
LANGUAGE ATTRITION

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Introduction

In our world and modern society today the learning and acquiring of second or multiple languages by individuals is ever becoming a more and more common occurrence. However, the amount of input and usage of a given language is always in a state of continuous flux depending on one's environment and language needs. "It is dynamic in nature and subject to change, that is, both the acquisition of language structures and the loss of structures" (Ecke, 2004). This loss of language—morphology, grammar, lexicon, etc.—is known as language attrition. It refers to the decline of native (L1) or acquired language (L2), skill or portion thereof in a healthy individual speaker. Keeping up one's language skills requires constant effort and usage, even more so when the environment doesn't provide much input. While at first the effects of language loss may not be clearly visible, especially in high-usage structures, less frequent and regular items are at risk, and if enough time passes even well-learned items and structures have been shown to attrite.

In the last several decades this topic of language attrition in both the L1 and L2 has gained increased popularity and interest, both among psychologists and linguists, yet research has not resulted in a clear, decisive answer to illuminate exactly which factors are involved and their relations, if any (Tomiya, 2008). However, researchers have found some general processes and variables affecting attrition common to both L1 and L2 attrition. "Studies of first and second language attrition suggest a range of social and attitudinal factors that all may contribute to the language loss: social class, amount, mode, and type of exposure to either language; attitudes towards language learning and desire to integrate with the host community" (Opitz, 2004).

This paper will give a brief summary of what L1 and L2 language attrition is, the psychological factors for such attrition, other variables that are at play, and several hypotheses as to how and why it occurs.

Forgetting and Language Attrition

There are three basic components to memory. First is *encoding*, which is the capture and acquisition of new information in the brain. Encoding is followed by *storage*, in which the information is integrated and filed away within the brain. Last is *retrieval*, when prior-stored information is needed by the speaker and accessed. The act of forgetting language results from a failure in one of these three areas. Regarding language attrition, it is usually assumed that the speaker acquired the information intact. Thus there was no issue with encoding, but a problem with either the storage or retrieval—that some factor or condition caused a breakdown or malfunction of one of these parts of the remembering process (Ecke, 2004).

There are several general factors/theories as to why this occurs: repression/suppression, interference, retrieval failure, decay, and dynamic systems theory.

Psychological Factors for Attrition

Repression and Suppression

Originating from the works of Sigmund Freud, repression/suppression states that unpleasant or traumatic memories may be purposely forgotten or displaced from one's memory as a self-defense mechanism of sorts. With regression it is believed impossible to ever consciously retrieve the target information again, but with suppression this is not necessarily the case. From a linguistic point of view this refusal "may entail the withdrawal of attention from an initially high active memory structure by deliberately remembering another structure" (Bjork, 1998).

Studies on language attrition have shown repression or suppression can occur for a variety of social-psychological reasons. Case studies on young children removed from their native country to an environment where their L1 is not spoken have shown that after some initial early resistance to the L2, the children soon rapidly progress with its learning to the detriment of the L1. They begin to prefer to speak mostly in the L2, due to a strong desire to assimilate and fit in with the new culture, and some even refused to speak the L1 entirely. "Other cases were reported of individuals who intentionally suppressed their L1, or who as parents discouraged or prohibited their children to use the L1 at home with the objective to support the school language or to protect themselves or their children from becoming victims of discrimination, stigmatization or racism" (Lambert & Taylor, 1996; Kouritzin, 1999). All of these studies highlight the possibility of individuals intentionally or unintentionally suppressing a given language in order to protect themselves or better fit into their societal surroundings.

Interference

Interference is often cited as a common reason for language loss, and occurs when parts of the memory process (encoding, storage, retrieval) compete with each other for a limited amount of space and energy. This can happen to monolinguals, but is mostly an issue for bilinguals or multilinguals that have multiple languages competing with each other for use, memory and cognitive resources. "As a consequence of competition and limited available resources, one language or language structure gains importance and frequency of use at the cost of another" (Kohnert et al., 1999; Herdina & Jessner, 2002).

The phenomenon of code-switching often is associated with this interference factor. Code-switching is the mixing or integrating of elements from two languages into one sentence or conversation, and is a common occurrence among bilinguals who may use elements from both their languages when communicating. This language switching can take place with the insertion of single words, known as borrowing, or larger segments of discourse. Critics of code-switching often claim those who code-switch are suffering from language interference—that their brain is confused or they are not sufficiently proficient in either language, and thus need to resort to mixing the two languages to communicate. While studies have shown a correlation or coincidence between code-switching behavior and language attrition (Myers-Scotten, 1998; Pfaff, 1999) there is also strong evidence that code-switching does not contribute or indicate language loss, or even that it may be an indicator of high proficiency and a more balanced bilingualism, and thus can prevent language attrition from occurring (Romaine, 1995; Schjerve-Rindler, 1998).

Retrieval Slowdown and Failure

Forgetting may not always lead to the total loss or elimination of information from memory, but may simply lie in a problem regarding one's ability to access or retrieve it. Frequency of use of information is one of the main factors determining this slowdown. Some psychologists believe that forgotten information is not erased from one's memory, but simply the access routes to such information have deteriorated or be-

come weakened, thus blocking access to it.

“Retrieval slowdown and failure are seen as a consequence of decreasing activation levels in neurons and processing units, and weakening connections between neurons and nodes respectively. The lack of activation through infrequent use and the aging of connections [in older adults] cause deficits in the transmission of information resulting in a decrease in retrieval speed and an increase of retrieval failure rates” (Burke, 1999).

Studies have supported this fact and shown a slowdown of L1 retrieval speed in bilinguals who predominantly use their L2.

Language Decay

Language decay goes a step beyond retrieval slowdown and failure, to the point where information encoded in the brain is entirely lost usually due to prolonged period of lack of usage. Numerous studies suggest that frequency and time of use of structures is necessary for the maintenance and access of memory, and if enough time passes prior encoded information is affected by decay and can even disappear permanently. This is seen especially often in cases of language forgetting in monolingual or bilingual speakers who are not situated in a language contact environment and do not have any opportunities to use the language.

“Various studies suggest lexical decay in speakers who have been subject to linguistic change. . . In most of these cases, also contact with and interference from the second and dominant language and incomplete acquisition may have contributed to the loss of L1 structures. Studies of L2 attrition also appear consistent with the concept of decay.” (Ecke, 2004)

Interaction and Dynamic Systems

It is possible the cause of language loss can result from just one factor, but many have come to believe that a combination of different factors all overlap and interact in the cognitive systems of bilinguals to collectively cause language attrition. “In emergent, dynamic, self-organizing systems formal structures of language emerge from the interaction of social patterns, patterns implicit in the input, and pressures arising from general aspects of the cognitive system” (Ecke, 2004). The Dynamic Model of Multilingualism, first put forth by Herdina and Jessner (2002), proposes that language systems interact and consequently, changes in one language system bring with them changes in others. Variables and phenomena such as language acquisition, language maintenance effort and transfer, interference, and language loss are all interconnected.

“According to the model, the acquisition of the novel language negatively affects the other language system(s) over time resulting in less acquisition and attrition of the previously learned systems. Only the speaker’s meta-linguistic awareness and/or language learning aptitude counteract the decline of resources, use, and competence to keep the system at equilibrium with balanced environmental demands and cognitive resources” (Herdina & Jessner, 2002).

According to dynamic systems, generally an increase in L2 proficiency will be correlated with a decrease in L1 proficiency.

In addition to all these psychological factors, other variables are at play as well. In the literature on language attrition, three main populations are commonly the focus of studies: individuals returning from other countries, individuals following time abroad for work or study, and college and high school students learning an L2. “Different populations can be quite distinct and, depending on the characteristics they share (or do not share), one must proceed with caution when attempting to generalize findings across populations” (Bardovi-Harlig & Stringer, 2010).

Furthermore, individual variables such as age (at time of acquisition as well as at time of lack of usage and input), aptitude, duration and nature of instruction, duration and nature of immersion, duration and

nature of reduced input and use, as well as motivation and attitude towards learning can all affect one's language acquisition, retention, and attrition.

It can be seen just from this brief explanation the sheer number of factors involved, as well as the complexity of the language attrition process. It is the interplay of these factors and variables that determine if language loss will occur, when, and to what degree. The next section will highlight several hypotheses which propose reasons for language attrition.

Hypotheses for Attrition

From research on language attrition over the last several decades, a number of different hypotheses have been suggested as to how and why language attrition occurs. The most prominent of these consist of the regression hypothesis, the threshold hypothesis, the interference hypothesis, the simplification hypothesis, and the dormant language hypothesis.

The regression hypothesis claims that the order of attrition is conversely related to the order of acquisition for the language. It posits that what is learned last is forgotten first, since the new material hasn't had enough time to be effectively stored and used. This is one of the oldest theories on language loss, and also one of the more widely known and believed ones. Yet overall there is a general lack of empirical evidence supporting this "first in, first out" theory, as it "appears to be too unrefined to adequately predict and explain most language attrition patterns, especially those in adult native speakers" (Ecke, 2004).

A similar theory to the regression hypothesis is the threshold hypothesis, which states that what is least vulnerable to language loss is not necessarily what was learned first, but what was learned best. Frequency of reinforcement and use cause the information to be deeply embedded into our minds, and this theory states that once a certain threshold of understanding and use is achieved, it is less susceptible, or even immune to attrition. This is a fascinating theory, but also prone to some flaws. "In cases of L1 attrition beyond early childhood, principles of syntax and phonology have been acquired to a level at which production is perfect and consistent; however, such principles are still subject to attrition" (Bardovi-Harlig & Stringer, 2010).

Another interesting theory on L1 language attrition is the interference hypothesis, which believes the cause of attrition is due to the competing influence of the newly dominant competing language (L2). Much research on second language acquisition supports that reduced usage or time immersed in the L1 in lieu of learning an L2 lead to attrition of the first language. However, language interference alone isn't enough to explain the entire process of attrition and why certain aspects of language are the first to disappear.

The simplification theory is an explanation of the multiple processes that seem to be affected with language loss. Simplification occurs in a number of aspects in both L1 and L2 due to the period of prolonged lack of input. "One such process is the simplification of morphology: Vulnerable aspects of morphology include agreement markers, case systems, and allomorphic variation. Another is the loss of register control: Language attrition often occurs in situations in which the uses of the language are restricted, and there is often a concomitant attrition of unused registers" (Bardovi-Harlig & Stringer, 2010).

Lastly, the dormant language hypothesis attempts to establish if language attrition is permanent, that those aspects of the language have been lost for good and need to be completely relearned, or if vestiges of the information still reside within our brains, the access to them has simply been lost or destroyed. Opinions as well as research on this are still mixed. In a study by Paullier et al. (2003) the use of brain imaging technology such as MRIs and phoneme discrimination tasks were used to show that a prolonged period of total lack of exposure to the L1 could cause it to disappear entirely. From this they surmised that from a long absence of continued input the language is entirely lost and not a trace of the L1 remains in the brain. However, contrasting research by Footnick (2007) has used techniques of age-regression hypnosis to show

that knowledge of a forgotten childhood language could in fact be reawakened.

Conclusion

While opinion continues to be split on which hypotheses most accurately explains for language attrition, there is a general consensus on certain areas or characteristics of attrition that are commonly affected and some ways to prevent this: (Bardovi-Harlig & Stringer, 2010)

- Production skills such as speaking and writing are more vulnerable to attrition than receptive skills such as listening and reading
- Receptive vocabulary/grammar is also prone to attrition, since productive skills require use in order to stay sharp
- Older children retain more than younger children
- The lexicon has been found to be more likely than grammar to show attrition
- Literacy supports retention and impedes attrition
- The level of motivation is a key factor both during learning and attrition

Another possibility to stemming the attrition of one language in lieu of another can be the utilization of code switching, as it allows bilinguals to use elements from *both* their languages during discourse. Code switching provides a wide range of linguistic applications for bilingual speakers, allowing for a richer discourse and various means to express one's feelings, emotions or identity in a way that doesn't always exist in monolingual speech. Evidence has shown that it has benefits towards metalinguistic knowledge (evidence of abstract thinking transcending ability in any specific language), detecting ambiguity, making grammatical judgments and of course proficiency in the given languages" (Myers-Scotton, 2006).

The use of code switching amongst family or community members who are bilingual in the same L1 and L2 allows for continual oral/auditory exposure as well as grammar and lexicon use of both languages. This can help hinder retrieval slowdown and language decay, as speakers are constantly shifting back and forth and using features of more than one language. In addition, it may also help prevent some social-psychological reasons attributed to language loss, such as one's strong desire to assimilate and fit into a new cultural environment by speaking the new L2 to the detriment of the L1. By incorporating elements of the L1 into discourse in the L2, bilingual speakers can continue to gain proficiency in the L2 while maintaining use and identity in their L1.

In conclusion, just as there are numerous factors and variables that seem to contribute to language loss, there are various hypotheses regarding attrition. Continued research and more evidence on this topic from both linguistic and psychological perspectives working in tandem is needed. In the meantime, receiving a steady stream of input in the language, practicing it when possible, utilizing language literacy and reading as well as maintaining a higher level of motivation have all been shown as effective ways to keep language loss and attrition at bay.

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