The Human Lexicon: Optimized Construction, Interpretation and Retention of Novel Words for

Effective Branding

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Abstract

In technical writing for marketing, business, or science and technology, novel words for products, brand-names, and inventions should be carefully designed with fundamental human psychology and language theory in mind in order to maximize comprehension, retention, and reinforcement by association. Across languages, human beings share common principles of communicative perceptions which allow us to absorb and understand new concepts with high fidelity despite continually being filtered through and passed between countless individuals with unique linguistic backgrounds. Applying scientific research to maximize the conceptual fidelity of new terms by deliberately crafting them to resonate with their intended users should increase the likelihood of their adoption into the common vernacular. This literature review presents an overview of recent research on linguistics and related human psychology in regards to widespread established assumptions that influence comprehension, critically analyzes these studies, and suggests areas for future scientific consideration. More research is needed, but relevant articles are grouped according to their significance to fundamental linguistic patterns, functions of cognitive retention of words and marketing and technical considerations of established findings.

**Introduction**

Based upon prior research it is possible to design a focused study to collect data on participant responses to further probe the shared correlations between phonemes, basic sound units of words, and the inherent information that they convey independent of grammatical context. Improved understanding of these basic relationships will provide a potential wealth of interdisciplinary applications, but particularly for more informed construction of brand names and novel words for marketing purposes with a more concrete psychological and linguistic basis.

Surveys designed to gauge participant associations of phonemes with specific concepts should illuminate fundamental linguistic connotations that can then be directly applied to brand name creation. Focusing on consumer demographics would strengthen the relevance of the data to more efficient and optimal marketing potential. Capitalizing on brand names containing inherent product information in their construction will improve understanding of the way consumers extract context from, and apply meaning to, the sounds.  By understanding how those associations are made and why, and which sounds are associated with certain ideas, brands can be designed in tune with linguistic psychology, and therefore improve brand recognition and retention, ultimately leading to greater likelihood of financial success.

The most apparent gap in research related to the included literature review appears to be quantitative testing of a large sample size exploring correlative results of potential word construction based on established linguistic associations. Conducting a comprehensive cross-language study would be ideal, but if that is impossible with current resources then an English-specific focus could still yield new insights. For example, if participants are tested in a blinded study on their response choices between two basic sound combinations and comparatively distinguishable shapes, colors, images, concepts, or other qualities, correlations could be established that provide further insight into associative mechanisms in the human brain and the potential application of such data in branding and marketing. (Smith 2016)  Putting Smith's research into action, a survey focused on specific phonemes with established conceptual associations, such as the "oo" and "ee" sounds investigated in their study can determine the level of marketability of the results of this research. By asking the participants in the survey to provide responses guessing the product being marketed by the brand name, with no context other than the brand name itself, the data should show a strong correlation between brand names with sounds

that match the implied product, contrasted with products that are mismatched with the phonemes included in less effective brand names. Participants will likely be shown to be much worse at remembering and associating sounds that are mismatched to the product, such as the sound correlated with distance being paired with a product unrelated to a spatial reference.

**Literature Review**

**Authority, Objectivity, and Currency of Reviewed Literature**

The construction, context, and informative content of words involves multiple complex processes, ranging from extensive cultural and sociological input and esoteric linguistic traditions to electrochemical patterns in specialized regions of the brain. As such, the existing literature contributing to the understanding of the fundamental principles at work in the microevolution of languages encompasses research from specialists across fields. University researchers from around the world conducted the referenced studies under the scrutiny of peer-review, publishing their findings in authoritative journals as well as through University-sponsored press releases of methods and conclusions. Each citation was found through publication databases, university websites, or professional media analysis published by reputable organizations. Relevant information such as authors, publishers, publication dates, research methods, and references are sufficiently available, searchable, and verifiable.

The literature raises few trepidations of bias or veracity, and no conflicts of interest or other ethical issues are apparent in the experiments. Statistics are clearly and accurately displayed and analyzed, following scientific conventions for adherence to acceptably low standard deviation and margin of error. Quantifiable data is consistently represented with defined means of acquisition and logical results, such as in the associative study conducted

by Smith (2016). One area of concern is the primary focus on English as the native language of subjects in many studies, potentially leading to results that may not be generally applicable and somewhat weakening the premise of their arguments as a result.

The bulk of reviewed literature was published within the last five years, which reinforces the poignancy and relevance of the conclusions and also the nascency of the academic community's understanding of the multifaceted interactions at play behind linguistic acquisition. This burgeoning subject continues to be explored, and although somewhat current information is available these citations were selected for their concise summarizations and straightforward conclusions. Much additional research must be done to form a fully comprehensive body of literature that elucidates the linguistic mechanics behind the learning and recollection of words, and the potential applications of common aspects of language comprehension in humans.

**Fundamental Linguistic Patterns: Psychological and Physical Factors**

A close examination of the biological adaptations found in the human brain and vocal system are central to the premise of linguistic adoption. Human beings convert sound wave information entering the ears into brain signals that must be interpreted: "This transformation in the auditory system is similar to what has been observed in the visual system…except that in the auditory system, neurons are encoding information about time instead of about space…This means that these neurons are acting like translators, converting a sound from one language to another" (University of Oregon, 2015). "Even skilled readers occasionally have to sound out words they do not know.  But once you become a fluent, skilled reader you no longer have to sound out words you are familiar with, you can read them instantly…We show that the brain has regions that specialize in doing each of the components of reading.  The area that is processing

the visual piece is different from the area that is doing the sounding out piece." (Teber, 2019, Para. 4). "The oscillatory activity of the infant brain increased when the word they heard matched the shape they were shown, compared to when it did not. This suggests that the infant brain spontaneously engages in matching visual and auditory input." (Parkes-Harrison, 2015, Para. 4). The sounds that human beings chose to make are partly the result of the mechanical structure and limitations of our bodies, but the processes dictating the chaining of sounds and use of syntax are equally dependent on the partitions of our brain regions, and a result of the complex interactions between areas of the brain and feedback received from motor neurons as we use them. "The results show that speech perception automatically engages the articulatory motor system, but linguistic preferences persist even when the language motor system is disrupted. These findings suggest that, despite their intimate links, the language and motor systems are distinct." (Martin, 2015, Para. 13). They are distinct in their function, but are connected dually by the learned structure of language and instinctive roots that guides cognition.

Since words must be encoded into brainwaves to be interpreted, it is no surprise that human brains attempt to efficiently organize constituent sound signals by relative association. The mechanisms that lead to word associations should be of critical interest to professional writers attempting to empower their words with deliberate associative implications. Shamsollahi, Amirshahi, and Ghaffari laid out word-familiarity categories by their relative level of association to demonstrate the importance that familiarity provides for comprehension and retention of brands by advertisement audiences. (See Table 1):

Table 1. Word types.

| High-familiar words | | | | |
| --- | --- | --- | --- | --- |
| High-familiar and relevant words | | | | |
| Associated with unadvertised attributes | Associated with advertised attributes | High-familiar and irrelevant words | Low-familiar words | Potential words |
| Words which are associated with the products attributes and also represent cueing attributes that are not referred to in the ads | Words which are associated with the products attributes and also represent cueing attributes that are referred to in the ads | Words which are not relevant to the products attributes | Words that consumers deny any familiarity with them while they are actually in the dictionary | Words that have acceptable combination of sounds but are not present in the dictionary |

(Shamsollahi, Amirshahi, & Ghaffari, 2017).

"Each of the five word types in Table 1 has its own advantages and disadvantages to consider when brand managers choose a name for their brand. Managers can choose low-familiar words or potential words (e.g., *Nintendo* or *Google*) instead of high-familiar words as brand names. The greatest advantage of a low-familiar word, a potential word, or any other word with limited or no associations in memory is its high flexibility compared with high-familiar words" (Shamsollahi, Amirshahi, & Ghaffari, 2017, pg. 242). These researchers argue that if the level of association is too high due to similarity to existing words that brands can be harmed by that association. Lerman and Garbarino (2002) arrived at similar conclusions, but also called for more research into this relationship in human linguistic comprehension and its potentially vital applications, especially in business: "Despite this key role, various questions about memory for brand names remain unanswered. For example, how does the word or nonword nature of a brand name affect memory? Moreover, how does a semantic relationship between a word brand name and a product category affect memory?" (Pg. 621, 2002). Lerman and Garbarino leave these questions unanswered, but subsequent research has provided some insight into the comprehension and retention of nonwords, although it remains a poorly understood subject.

Most of what research has shown is that "…there is something special about ideophones that makes them easier to learn," but that "something special" remains elusive and requires far more research to define conclusively (Radboud University, 2016).

**Considerations for Technical Applications: Marketing, Business, and Education**

The lack of research into a subject as fundamental as the information conveyed by the specific sounds human beings chose to use in different contexts is chiefly due to a failure to realize the importance of the sounds themselves. For decades the consensus was that, for the most part, "…language was arbitrary – that one word for an object was as good as any other…however, this isn't true all the time. Feelings and intuitions about sounds also have currency, perhaps because we are human and we interpret things in a particular way." (Smith, 2016, Para. 9). Word construction can convey inherent meaning, even across languages and cultures, but technical and professional writers, businesses, governments, and scientists should exercise caution as this principle can function as a double-edged sword; what may initially be considered to be a potential word can prompt a humorous response that could establish an association unintended or undesired by its author. "For example, the study found that the letter k and the sound 'oo' (as in 'boot') are significantly more likely to occur in funny words than in words that are not funny." (University of Alberta, 2018, Para. 5). Knowing which sounds to avoid and which to utilize should be of great interest to any business seeking to optimize the efficiency of their marketing strategies, and yet the body of research on this topic has been conducted in recent years and in a piecemeal fashion.

**Research Design and Methods**

A variety of survey constructions could yield useful data for the marketing applications of discrete phonemes, but certain aspects must remain consistent throughout potential research

designs. By carefully crafting survey questions based on known phoneme associations such as the implication of distance, respondent answers should be largely reliable regardless of the specific nonwords included in survey questions. Focusing on a consumer demographic such as university students will narrow the research focus and therefore increase the market relevance of the results. By disseminating surveys at Dixie State University or online through SurveyMonkey or Google Surveys to a wider data pool of university students, a sufficient data set for quantifiable results and minimal margin of error can be gathered for analysis.

Potential survey designs will begin with demographic questions for data analysis purposes. Subsequent questions asking participants to form conclusions about invented brand names with only provided phonemes will indicate the level of correlation across demographics such as age, gender or background, and offer strong evidence of any fundamental correlation of concepts conveyed by the specific sounds tested. Further questions could be posited with open-ended responses, asking participants to explain their reasoning for survey answer selections. Coding text-based answers for references to context provided by sounds will contribute to a deeper understanding of the cognitive processes underlying brand name recognition as a supplement to the more specific survey questions. Real-world brand names could also be included in the survey to provide a comparison of products matching the phonemes in their construction with examples that do not match. For example, respondents could be first asked if they are familiar with a brand name such as "uHaul," and brands more ambiguous nonword brands. If the respondents are not familiar, then they could be asked to guess from a list of options what product or service that brand is most likely to represent. Brand names with distance correlative phonemes should result in higher rates of retention, especially in survey settings with

time-delay between first, second or even third responses, than brands with sounds shown to have weaker correlations to the tested concept.

**Preliminary Suppositions and Implications**

If survey results show a strong correlation between brand names constructed with related phoneme concepts, marketing strategies would likely need to be reexamined to ensure brand names more closely match the products they are meant to represent. Much more research could be done to comprehensively explore every possible phoneme and its potential linguistic associations, and unknown correlations may be discovered that are as of yet untapped by marketing professionals. Rather than an owner or inventor arbitrarily choosing a brand name based on a personal perception of kitschiness or catchiness or marketers seeking primarily to avoid copyright infringements, informed businesses could design brand names based on associations established by evidence supported by comprehensive interdisciplinary research. As such, consumer relations founded upon brand recognition could improve and provide businesses with a more optimal potential for growth and longevity.

**Conclusions**

There is currently a dearth of research pertaining to the application of phoneme associations in marketing, and the latent linguistic foundation of nonword retention that guides consumers remains largely untapped. By studying the psychological correlations and assumptions made by consumers when provided with minimal context, previously poorly understood marketing applications may become a source of informational and therefore economic power.

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