LEXICAL ATTRITION IN MULTILINGUAL LANGUAGE LEARNERS

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ABSTRACT

Multilingual language learners are facing various challenges of language attrition, both internally and externally. Lexical attrition is one of phenomena experienced by the learners since they can no longer do something which s/he had previously been able to do, and this loss of proficiency is not caused by a deterioration of the brain due to age, illness or injury, but by a change in linguistic behaviour due to a severance of the contact with the community in which the language is spoken(Smith, 2017). This article is trying to capture the studies of lexical attrition in the multilingual contexts and suggest several improvement strategies in experiencing the lexical attrition. This study is using content analysis to explore existing literature on lexical attrition in multilingual language learners over the last ten years. A summary of more than seventeen is provided along with the content analysis.The finding of these studies gives a significant contribution to the field of language attrition that focuses on practical analysis in learners or speakers points of view in the multilingual context. It shows that the limitation of understanding on lexical attrition concept from the local authorities in many educationalsettings have resulted in less efficient and effective language maintenance.

Keywords*: lexical attrition, multilingual learners*

INTRODUCTION

Many people around the world learn foreign languages because they need to communicate using the target languages for education purposes, economic issues, personal interests, professional careers, etc. They believe that learning foreign languages has becomea normal and important part of their lives (Jessner et al., 2021). Nowadays, being multilingual speakers are very common phenomena all over the world (Cenoz, 2013). She, moreover, explains that multilinguals can be speakers of a minority indigenous language (e.g., Navajo in the United States,Maori in New Zealand, or Welsh in the United Kingdom) who need to learn the dominant state language. In other cases, multilinguals are immigrants who speak their first language(s) as well as the language(s) of their host countries. In some cases, languages are learned as they spread internationally, and it is considered that they open doors for better economic and social opportunities.

In the vast body of research on language learning, there is still surprisingly little work on the language attrition or retention of second or foreign languages, particularly multilinguals, once learning and/ or these languages ceases (Jessner et al., 2021). Until the 1980s, research into language attrition included societal language shift, loss and death, as well as pathological language loss (Lambert & Freed, 1982), but in more recent decades work in this field has focused exclusively on "nonpathological decrease in proficiency in a language that had previously been acquired by an individual" (Schmid & Kopke, 2004; see

also De Bot & Weltens, 1995) or, more precisely, on "the decline of any language (L1 or L2), skill or portion thereof in a healthy individual speaker" (Ecke, 2004). As Schmid and Mehotcheva (2012) noted that empirical studies exploring L2/FL attrition remain limited, as does the knowledge and understanding of the phenomenon. Most of the published studies on foreign language attrition whose participants were multilingual—and they are fairly few in number—focus on the development of oneparticular language; that is, they focus on language attrition in multilinguals, but noton multilingual attrition(see Megens, 2020; Jessner et al., 2021).

The present study, therefore, is aimed at reviewing and analyzing the development of research on lexical attrition in multilingual language learning through the use of lexical attrition theoretical framework. This article provides a recapitulation of those previous studies (around seventeenresearches) to gain insight into the general pattern of lexical attritionin multilingual language learners' contexts during the past ten years or so.

THEORETICAL FRAMEWORK

In general, Bardovi-Harlig & Stringer (2010) define language attritionrefers to loss of language as a result of contact with majority languages, loss of language by communities, or loss of language by individuals in both pathological and non-pathological settings. Nevertheless, Schmid & Kopke (2004) narrow down the definition of language attrition is as the non-pathological decrease in a language that had previously been acquired by an individual" and is therefore distinct from such phenomena as language loss in aphasia. Language attrition is defined as the process in which the acquired language knowledge degrades when a bilingual or multilingual suspends or decreases his language learning(Heng et al., 2012). It also refers to the process where first language skills decrease due to various reasons.Schmid (2006) reveals that language attrition can be understood on the basis of the meaning of attrition as a result of "a linguistic system in disuse…competing for memory space with the other linguistic system(s) occupying the same brain, that not being kept 'fresh' and 'strong' through constant use will somehow weaken it, and that it will therefore suffer in some way." In addition, she confirms that language attrition can be determined by a multifactorial web of internal and external influences that affect the language. It could be concluded that language attrition process can be concerned on either as physiological or pathological. In other words, the process could be referred to as a natural or an unnatural decline(Ni, 2007).

Since the emergence of language attrition as an independent domain of research, most studies have explored the attrition of the L1 in an L2 environment, usually the attrition of (bilingual) immigrants' first or native language after migration (Schmid, 2019a). She distinguishes this research into L1 attrition is distinguished from research on "L2 attrition," a term generally used to apply to all languages that are learned or acquired after (early) childhood, usually in addition to the L1.Jessner, et al., (2021), however, find this differentiation between L1 and non-L1 a useful jumpingoff point, the broad application of the term "L2" or "second language" to mean any language that does not fit the category of "L1" is problematic because it may be taken to mean that, by and large, all L2s are created equal and can be treated as such. They believe that to begin with, attrition studies often give no indication whether this "L2" is one of only two languages in the individual's repertoire, or if there are three, four, or more languages at play.This means there is no systematic differentiation between purely bilingual settings and tri-/multilingual ones. More recent work tends to rectify this omission, and authors usually number individuals' languages as L2, L3,

L4….Ln to indicate the order of acquisition, with the term "L3" increasingly serving as shorthand for any language beyond the second.

Nevertheless, Jessner et al., (2021)approve Schmid & Mehotcheva (2012)in indicatingthat there are some differences in terms of the amount and quality of input, exposure, and use in the case of a language learned in an explicit, formal, instructed-learning setting such as a school or university classroom from languages which are as well as learned and used in a more implicit, naturalistic way, as is the case in immersion/submersion or migration contexts.In detailed Jessner et al., (2021) distinguish the subcategory of foreign language (FL) attrition, which focuses specifically on those languages that have been acquired/learned, usually with intentional effort, in a formal classroom/school learning setting, but which do not form a substantial part of the learner's everyday life outside this setting especially within the broader category of non-L1 attrition term, which may pertain to any non-L1, and thus includes most of what is traditionally referred to as "L2 attrition.

A number of studies have concerned on the attrition of formally learned/ school-acquired foreign languages since the establishment of the field in the early 1980s(e.g.,Bahrick, 1984b, 1984a; Gardner et al., 1985; Grendel, 1993; Godsall-Myers, 1981; Mehotcheva, 2010; Murtagh, 2003; Nagasawa, 1999; Wang, 2010; Weltens & Cohen, 1989; Xu, 2010).All of the studies listed investigate attrition in only one language. The participants involved in the research in many if not most of these studies may actually have been multilinguals, yet merely Grendel (1993), Mehotcheva (2010), and Weltens & Cohen (1989)obviously explain that their participants had learned more than one non-L1.

According to Dynamic Model of Multilingualism (Jessner, 2003), language attrition can be identified when multilingual learners reduce the language maintenance effort gor a given language and when they invest more time and effort in the acquisition of a new language system, for example as a result of moving to another country. Conversely, the model does not make any prediction with respect to the relative strengths of language attrition in L1 and L2 and how these might fluctuate over time, instead treating L1 and L2 similarly(Ecke & Hall, 2013).They, furthermore, reveal that L1 and L2 can exhibit attrition in the form of reduced retrieval speed and/or temporary retrieval failure.

Multilingual language learners, understood here as learners of three or more languages, are sole as far as their language learning history, language use, and competencies are concerned, while multilingualism as such is common phenomena in many parts of the world.Studying the dynamic unfolding of multilinguals' language development over time is essential to help us comprehend the human capacity to control and organize multiple languages, but doing so in controlled experimental settings presents challenges, since it is not easy to match multilinguals into groups of leaners and then maintain those groups for longitudinal study(Ecke & Hall, 2013).

Multilingual words have been particularly valued by multilingual attrition researchers because they examined multilingual attrition more than 50 years ago (see (Jin & Ni, 2011; Pavlenko, 2012, for a review). Linguistic features were commonly employed in a broad sense in the field of language attrition, specifically in the area of multilingual lexical attrition (Hansen, 2001; Jin & Ni, 2011; Schmid and Köpke, 2017), which might comprise word class, word frequency, word length, concreteness, cognate status, polysemous senses, etc.

METHODOLOGY

This article is using content analysis to explore existing literature on lexical attrition in multilingual language learners' context. In this research, a text-based document (Mason, 2017) is used as data by compiling the previous studies, describing, and comparing the results of their studies. Moreover, Merriam & Tisdell (2015) explain that usingdocumentary material as data is not much different from using interviews or observations.Despite the limitations, these documents (personal papers) are an excellent source of data for numerous reasons such as easily accessible, free, contain information that might be could not be found in interviews or observation.

Around seventeen articles were collected using keywords "lexical attrition in multilingual language learners". Content analysis is then applied. In order to maintain critical awareness based on critical judgments, articles collected then were classified in accordance with tasks that have been used with the respect to lexical aspects of multilingual attrition, focusing on participants and methodological aspects (Schmid et al., 2014).

RESULTS AND DISCUSSION

Previous research into Lexical Attrition

Most relevant to the current discussion into attrition from a multilingual perspective, though, focuses on foreign language attrition and examines lexical diversity and (dis)fluency in the oral production of 114 multilingual young adults. The participants were first language German speakers who learned English as their first foreign language (FL1) and French or Italian as their second foreign language (FL2), shortly before and approximately 16 months after graduation from upper secondary school (Jessner, Oberhofer & Megens, 2021). The level of foreign language use after graduation was found to have a noticeable impact on the measured change in output quality in the FL2, but only little in the FL1, where participants' initial proficiency was considerably higher. The amount of use in the FL1 had no visible connection with attrition/ maintenance in a rarely used FL2.

Although not specifically investigated lexical attrition in multilingual speakers context, a current study by Ni and Jin (2020) analyzed the means of a Decision Tree model (DTmodel) in three emotional dimensions, that is, the valence dimension, the arousal dimension, and the dominance dimension.A total of 188 participants recruited by convenience sampling were categorized into the attrited groupand the reference group, respectively.The 151 participants in the attrited group were native Chinese who had completed all systematic English learning in China, through primary school and middle school to university.The findings showed that L2 lexical attrition could be predicted in all the three emotional dimensions in two aspects: (1) among the three emotional dimensions, the valence dimension was the most powerful in predicting L2 lexical attrition, followed successively by the dominance dimension and the arousal dimension; (2) most of the neutral words in the three emotional dimensions were predicted to be inferior to emotional words in L2 attrition. The researchers, furthermore, modified Revised Hierarchical Model for emotionwhichcould beadopted to justify the modulation of the emotion–memory effects upon L2 lexical attrition.

Another study of lexical attrition in a foreign language setting was studied by Alharthi and Al Fraidan (2016) examining a population of college acquired English among college leavers who vary in the extent to which they have been able to maintain contact with

the target language over time. Self-reported questionnaireconcerning on the partcipants' use of existing vocabulary in various situations was distributed to assess the word recycling within different activities prior and after the end of formal education. The participant choose frequency rate numbering from 1 (less than once a day) to 5 (every day) to answer the question. Another instrument used in the present study is retrospective interviews. It should be noted that retrospective reports and interviews are employed as complementary or supportive evidence on the issue being investigated. The results showed that participants rated many of their patterns of contact with English and vocabulary in particular somewhat lower after the end of formal instruction. In addition, the most powerful predictor appears to be the use of the internet which is strongly linked to better retention of productive vocabulary test over time.

An investigation of factors influencing both grammatical and lexical complexity at the stage of L2 ultimate attainment was carried out by Lahmann et al., (2016). They interviewed spontaneously 102 participants whose age of onset (AO) ranged between 7 and 17 years old. The researchers assessed either grammatical or lexical components of the long-term L2 speakers' oral productions and investigated these complexity measures are affected by AO,length of residence (LoR), continued L1 use, level of education, and other potential factors. To capture the multidimensionality of grammatical and lexical complexity of the present study, the researchers applied multifactorial analyses which yielded consistently significant effects of gender and level of education for grammatical and lexical complexity. In addition, native language use at work played a significant role for lexical complexity; on the contrary, AO did not come out as a significant factor. Yet, qualitative analyses of the three lowest and highest performing interviewees indicated that AO is more likely to play a role with regard to the acquisition of L2 grammar, as opposed to the L2 lexicon. The researcher argued that this is because the highest grammar scores were obtained by interviewees with AO below 12 whereas the highest lexical scores were obtained by intervieweeswith AO beyond 12. They concluded that grammatical and lexical complexity at the stage of L2 ultimate achievement is the result of a complex interplay of variables that are general to language learning and performance rather than L2 specific.

Furthermore, to such lexical L1 attrition in relation to the likelihood that attriters will experience decreased lexical accessibility as a consequence of their reduced use of the L1, it has also been shown that it is a result of the limited number of contexts in which they use it.Schmid & Jarvis (2014) investigated lexical diversity and distribution, lexical sophistication, and verbal fluency, and analyzed whether generalizable and predictable differences could be foundbetween Germans who have remained in Germany, Germans living in Canada, and Germans living in The Netherlands.The present investigation is based on two verbal fluency tasks as well as on free and elicited speech collected from 159 native speakers of German. 53 of these speakers emigrated to Anglophone Canada (Vancouver area) and 53 to the Netherlands at least 9 years before the data collection at age 14 or older. 53 had lived in Germany all their lives and never used a language other than German routinely. The three groups were matched for gender, age and education.Elicited and free data gained from the two populations of attriters of L1 German (L2 Dutch and English) and a control population (n=53 in each group) were controlled. The findings indicated that the attriters do indeed differ significantly from each other and from the German controls on a number of measures relating to lexical diversity and distribution, lexical sophistication, and verbal fluency. The researchers, moreover, found that lexical diversity differences are unobvious and measurement merely based on type and token frequencies cannot be discovered. The significance levels and effect sizes also distinguish by task, such that significant effects for

lexical diversity are found only in the interview. They believed that extra linguistic factors, such as the frequency of exposure and use or the length or residence, have no predictive power for their results.

Measuring Lexical Diversity of Multilingual Learners

Vocabulary is an essential component of any languages. It has been long accepted that vocabulary plays a major role in the second language learning due to its importance for communicative competence and the acquisition process(Schmitt & Schmitt, 2020). With vocabulary, learners can express their ideas and understand information in the target language based on the contextual usages. On the contrary, such activities become much more challenging when learners do not possess enough knowledge of words of the target language (Juanggo, 2018).

The interest in measuring vocabulary of multilingual learners has been increasing over the years. As one of knowledge areas in any languages, vocabulary is often considered as a standard to see how well multilingual learners perform in the acquisition of multilingual speakers. In writing particularly, vocabulary-related studies in multilingualwriting scholarship consistently cite the positive infuence of lexical diversity on college-level writing quality(Crossley & McNamara, 2009; Friginal et al., 2014; Johnson et al., 2013).Lexical diversity, which refers to the varied use of unique vocabulary words within a text, manifests itself as "the sophisticated use of vocabulary" and "a variety and range of vocabulary" within holistic rubrics that assess the college writing readiness of multilingual students(Hawkey & Barker, 2004).). Such criteria point to the need for multilingual writers to have a large and diverse lexicon from which to purposefully and strategically select words while writing. However, little is known about what vocabulary items actually contribute to the lexical diversity of a text(González, 2017). As a result, he suggested that writing instructors aiming to help multilingual writers to improve their students' productive lexicon often must rely on their intuition to determine which words to target for instructional activities.

The most widely known index of lexical diversity is the type-token ratio or TTR, often attributed to Templin, (1957), but probably first introduced by (W. Johnson, 1939; 1944). In his 1944 publication, he acknowledged the problem that it is dependent on text length and offered some alternatives (such as Mean Segmental TTR) to overcome the problem.Others have proposed different mathematical transformations of TTR, e.g. the Index of Guiraud(Guiraud, 1954), also known as Root TTR, and log corrections such as the Index proposed byMass (1972). All of these try to capture the lexical diversity of texts in the form of a ratio of types (V) over tokens (N) but compensate to some extent for the text length issue.

Other researchers designed two alternatives were proposed more recently: firstly is a Measure of Textual Lexical Diversity (MTLD), which was first proposed by (McCarthy, 2005) and another is tested by Crossley,Salsbury, and McNamara (2009)and McCarthy and Jarvis (2010).This measure is calculated as the mean length of sequential word strings in a text that maintain a given TTR value (which the authors have chosen to be 0.720 (seeMcCarthy & Jarvis, 2010, for details). The final version of MTLD is obtained by running the programme forward and backward through the data and calculating an average of the outcome of both. According toMcCarthy (2005) and Crossley et al., (2009), MTLD does not vary as a function of text length for text segments whose length is in the 100–2,000-word range.

The second of the new measures is HD-D proposed by McCarthy & Jarvis (2007),), which is similar to D but based on the hypergeometric distribution function(Wu, 1993). HD-D calculates, for each lexical type in a text, the probability of encountering any of its tokens in a random sample of 42 words drawn from the text(McCarthy & Jarvis, 2010). As MTLD and HD-D have only recently been developed,McCarthy & Jarvis (2010) call for further validation of these measures, and a systematic comparison with other, more established measures, such as D and older measures of LD such asMass (1972).

In a study of over 64 L2 students of French, Treffers-Daller (2013) use the measures both MTLD (McCarthy & Jarvis, 2010) and HD-D (McCarthy & Jarvis, 2007) to predict different aspects of language proficiency is assessed and compared with D(Malvern et al., 2004; Malvern & Richards, 1997) and (Mass, 1972). The results showed that the measures of lexical diversity under study are valid proxies for language ability in that they explain up to 62 percent of the variance in French C-test scores, and up to 33 percent of the variance in a measure of complexity.The researcherconcluded that limiting the range of text lengths or even keeping text length constant is the safest option in analysing lexical diversity.To summarise,two modern algorithms represent the most promising methods of measuring LD: HD-D and MTLD. These two measures have the advantage of being less negatively affected by variation in text length; moreover HD-D has secured promising results in the analyses of French samples.

CONCLUSION

Two concluding remarks can be observed in this study. The first is related to research practice oflexical attrition in multilingual language learners.The second is concerned on the broader theoretical framework of lexical attrition in multilinguals' contexts.

First, based on the results of lexical attrition in multilingual language learners show that very few studies have been dedicated to the topic of individual language maintenance, so there is room for future work, especially from a multilingual perspective, on the role of language maintenance effort (LME) in attrition processes in general, and on the more subjective examination of multilingual users' perception of the effort put into maintenance work in particular.

Second, in the theoretical parts, it is only a few kinds of literature on lexical attrition have been addressing multilinguals as the focus of the study. Yet, most of the literature has been referring to "lexical attrition" in L1, L2, or EFL. Contrary to such phenomena, this study provides input to multilinguals' lexical attrition, which is an essential topic in the success of multilinguals' language use.Most of the published studies on foreign language attrition whose participants were multilingual—and they are fairly few in number—focus on the development of one particular language; that is, they focus on language attrition in multilinguals, but not on multilingual attrition (see Megens, 2020;Megens & Jessner, 2016). Therefore, the proposed study further studies are needed in exploring more detail each type of lexical attrition in the multilinguals' contexts.

This study presents a general overview and a review of lexical attrition in multilingual language learners. It is found that research topics concerning on lexical attrition in multilinguals' contexts is still limited. In particular, it is highlighted that multilingual learners have their own unique language development which significantly contribute to their language

competences.Future studies may consider elaboration in any other countries to provide additional insight into the existing theoretical framework and literature.

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