SEMANTIC PROCESSING *and* WORD FINDING DIFFICULTY ACROSS *the* LIFESPAN

A Practical Guide for Speech-Language Pathologists

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SEMANTIC PROCESSING IN BILINGUALS

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Chapter Objectives

1. List at least three common misconceptions about bilingual language development.
2. Identify the key components of an appropriate semantic assessment for bilinguals.
3. Define the differences between simultaneous and successive bilinguals.

Introduction

As the prevalence of bilingualism continues to rise and our world becomes progressively more global and interconnected, understanding the complexity of semantic processing in bilinguals becomes increasingly important among speech-language pathologists, especially as professionals strive to be culturally competent while serving culturally and linguistically diverse (CLD) clients. Understanding semantic processing among bilinguals is essential to understanding linguistic diversity. This understanding of semantic processing in bilingual and multilingual clients becomes even more imperative as most practicing speech-language pathologists are monolingual and lack direct under-

standing of bilingual experiences and differences. According to the American Speech-Language Hearing Association (ASHA) Profile of Bilingual Clinicians, Year-End 2018 Review, about 6% of all speech-language pathologists and audiologists are bilingual or multilingual. The relative scarcity of bilingual and multilingual clinicians is startling when taking into account that expected speech and language caseloads will consist of increasing amounts of CLD populations (Crawford, 2013). Additionally, many SLPs report a lack of appropriate assessment tools for linguistically diverse clients, and developmental norms (Guiberson & Atkins, 2012). Thus, understanding semantic processing in bilinguals is an important step in providing appropriate services to diverse clients.

Theoretical Models

There has been extensive research investigating the differences between monolinguals and bilinguals in semantic processing. Kroll and Stewart's (1994) Revised Hierarchical Model asserts a distinction between the lexical and conceptual level among bilinguals, contending that initially, links are assumed to be stronger between L2 to L1 because many L2 words are first learned by correlating them with their L1 translation. Thus, what might initially appear as word finding difficulty may actually be the process of mental translation. This model accounts for differences in translation latency particularly for late bilinguals who acquire a second language distinctly after the acquisition of a first language and remain dominant in L1 (Kroll, van Hell, Tokowicz, & Green, 2010). Figure 10–1 illustrates the process of mental translation.

Concrete words with more direct conceptual images that prompt the speaker to visualize a clear mental picture may present with different translation features than abstract words and concepts. For example, the word "apple" typically prompts a clear mental representation that can be clearly mapped into a new language. However, an abstract concept like "trust" or "love" may be encoded differently and somewhat more

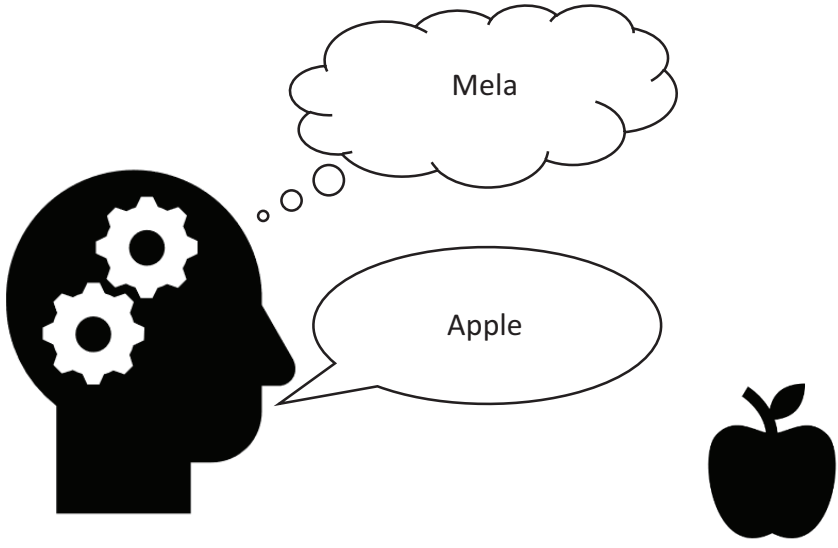

Figure 10–1. Illustration of mental translation.

challenging to retrieve. Such processing differences are outlined in the Distributed Feature Model (van Hell & de Groot, 1998), asserting faster translation of concrete words in comparison to abstract concepts. Figure 10–2 illustrates this concept of strong concrete connections in comparison to weaker, more abstract connections.

Other models of semantic learning among bilinguals highlight the dominance of words encompassing multiple meanings and thus evoking a variety of different senses when translated. The Sense Model introduced by Finkbeiner, Forster, Nicol, and Nakamura (2004) uses examples such as the Japanese word "kuroi" and its translation in English to "black." Whereas these words seemingly correlate on the basis of color, the English translation could have several different meanings in addition to color, such as "black coffee," "black humor," "black magic." The word in Japanese may also elicit a variety of different meanings other than a simple color translation. This model seems to support general principles of the Distributed Feature Model with both models overlapping in their acknowledgment of conceptual words with multiple meanings.

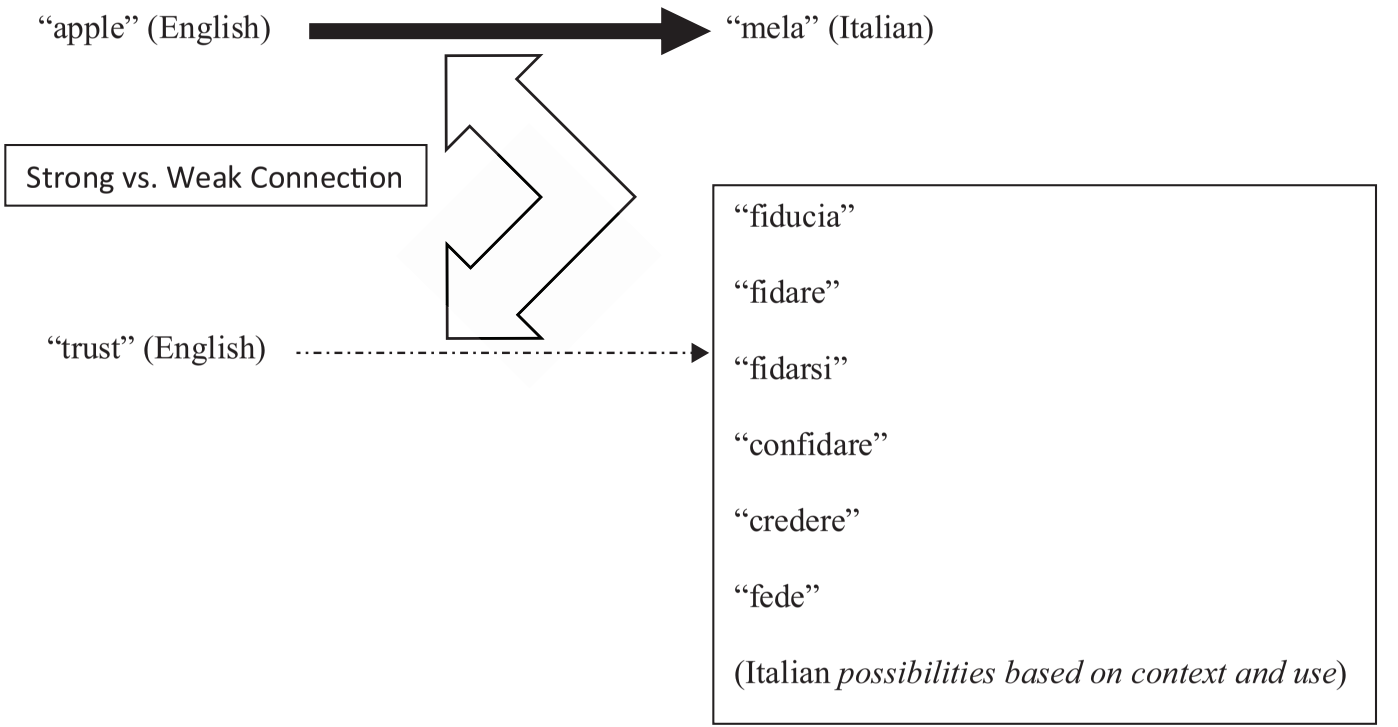

Figure 10–2. Illustration of strong concrete connections in comparison to weaker more abstract connections.

Lexical Development in Bilinguals

The period in language development at the time of second language exposure, in addition to frequency and context, have the most impact on semantic processing and lexical development in bilinguals. In considering lexical development, bilinguals may have basic interpersonal skills that include general conversation proficiency or cognitive academic language proficiency that includes more years of exposure resulting in near native skills (Cummins, 1984). Thus, learning a first language in early childhood and then having academic training in that language would result in both conversational and academic proficiency. This lexical environment differs from a bilingual who might speak one language at home and another at school or work. For example, bilingual children may develop some words in the home language, while developing other words in the language used at school (Paradis et al., 2011). This kind of context bound use of language is common especially for speech-language pathologists working in schools who may serve clients who are English language learners and present with speech and language delays. In such cases, SLPs might incorporate opportunities in intervention to support English vocabulary growth incidentally via strategies such as increasing comprehension and strengthening morphological awareness skills, while also leveraging the skills that are present in the native language (Fitton et al., 2016). Additionally, evidence suggests strategies like shared book reading tasks and repeated vocabulary exposure in both languages are helpful to encourage semantic development among English language learners (Davison & Qi, 2017; Fierro & Storkel, 2017).

Speech-language pathologists might consider semantic loss as a bilingual child can begin to show attrition of semantic skills in one language resulting from reduced exposure and growing language dominance. Evidence indicates language experience impacts receptive and expressive semantic skills (Gibson, Peña, & Bedore, 2012). Because experience is closely linked with semantic skills, clearly understanding a bilingual client's language experience is critical to diagnosing semantic disorders. Among bilingual children, omission of words and bound morphemes appear to predict language impairment (Jacobson &

Walden, 2013). Thus, in capturing a full picture of a client's semantic skills, accurately gathering linguistic background information on semantic development and language exposure is a vital element.

Clinical Implication

In a "real world" example, consider a typically developing African American male living and working in Japan. He was born in the United States and grew up exclusively speaking English before moving to Japan at age 30, where he became fluent in Japanese. He and his Japanese wife worked as translators and lived with her monolingual Japanese-speaking parents. After his stroke at age 55, the client demonstrated severe deficits in his use of Japanese and was left with significant limitations in his expressive output after more than 20 years of living and working in Japan as a late bilingual. His use of English remained relatively intact, although he did present with some residual semantic deficits, such as difficulty with word finding.

This example shows how bilingual clients can present with a linguistic advantage in cases of acquired brain injury and how lexical development can play a role in semantic loss following traumatic brain injury. In this case, the client demonstrated more semantic loss in his second language acquisition than with his first language. A speech-language pathologist only evaluating this client in Japanese might determine more severe semantic deficits than a speech-language pathologist accounting for both English and Japanese semantic skills and capturing abilities in both languages.

Semantic Access in Bilinguals

The "bilingual brain" is a fascinating thing. Bilinguals seem to use both languages in an integrated way, and evidence suggests the different languages can interact during processing (Desmet & Duyck, 2007). Among preschool children, evidence indicates there is an advantage among bilinguals in superior inhibitory

control in comparison to monolingual peers (Bialystok & Martin, 2004). Research suggests a "bilingual advantage" with some actions, such as visual tasks of inhibition, but no significant differences in other performance areas such as visual and auditory inhibition of irrelevant information among early balanced bilinguals and their monolingual counterparts (Desjardins & Fernandez, 2018).

To understanding semantic access, we first need to understand the processes of bilingualism and second language acquisition. Paradis and colleagues (2011) clarify the terms sequential bilingualism, simultaneous bilingualism, and English language learners.

Sequential bilinguals learn a second language after age three when they have already achieved a level of proficiency in their primary language. Other terms for these individuals include **successive bilinguals**. At least initially, successive bilinguals can demonstrate better receptive skills of the secondary language before developing expressive skills in the secondary language.

In younger sequential bilinguals, language skills in L2 may become near native proficiency given the degree of exposure. This may be different for late successive bilinguals, such as individuals who learn a second language in early adulthood who might always demonstrate more dominance in their first language. **Simultaneous bilinguals** include individuals who develop two or more languages at the same time, typically in early childhood prior to age three. An example may be a child with bilingual parents who regularly speak two languages at home. The term **English language learners** often refers to students in schools for the sake of defining those students who may demonstrate limited English proficiency. Such students may benefit in school from additional support to access their academic curriculum, given reduced English language comprehension or expression.

Understanding your client's type of bilingualism is important in order to make appropriate decisions in assessment and intervention. For example, a child exposed exclusively to one language at home and then a secondary language at school may present with different semantic skills than a child exposed to both languages at home via fluent, bilingual parents. The first child would be labeled as a **successive bilingual**, having first learned one language followed by another. The second child

would be labeled a **simultaneous bilingual** with concurrent exposure to both languages in early childhood. This information should impact how a clinician goes about assessment procedures. Prior to assessment, it is critical to ask about language exposure and dominance in order to select appropriate evaluation measures. This background knowledge helps to differentiate differences from disorders.

Word Retrieval in Bilingual Speakers

Although some clinicians caution bilingual families against speaking two languages in fear of "confusing" the child, this negative theory has been strongly refuted by evidence suggesting the absence of adverse effects and potential advantages of dual language exposure (Byers-Heinlein & Lew-Williams, 2013). Bilingual and multilingual speakers present with strong metalinguistic skills as they often conceptualize a term in one language and then translate it into another language depending upon the linguistic context (see Figure 10–1). As they do so, bilingual clients indicate an ability to consider the language dominance of their communication partners and an ability to adjust their linguistic output to match their environment. Clinically, in evaluation, interventionists should consider probing in the home language prior to using English to permit the child the opportunity to communicate in that language before the child attempts to code switch to English for the benefit of the evaluator.

Clinical Application

Consider a bilingual child attempting to code switch a word without a clear meaning. For example, a child hears the word "orange" without context. To translate the word into Spanish, does the child consider the word "naranja" for orange fruit or the word "anaranjado" for the color orange? Likely, the child would use context clues to discern which entity best fits the speaker's meaning. This mental process is one unique to bilingual and multilingual speakers.