical retrieval may not depend on proficiency always. Better performance in English can be attributed to primacy effect since the participants were young multilinguals most of them used English in their routine owing to which their performance in English would have been better.

3. DISCUSSION

The current study emphasises on the dynamics of language use in determining the direction of lexical retrieval in multilingual individuals, particularly throwing light on how the external factors, such as language exposure and word frequency, can facilitate the intricate process of cognitive processing and lexical retrieval. It questions the traditional views that erelate language proficiency with lexical retrieval. The traditional notion is that the proficiency would determine the direction of lexical retrieval. The current study showed that context of learning and the communicative environment are equally significant in adjunct to the proficiency. Furthermore, the tendency for participants to resort to English even when they are asked to respond in Hindi or Kannada signals to the role of linguistic factors such as word frequency and usage of borrowed words (Green, 1998).

The findings also suggest that in a multilingual lexical retrieval framework, languages do not merely coexist in the mental lexicon but also interact dynamically, influencing one another in real-time communication as evident by commonly occurring linguistic phenomenon such as code mixing . The tendency of using a high frequency English word is evident in the phenomenon of code mixing. Lastly, future research should enable in providing a detailed understanding of the neural correlates determining the lexical retrieval

4. CONCLUSION

The current study was carried out with the aim of investigating lexical retrieval in multilinguals using conditioned naming task. 40 Multilingual participants in the age range of 18-30 participants were recruited for the study and the participants were asked to name the nouns presented to them in Hindi, English or Kannada based on the colour of the dot and the median percentage value was higher for English followed by Kannada and English showing that lexical retrieval may vary across the three languages and the performance in English was better showing that the primacy effect (using English in routine) influenced the results.

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