

Rise Of Epistemic Meaning Of Words: Semantic Change Of Binukid Language In Reflection Of Modernity In Bukidnon, Philippines

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Abstract: Human language is subject to constant evolution driven by the need to reflect the world's ongoing changes and becomes a more efficient means of communication. The term semantic change describes how words can have different meanings for different people, usually because the modern meaning differs from the original usage. The primary purpose of this study is to analyze related research journal articles about the semantics change of the Binukid language in reflection of modernity in the Province of Bukidnon, Mindanao, Philippines. This study reviews the growing scholarly literature that takes up the term semantic change and discusses the rise of epistemic meaning of words. Moreover, the researchers focus on the developments and challenges of semantic change in communication over time. After reviewing reputable journals, the researchers consider how semantic changes' underlying theories and evolution affect today's generation's communication. Hence, semantic change categorizations' relationship to the nature of semantic change remains obscure despite the efforts of the researchers in this field.

Index Terms: binukid language, communication, epistemic, evolution, language, modernity, semantic change

1 INTRODUCTION

HUMAN language is subject to constant evolution driven by the need to reflect the world's ongoing changes and become a more efficient means of communication (Jatowt & Duh, 2014). The problem of the change in word meanings is pertinent to linguistics, where a semantic problem occurs in interpreting the word meaning process (Werner, 2011). Words are more likely to change if they have low frequency because speakers have less information about the meaning, making them more vulnerable to reinterpretation or replacement further, eroding their frequency (Bower, 2019). One of the challenges in developing semantic change detection systems is obtaining ground truth data, which has, so far, prevented a systematic evaluation of different approaches (Kutuzov et al., 2018). All aspects of all languages are changing all the time, and for most of human history, for most of the world's languages, this change is not recorded (Bower, 2019). The problem of semantic change has many facets where there are several interpretations, and the presence of multiple instances of a change provides difficulty in understanding the word (Sonila, 2015). Some problems that occur in semantic change affect the formation of words such as, meaning and correspondence (Chen, 2014). Learning words that are a group in semantic sets are not easy to analyze when levels of interpretation are complex (Waring, 2011). Moreover, numerous semantic problems concerning particular linguistic construction occur due to limited examination and lack of clarity about the semantic function (Crimmins, 2013). UNESCO's intervention program, the top international educational agency, establishes semantic values and conservation, which are fundamental aspects of linguistic studies to rely on a unified understanding of the conservation-restoration data (UNESCO, 2020). An international organization named NSW for Effective Reading Centre introduces semantic mapping that aims to depict ideas graphically so that students may use a semantic word map to conceptually explore their understanding of a new word (Zorfass, 2013). Also, Oceanic Linguistics presents semantic fields, particularly in connection with linguistic reconstruction that exhibits semantic coherence (Ross, 2011). On the other hand, UNESCO's intervention program failed to include a technique and exact model representations where people could directly understand a particular word with different meanings (UNESCO, 2020). Given the uneven process of

semantic mapping, it affects the progression of a word's purpose, and it presents the need to assess the insufficiency of the intervention program (Zorfass, 2013). Also, the incompleteness of factual information about the lexical-semantic feature of words needs attention to avoid inaccurate reviews and misconceptions (Ross, 2011). Binukid language is spoken by indigenous people, specifically in the province of Bukidnon. However, the indigenous language is not given much importance and attention compared to the English language (Saldua, 2011). There are words listed in the earlier dictionaries that seem to be unknown in the current time, and some of the Binukid speakers do not understand the speech of their elders who used old Binukid terms (Peng & Billings, 2012). Semantic change is one of the Binukid language characteristics that has not been a subject of various studies/research (Tabequero, 2017). Since the first written work on the language, Binukid has changed considerably, both in its morphosyntax and in lexical-semantic change (Lusekelo, 2013). Word meaning is in constant mutation since the correct understanding of individual words underpins general machine reading comprehension and has become increasingly relevant for semanticists to detect and characterize lexical semantic change (Giulianelli et al., 2020). Filipinos have been accustomed to using the English language alongside indigenous languages, and questions about semantic change and language identity continue to arise (Esquivel, 2019). The rapid semantic change affects the Binukid speakers' communication in today's generation, one of the linguistic study concerns (Rugemalira, 2011). These words are continuously evolving for many reasons, including cultural factors like the new technologies and regular linguistic processes (Hamilton et al., 2017). The Philippines' educational curriculum evolved, so any Kindergarten to Grade 12 Curriculum allows pupils, indigenous and non-indigenous, to master lessons as they progress through various academic (DepEd, 2016). Teachers in mainstream schools in the Philippines should focus on facets of good language instruction and consider incorporating customized instructional interventions like introducing the Binukid language to the new curriculum, specifically in Bukidnon (Hanlen, 2014). Moreover, the PhilEd Data: Strengthening Information for Education, Policy, Planning, and Management in the Philippines presents that semantic

distinction may reflect the intention that the Binukid language should be taught in its vernacular form, embracing the indigenous language peculiar to an ethnic locality of Bukidnon (McEachern, 2013). Unfortunately, this intervention made by the Department of Education in the Philippines omits to present a way to realize how the meaning of words changed, precisely the words of indigenous people, and what the factors are involved in this matter (DepEd, 2016). Teachers must address further the language use of Binukid and some strategies needed for this intervention to be effective for the students (Hanlen, 2014). Besides, the education policy lacks in students' application to the proposition of a language reform regarding the Binukid language, making it inadequate (McEachern, 2013). Every word has its history, and in this study, the researchers seek to analyze the evolution of word meaning by investigating its context across time (Jatowt & Duh, 2014). Changes in meaning or semantic changes are the area of diachronic linguistics, and understanding the evolution of language and culture requires disentangling the underlying causes (Fitrisia & Widayati, 2018). Binukid is a language spoken by the indigenous groups of Bukidnon Province in the north-central part of Mindanao, the largest island in Southern Philippines (Borres, 2018). Furthermore, words acquire new meanings and lose old senses, new terms are coined or borrowed from other languages, and obsolete words slide into obscurity (Tahmasebi et al., 2019). The language is in a constant flux of change, and many existing words were subject to semantic change to let speakers refer to new or changed concepts in the surrounding world (Jatowt & Duh, 2014). Semantics' study increases students' understanding and awareness of word meaning, sentence relationships, discourse, and context (Alsayed, 2019). The main focus of work on semantic change from the early 20th century on has been on changes in "sense," the concepts associated with expressions (Traugott, 2017). The indigenous communities are often referred to as lumads, composed of seven (7) ethnic tribes: the Bukidnons, the Tigwahanons, the Umajamnens, or the Umayamnons, the Talaandigs, the Higaonons, the Manobos, and the Matigsalugs (Hermocilla, 2018). Each tribe speaks a variant of Binukid, distinct from the other, thereby creating a rich ethnolinguistic landscape of the province (Borres, 2018). The study of Jatowt and Duh (2014) entitled *A Framework for Analyzing Semantic Change of Words across Time* analyzes language evolution through automatic approaches. This study shows the results of an exploratory analysis aiming to investigate methods for studying and visualizing changes in word meaning over time (Jatowt & Duh, 2014). In particular, the researchers propose a framework for exploring semantic change at the linguistic level, at the contrastive-pair level, and the sentiment orientation level (Jatowt & Duh, 2014). The study demonstrates several kinds of NLP approaches that altogether give users a deeper understanding of word evolution. Thus, the findings indicate that the task is feasible and satisfactory outcomes can be already achieved by using simple approaches (Jatowt & Duh, 2014). The study of Borin et al., (2019), entitled *Survey of Computational Approaches to Lexical Semantic Change Detection*, suggests that the field has increased in the last few years, resulting in various lexical semantic change detection techniques. They are ranging from counting approaches over generative models to neural network-based word embeddings (Borin et al., 2019). However, most of these approaches are sense agnostic,

effectively focusing on the mixture of word senses. Although some claim that their methods utilize the dominant word sense, they use each occurrence of the lexeme or word form without detecting whether it represents the prevailing sense or not (Borin et al., 2019). A study of Fitrisia (2014), entitled *Changes in Basic Meanings from Proto-Austronesian to Acehnese* conducted in Indonesia, examined examples of meaning changes in the Acehnese etymon based on four basic types of changes of meaning categorized according to Crowley and Bower (2010). This study was not given much attention in the Philippines, specifically, bifurcation and metonymization, which indicates the study taken from the English Finder list of Reconstruction in Austronesian Languages (Fitrisia, 2014). The United Nations (UN) Sustainable Development Goals (SDGs) highlights the development of a natural language processing-based methodology by using paragraph embedding techniques to find paragraphs in the documents that match the semantic concepts of each of the SDG targets (Singh, 2018). Its goal is to find specific sentences/paragraphs of national plans that match the targets of the SDGs; they used a model that can discern the semantics and context of a given sentence and be able to compare it to a target of similar meaning and intention (Galsurkar & Wu, 2018). Furthermore, the Philippines Sustainable Development Goals have awakened an interest in integrated approaches of SDGs into local languages in the Philippines for sustainability performance by creating semantic modeling (Reyes et al., 2019). The United Nations (UN) Sustainable Development Goals (SDGs) encountered some problems in filtering generated results to remove duplicates, redundant matches, as well as better discrimination between similar sentences that are candidates for a given SDG target (Singh, 2018). The proposed method for semantic searching in other domains needs to improve the scaling factors further to improve the quality of matches, and ground truth data is sometimes unavailable (Galsurkar & Wu, 2018). The Philippines Sustainable Development Goals need to clearly emphasize the development and coordination of SDGs implementation in semantic modelings, such as ensuring the program fits the local context and transforms into practical, sustainable development goals (Reyes et al., 2019). In this vein, this study aims to analyze related studies about the semantic change of the Binukid language in reflection of modernity in the Province of Bukidnon, Mindanao, Philippines. This study also aims to identify the dominant type of semantic change in reflection of modernity coming from the reputable journals gathered; examine the schematic representation in the semantic changes of the Binukid language across time; and evaluate how semantic changes affect communication in today's generation. This section presents the following compositional parts of the study after the introduction part. The literature review presents studies from local and international sources such as the history, developments, challenges, and future. These support the study using related and refuting evidence connected to the study. In conclusion, the researchers will restate the problem, summarize, reflect on the research and make recommendations for future work on the topic.

2 REVIEW OF LITERATURE

2.1 History of Semantic Change

Semantic change, defined as a change of one or more meanings of the word in time (Lehmann, 2011), is of interest to historical linguistics and is related to the natural language processing task of unknown word sense detection (Erk, 2013). Semantic change from the early 20th century has been on changes in "sense," the concepts associated with expressions (Traugott, 2016). Change in the meanings of words, over time, the study of historical semantics (McMahon, 2013). Over time new words were either coined or borrowed from other languages, and many existing words were subject to semantic change to let speakers refer to new or changed concepts in the surrounding world (Jatowt & Duh, 2014). Furthermore, semantic change is a change in the concepts associated with a term and the innovations that change the meaning of words (Bloomfield & Campbell, 2014). In the first half of the 20th century, much work was done to classify semantic change types, most of which were lexical/ contentful and considered isolation (Ullmann, 2011). The meaning of a particular word or words encompasses all the aspects of the whole meaning of a word that may provide causes and reasons for an extension and not just enclosed to its typical designation or the central element of a word (Lichtenberk, 2015). Also, it is necessary to reexamine the essential nature of conceptualization, metaphor, and other cognitive mechanisms among semantic change (Da Silva, 2012). There are numerous semantic change types where each has different significance (Bloomfield, 2014); factors behind the semantic shift, such as function and shape, are discussed and exemplified, revealing much semantic variation (Li, 2014). Moreover, traditional approaches to semantic change typically focus on outcomes of meaning change and list types of change such as broadening and narrowing; and developing positive and negative meanings (Traugott, 2017). Semantic change refers to the modifications made to the meaning of words and their development (McWhorter, 2020). Evolutionary approaches to language change provide detailed semantic shifts and lexical replacement (Bower, 2019). The semantic changes in modern-day reflexes in Philippine indigenous languages are reflected in the speakers' modernity and environment (Avelino, 2017). Based on the study, if a word became popular, it can be a new sense it acquired like many technological terms (Gulordava & Baroni, 2011). Additionally, a semantic representation is a set of classes and relationships that describes a knowledge domain (Bartalesi, 2019). Language is contextualized by the physical dimension and the culture and history of the people who speak it (Avelino, 2017). Indigenous languages in each country are considered to share common characteristics and possibly similar features, which can be attributed to many factors (Parnes, 2011). One holds indigenous language, which is essential in keeping a community and a country alive (Masorong, 2020). Semantic innovations in the reflexes of these reconstructed words abound in modern Austronesian languages, particularly across the varied landscapes and geographic realities of the Philippines (Avelino, 2017). In this manner, the Spaniards and Americans' colonization could account for the semantic change undergone by most indigenous languages (Maxilom, 2011). The Philippines is diverse in terms of culture and language, and there are 11 million IPs and 110 indigenous ethnolinguistic groups located in 65 of 78 provinces in the

country (Cornelio & de Castro, 2016). Indigenous people speak the Binukid language, specifically; the Higaonon and Talaandig found in Bukidnon and Agusan del Sur and Cotabato's province near the boundaries of Bukidnon (Saldua, 2011). Furthermore, the Binukid alphabet is only made up of eighteen (18) letters, with only four (4) vowels and fourteen (14) consonants, and around 100,000 people still speak this indigenous language (Post & Gardner, 2012).

2.2 Development of Linguistic Semantics

Developments in linguistic theory may also increase understanding of semantic change, which has long been seen as a domain where the description is the highest achievable goal (Lichtenberk, 2015). Earlier approaches have attempted to classify changes, but seeing developments as, for instance, extensions or restrictions of meaning does not necessarily explain why these occur, and linguists have tended to fall back on the old adage that every word has its own history (Wijaya, 2011). The general tendency in semantic change focuses on meanings that become increasingly situated in the speaker's subjective belief state or attitude toward the proposition, like developing epistemic meanings in the language (Traugott, 2014). Furthermore, at the word level, it successfully correlates change patterns with classical semantic change categories such as new word coining, metaphorical change, and cognate sets are analyzed to consider their original semantics (Tang et al., 2015). Developing automatic methods for identifying word meaning changes can help theoretical linguistics and various NLP applications that depend on lexical information (Gulordava & Baroni, 2011). A framework for exploring semantic change at the linguistic level demonstrates several kinds of NLP approaches that give users a deeper understanding of word evolution (Jatowt & Duh, 2014). Moreover, the schema correspondences use a modified store mapping from the semantic level to the actual data organization in the databases and are associated with the respective contexts (Sheth, 2014). An evolutionary approach to language change points out some issues in recent approaches to studying semantic change that rely on temporally stratified word embeddings (Bower, 2019). Furthermore, semantic change can be modeled in an evolutionary framework, where meanings vary, have positive or negative selectional biases, and are transmitted through language use (Bower, 2019). Linguistic creativity widens the gap between the information compiled in the linguistic knowledge database and the demand in multiple natural language processing tasks (Tang et al., 2015). The knowledge of semantic change has also been interesting to the public because people need to be aware of such changes in their daily language use (Tang et al., 2013). Semantics maps: webs of words visually display the meaning-based connections between a word or phrase and a set of related terms or concepts (Alsayed, 2019). Also, diachronic linguistics is an area within modern linguistics that concerns itself with language development over time and, particularly, with questions of why and how languages change and affect communication (Jatowt & Duh, 2014). Moreover, another illustration was proposed from lexical cognate models and highlighting the importance of variation in studying change over time (Bower, 2019). The prevalence of creativity in the emergent online media language calls for a more effective computational approach to semantic change (Tang et al., 2013). Another reason driving the change is the continuously

increasing efficiency of expressions according to the least-effort principle and the impact of modernity (Kingsley, 2013). Detecting semantic change meaning and usage of words has gained more attention over the last few years; these changes are especially prevalent on the Internet, where words' meaning can change rapidly (Basile, 2018). Researchers have realized that understanding how words change their meaning over time is key to language and cultural evolution (Hamilton et al., 2016). Furthermore, the innovation catches on and spreads through a community, over time replacing older forms (Bowern, 2019). Semantic change detection systems allow for large-scale analyses that identify technological and social trends; the web as a data source for diachronic semantic analysis poses an essential process (Mcgillivray, 2018). In some studies, Philippine Visayan languages were compared using a Samarin list to identify factors of similarities and their relationship in terms of their semantic categories (Maxilom, 2011). Thus, various languages treat words referring to space, direction, and orientation as necessary in understanding language and its reflection in modernity (Avelino, 2017).

2.3 Challenges of World Evolution in Reflection of Modernity

Each word is different, and it has been challenging for the historical linguistics community to formulate wide-encompassing generalizations about semantic change (Bowern, 2019). The computational nature of semantic change remains obscure despite the efforts made to relate computation approaches to semantic change categorizations like pejoration and amelioration (Tang et al., 2015). Semantic barriers to communication are the symbolic obstacles that distort the sent message in some other way than intended, making the message difficult to understand (Bajracharya, 2018). Moreover, significant effects of semantic change are also found in widely different kinds of lexical-processing tasks such as speeded pronunciation despite controlling for an understanding of correlated lexical variables (Yap et al., 2011). Our languages are constantly flux-driven by external factors such as societal and technological changes and only partially understood internal motivations (Tahmasebi et al., 2019). Several significant reasons for language change include the ethnic character of people, the climate, and geography (Crowley & Bowern, 2010). There were also difficulties in information extraction because, unlike other named entities, at the words/sentences level, it is difficult to assign a precise label to semantic change through a sequence of technological events (Wijaya, 2011). Words shift in meaning for many reasons, including cultural factors like new technologies and regular linguistic processes like subjectification (Hamilton et al., 2017). Hence, the meaning of a word can be slightly altered, or it can evolve significantly. While this can cause confusion and misunderstanding, it is also seen as a positive step toward developing and adapting languages (Bowern, 2019). The semantic changes that happened between indigenous languages and their modern-day reflexes in Philippine languages reflect the maritime culture and environment of the speakers (Avelino, 2017). It also pointed out that the young generation had a hard time reading what the ancestors wrote 400 years ago (Trask, 2012). With the modernization of society, slowly, the use of the language has been diminishing, and usually; only the older people of the tribe use the language because as children go to school, they no longer use the language (Peng & Billings, 2013).

Furthermore, the more active the language is, the more its culture gets the exposure it needs (Trinidad, 2012).

2.4 Future

As always, semantic change will continue to be present in language; not only will this determine the development of language, but the latter will itself determine how people look at the world; that is to say, how they structure reality in their minds (Saguitan, 2011). Utilizing the mechanisms of meaning is vital to successful human communication; alongside that, lexical development will solidify students' understanding of language meaning and sense relations (Alsayed, 2020). The high interconnectivity and access to many information sources is the primary issue in the future will not be how to efficiently process the data that is known to be relevant but to determine which data is appropriate (Kashyap, 2014). Furthermore, the semantic change affects the comprehension of literature containing the words which went through semantic change (Khalid, 2019). Philippine schools in this present time are using Tagalog and English as the media of instruction; however, there are efforts now, especially in Bukidnon, to promote Binukid in schools (Abejuela, 2011). In the City of Malaybalay, several non-government organizations established a culture-based education center that uses Binukid as the medium of instruction in the classes (Reyes, 2012). However, this rich cultural-linguistic heritage has remained underexplored as there are very scanty studies conducted on the language up to the present time (Borres, 2018). Besides, its standardized form literature is not yet widespread and sustainable (Lewis et al., 2016). Furthermore, there are some published research and dictionaries of the Binukid language, but scholars have paid less attention to the indigenous language's semantic change (Lusekelo & Rugemalira, 2012). The existence of semantic change is as common as the change in form, as the community has modernized, the meaning of words also goes with it, and the rise of the epistemic meaning of words becomes the norm (Sheth, 2014). Semantic change occurs if a word is shared by the speech community and becomes established in usage (Peng, 2013). Moreover, the linguistic flexibility posed by the concept of semantic change will make indigenous peoples able to broaden their knowledge and be creative about their language, making it their identity (Maxilom, 2011). The semantic change could also be a challenge because it would confuse generations by generations and leads to complexity in conversations (Traugott, 2014). Indigenous language speakers must always decide whether to use the words that changed meaning in daily communication or select them depending on the person they communicate with (Baroni, 2015). Only then, indigenous language speakers could effectively communicate amidst the undeniable existence of semantic change (Bowern, 2019).

3 CONCLUSION

The problem of semantic change has many aspects where there are several interpretations, and the presence of multiple instances of changes provides difficulty in understanding the word. The semantic change in indigenous languages has been rarely exposed to the researchers, and this indigenous language still has a limited background for further research (Tang et al., 2015). Numerous semantic problems concerning particular linguistic construction occur due to few examinations and clarity about the semantic function (Crimmins, 2013).

Moreover, the Binukid language is one of the indigenous languages that barely research about semantic changes of its words. The nature of semantic change remains obscure despite the efforts made to relate computation approaches to semantic change categorizations. In terms of the frequently used semantics change types in languages, metaphor is often used in the written text; in the spoken language, the predominant type of semantic change is broadening (Maxilom, 2013). Furthermore, the language used in this study is soaked with semantic change, including both coinages of new words and novel use of existing ones, resulting in the classification of semantic variations (Crystal, 2015). Hence, the researchers have concluded that understanding how words change their meaning over time is key to language and cultural evolution. The researchers have identified the accomplishments of the intervention programs related to the semantic change from the gathered research journal articles. For instance, UNESCO establishes semantic values and conservation, which are fundamental aspects of linguistic studies to rely on a unified understanding of the conservation-restoration data (UNESCO, 2020). Another one is the NSW for Effective Reading Centre introduces semantic mapping that aims to depict ideas graphically so that students may use a semantic word map to conceptually explore their understanding of a new word (Zorfass, 2013). Furthermore, in the City of Malaybalay, several non-government organizations established a culture-based education center that uses Binukid as the medium of instruction in the classes (Reyes, 2012). The limitations of the related studies include the incompleteness of factual information about the lexical-semantic feature of words that needs attention to avoid inaccurate reviews and misconceptions (Ross, 2011). The education policy lacks students' application to the proposition of a language reform regarding the Binukid language, making it inadequate (McEachern, 2013). Also, in developing semantic change detection systems, obtaining ground truth data, which has, so far, prevented a systematic evaluation of different approaches (Kutuzov et al., 2018). The concept of this study will guide future researchers about semantic change and carry more extensive quantitative analysis. Additionally, the information in this research will allow the general public to inquire about the evolution of interesting concepts and appreciate their language's richness. Also, the researchers will further study the actuation problem behind semantic changes to detect the meaning transitions and their reasons and any underlying forces that triggered them. This framework and dataset will also be used to evaluate approaches not considered in this paper. The study of semantic change also gives a significant opportunity for research from data availability, which means that academics today and, in the future, may achieve remarkable progress in this area. The researchers further suggest giving more attention to the study of semantic change, particularly in the Binukid language. It is relevant to focus on the major problems concerning the indigenous language. The implications for the study of semantic change are extremely promising because the information here suggests regular cognitive patterns. It reveals valuable information about the mind and how it processes language, which, in turn, will lead to a better understanding of parallel developments that linguists have been aware of but unable to explain for centuries.

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