

Examining AI Translation Errors in Igbo: Lexical Ambiguity, Misinterpretation, and Incorrect Word Substitutions Due to Contextual Deficiencies

Amaka Yvonne Okafor

Department of Igbo & other Nigerian languages, Nwafor Orizu College of Education, Nsugbe, Anambra State, Nigeria

amaka.okafor@nocen.edu.ng.

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Corresponding Author

Amaka Yvonne Okafor

amaka.okafor@nocen.edu.ng.

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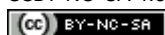


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Abstrak

Lexical ambiguity and incorrect word substitutions pose considerable challenges in integrating the Igbo language into AI-driven translation tools and search engines. As a tonal language with complex morphological structures, Igbo often includes words that carry multiple meanings depending on context and tone. Unfortunately, most AI-powered translation and text-processing systems lack the necessary linguistic frameworks to accurately interpret these variations, resulting in frequent misinterpretations and erroneous word substitutions. This study focused on the translation errors encountered by Artificial Intelligence (AI) systems when translating the Igbo language, focusing on lexical ambiguity, misinterpretation, and incorrect word substitutions due to contextual deficiencies. The research examines the limitations of AI in handling Igbo's complex structure and semantics, which are crucial for accurate translation. Through a comparative analysis of AI-generated translations using tools such as Google Translate, Microsoft Translator, and DeepL, alongside human translations, this study identifies key areas where AI systems struggle, particularly with words that have multiple meanings based on context. The theoretical frameworks of Translation Equivalence Theory and Lexical field Theory are applied to analyze the linguistic challenges involved. Case studies highlighting errors such as lexical ambiguity and misinterpretations provide a detailed look at how AI fails to capture the cultural and contextual sensitivities of Igbo. The study also discusses the implications of these errors on communication and the integrity of the Igbo language, offering insights into how AI translation tools can be improved. The findings emphasize the need for ethical and cultural considerations in AI translation and make recommendations for future research to enhance AI-based translations of African languages, specifically Igbo.

Keywords: *Artificial Intelligence, Igbo language, lexical ambiguity, machine translation, misinterpretation, AI translation errors.*

Introduction

Technology has transformed the way people communicate, with Artificial Intelligence (AI) now handling everything from voice assistants to instant translations. For many global languages, this shift has been smooth and effective. However, when it comes to indigenous languages like Igbo, AI translation still struggles to deliver accurate results. One of the biggest challenges lies in the way AI systems interpret Igbo words, often missing the meaning because they ignore context, tone, and cultural sensitivity. These issues tend to surface in three major ways: lexical ambiguity,

misinterpretation, and wrong word substitutions, all linked to a lack of contextual understanding. The Igbo language is one of the major indigenous languages spoken in Nigeria, primarily in the southeastern region (Aboh, 2025). It is rich in tonal variation, with meanings of words often changing based on pitch and context. Igbo belongs to the Niger-Congo language family and features a complex grammatical structure, including noun classes and verb conjugations. The language is deeply tied to Igbo culture, proverbs, and oral traditions, serving as a key medium for communication, storytelling, and identity (Emeka-Nwobia, 2020).

One of the defining features of Igbo is its tonal nature, where pitch plays a crucial role in distinguishing meanings of words that are otherwise phonematically identical. Igbo uses three distinct tones: high, mid, and low. The verb structure in Igbo is therefore crucial for conveying the correct meaning in sentences, and errors in translating these verb forms often result in mistranslations, especially when context is not fully understood by the translation system. In terms of sentence structure, Igbo generally follows a subject-verb-object (SVO) pattern, though variations occur due to its rich use of noun phrases, adjectives, and pronouns. Igbo also makes use of classifiers, which are words that categorize nouns into specific groups based on their characteristics, such as *ụlọ* (house), *akwụkwọ* (book), and *osisi* (tree). Each of these nouns may require specific modifiers to indicate number or definiteness, adding another layer of complexity to its structure. Semantically, Igbo is a language with a vast array of meanings linked to cultural, historical, and social contexts. Words in Igbo often carry layers of meaning, influenced by context and the speaker's intention.

Despite its vibrancy, Igbo faces challenges from declining usage among younger generations and limited digital representation in modern technology and artificial intelligence systems. AI-powered translation tools often fail to capture the richness and complexity of the Igbo language. Words in Igbo can carry several meanings depending on the tone and the context in which they are used. Unfortunately, most AI systems do not understand these layers. The result is that translations come out sounding odd, inaccurate, or completely off the mark. This makes it difficult for users to rely on these tools, especially in educational, official, or cultural settings where precise communication matters (Aremu, 2024). This study focuses on uncovering the reasons behind translation errors in AI systems when working with the Igbo language. It looks into how these systems handle words with multiple meanings, how often they misunderstand the intended message, and the extent to which they replace Igbo words with incorrect English equivalents. The goal is to better understand where AI translation tools go wrong and to suggest ways these tools can improve, so they reflect the true meaning of Igbo expressions more faithfully.

The motivation for this study comes from the growing use of Artificial Intelligence in language translation and the noticeable gaps in how well these systems handle the Igbo language. As digital tools become more common, many people turn to AI for communication, learning, and preserving their native languages. However, current AI translation tools often fail to capture the true meaning of Igbo texts, leading to errors that affect understanding. For example, Kaur et al, (2021) observed that many AI models trained on English perform poorly when exposed to tonal African languages due to limited data and poor representation of cultural sensitivities. Igbo, being highly context-driven and tonal, is especially prone to these errors. Another reason for this study is the lack of detailed research focusing on the specific types of translation errors made with Igbo. Most existing works focus broadly on African languages (Adejunmobi, 2022), without digging into the unique challenges posed by lexical ambiguity and idiomatic expressions in Igbo. Okemwa, (2023) also noted that many translations fail because machines cannot interpret cultural meanings embedded in everyday speech. These gaps show a clear need to study how AI misinterprets Igbo, so more accurate and inclusive language technologies can be developed.

Theoretical framework

In this study, two important theoretical frameworks guide the analysis of AI translation errors: Translation Equivalence Theory and Lexical field Theory. Translation Equivalence Theory,

introduced by Eugene Nida in 1964, focuses on the idea of achieving equivalence in translation. Nida emphasized the importance of dynamic equivalence, meaning that a translation should have the same effect on the target audience as the original text has on the source audience, rather than a strict word-for-word translation. This concept is particularly important when analyzing AI translations of Igbo, a language that heavily relies on context and cultural sensitivities. AI systems often struggle to capture these subtleties, leading to errors such as misinterpretation and incorrect substitutions. Lexical field Theory, proposed by Jost Trier in 1931, suggests that words are organized into groups based on their meanings and relationships. He argued that words acquired their meaning through their relationships to other words within the same word-field. Each word's meaning is shaped by its context within a larger Lexical field. This theory is especially relevant for languages like Igbo, where words can have multiple meanings depending on context. AI translation tools often fail to recognize these subtle differences, resulting in lexical ambiguity and incorrect translations. Both theories highlight the limitations of AI when translating Igbo, where understanding context and word relationships is crucial for accurate communication.

Method

This study utilized a qualitative research design to investigate the translation challenges faced when Artificial Intelligence (AI) systems translate the Igbo language. The primary focus was on identifying errors related to lexical ambiguity, misinterpretation, and incorrect word substitutions, all arising from the contextual complexities inherent in Igbo. A combination of textual analysis and comparative review allowed for a detailed comparison between AI-generated translations and those produced through human expertise, offering insights into how AI navigates the intricate nature of translating Igbo, a tonal and context-rich language. Ethical considerations played a crucial role in the study, although there was no direct interaction with human subjects.

To gather relevant data, Igbo texts were selected from a range of genres, including folktales, religious materials, and educational content, representing the language's broad use. These texts were then input into AI translation tools such as Google Translate, Microsoft Translator, and DeepL, with the translations compared to those provided by native Igbo speakers who are fluent in English. This allowed for the identification of key translation errors, such as lexical ambiguity, where a word like *akwa* could have multiple meanings depending on context, and misinterpretations arising from AI's limited understanding of cultural and contextual sensitivities. A structured search strategy was used to explore academic literature that addresses the challenges of AI translation, particularly for African languages. Key terms such as "AI translation," "Igbo language," "lexical ambiguity," and "machine translation errors" guided the search process, helping to locate studies relevant to the research. Case studies were analyzed focusing on a different type of error, such as incorrect word substitution or the failure to capture multiple meanings of certain Igbo words.

Results

Common AI Translation Tools Used for Igbo

The field of AI translation has evolved significantly, and several tools have been developed to handle African languages, including Igbo as captured in Table 1. However, the effectiveness of these tools in translating Igbo remains a challenge due to the language's tonal and contextual complexities. Google Translate is one of the most widely used translation tools for Igbo. While it is accessible and easy to use, its ability to handle tonal differences is limited. Igbo is a tonal language, meaning that the meaning of a word can change based on its tone. Google Translate often fails to capture these subtleties, leading to errors in translations (Rahma, 2024). Microsoft Translator is another widely available tool. It is integrated into many Microsoft products, which makes it valuable for businesses and institutions. However, its proficiency in Igbo translation remains limited. It struggles with complex sentences and idiomatic expressions that are often present in Igbo. This results in translations that may be technically correct but miss the sensitive meaning.

Table 1: Common AI Translation Tools Used for Igbo

Tool Name	Description	Strengths	Limitations
Google Translate	Google's widely used AI-powered translation tool supports Igbo alongside many other languages, but often struggles with tonal differences and contextual accuracy.	Widely accessible and easy to use, good for basic translations.	Limited ability to handle tonal variations and complex idiomatic expressions.
Microsoft Translator	Microsoft's tool offers Igbo translation, although it can face difficulties in handling sensitivities of the language, particularly in complex sentences.	Part of a larger Microsoft ecosystem, useful for businesses, integrates well with other services.	Limited proficiency with Igbo, struggles with complex or idiomatic sentences.
Igbo English Translation Tool	Dedicated tool specifically aimed at improving translation between Igbo and English. It focuses on localizing Igbo expressions but still faces challenges in semantic accuracy.	Focused on Igbo-English translation, localized translations, better contextual understanding in some cases.	Still developing, struggles with more advanced or culturally sensitive Igbo expressions.
DeepL	DeepL offers high-quality translations for widely spoken languages, but Igbo support is limited and still lacks effective contextual understanding.	Known for high-quality translations for major languages, but Igbo support is not well-established.	Igbo support is minimal, often fails with local dialects or intricate semantic sensitivities.

The Igbo English Translation Tool was designed specifically for Igbo translations and aims to improve upon existing translation systems by focusing on the local language. While it does a better job of contextualizing Igbo expressions, it still struggles with advanced translations and remains a work in progress. This tool could offer significant improvements if developed further (Evelyn et al, 2019). Lastly, DeepL, renowned for its quality translations of major global languages, offers limited support for Igbo. Its translations are generally accurate for widely spoken languages, but its performance with Igbo is inadequate, often failing to capture the language's tonal and contextual sensitivities (Orji & Korie, 2024). Despite advancements in AI translation, Igbo presents a unique set of challenges that current tools are still working to address. The complexity of Igbo grammar, syntax, and tonality means that translations remain imperfect. These tools have made significant strides, but more development is needed to achieve accurate and culturally sensitive translations for Igbo.

Case Study 1: Lexical Ambiguity in AI Translations

Lexical ambiguity in translation arises when a word has multiple meanings depending on its context, and AI systems often struggle with this challenge, especially with languages like Igbo. Igbo, being a rich and context-dependent language, presents specific challenges for machine translation, particularly when dealing with words that have several meanings. These ambiguities often lead to incorrect translations that distort the intended message. One of the common words in Igbo that showcases lexical ambiguity is "*Anya*". This word can mean "eye," "look," or "attention," and its meaning depends on the sentence in which it is used. For instance, "*Echefula anya*" can mean "Don't forget" in a figurative sense (where "*anya*" means attention). However, Google Translate or other AI translation tools may mistakenly translate "*Anya*" as "eye" in all contexts, causing a loss of the intended figurative meaning (Hartono, 2024).

Another word, "*Nne*", can refer to "mother" or can be used metaphorically to describe a female parent in a non-biological sense, such as in "*Nne m*," which could refer to a respected elder woman or a figurative mother figure. AI tools often fail to capture such sensitivities and may provide

a literal translation of "Nne" as simply "mother," leading to potential misinterpretations, especially in metaphorical contexts.

Table 2: Lexical Ambiguity in AI Translations

Igbo Word	Possible Meanings	Contextual Translation	AI Translation Error Example	Impact on Meaning
"Anya"	Eye, Look, Attention	"Anya" (Eye) or "Anya" (Look) depending on the context	Translates "Anya" as "Eye" regardless of the sentence context	The meaning of the sentence is altered if the wrong context is applied.
"Nne"	Mother, Female Parent	"Nne" (Mother) or "Nne" (Female Parent) based on context	Translates "Nne" as "Mother" even in a metaphorical context (i.e. referring to a female role)	The translation loses its intended metaphorical sensitivity or familial term.
"Otu"	Group, One, Same	"Otu" (Group) or "Otu" (One) based on sentence structure	Misinterprets "Otu" as "Group" when it should mean "One" in a numerical context	This leads to confusion and changes the sense of the sentence.
"Akwụkwọ"	Book, Paper, Leaf	"Akwụkwọ" (Book) or "Akwụkwọ" (Paper) depending on usage	AI wrongly translates "Akwụkwọ" as "Book" when referring to paper	Contextual errors create confusion in conveying the correct meaning.
"Ụkwụ"	Leg, Foot, Step	"Ụkwụ" (Leg) or "Ụkwụ" (Foot) or "Step" depending on context	Misinterprets "Ụkwụ" as "Leg" when it should be "Step"	This error alters the action and meaning in a sentence related to movement.

"Otu" is another example where its ambiguity creates challenges. It can mean "group" or "one," and the proper interpretation hinges on whether the sentence is referring to a collective or a singular item. In a situation where "Otu" refers to a group of people, an AI might translate it correctly, but when referring to "Otu" as "one" in a mathematical or countable context, the AI tool might incorrectly translate it as "group," distorting the intended meaning (Melissa & Kenza, 2023). Similarly, the word "Akwụkwọ" is another highly ambiguous term in Igbo, as it can mean "book," "paper," or even "leaf," depending on the context. An AI system might translate the word as "book" in all contexts, overlooking situations where the word refers to paper or a leaf in a biological sense, thereby losing the correct meaning.

"Ụkwụ" is another word that poses problems in translation. It can mean "leg," "foot," or "step," depending on its usage. A translation error occurs when AI systems translate it as "leg" when it should have been "step" in a sentence referring to movement or action. This error misguides the reader and undermines the accuracy of the translation.

Case Study 2: Misinterpretation Due to Contextual Deficiencies

Misinterpretation due to contextual deficiencies is a significant issue in AI-driven translations, particularly for languages like Igbo. Words and phrases in Igbo can have multiple meanings depending on the context, and AI systems, which primarily rely on algorithms, often fail to capture these sensitivities. One common example is "Ị ga-eru n'ụlọ?", which translates to "Will you arrive at home?" The phrase may be used in various contexts, such as asking about someone's progress in an errand, or metaphorically, referring to readiness or completion of a task. However, when an AI tool translates this literally, it fails to recognize that in certain contexts, it could be a figurative or rhetorical question about the person's readiness or approach to a task, not just physically arriving home (Teibowei & Agbai, 2023). This misinterpretation can lead to confusion about the true intention of the statement.

Table 3: Misinterpretation Due to Contextual Deficiencies

Igbo Phrase	Possible Meanings	Contextual Translation	AI Translation Error Example	Impact on Meaning
"! ga-eru n'ụlọ?"	"Will you arrive at home?"	Translated as "Will you reach home?"	AI translates it literally as "Will you arrive at home?"	The phrase can be misinterpreted in a figurative sense of asking someone's readiness to complete an errand, not just arrival.
"Ndị mmadụ ahụ na-azụ ahịa"	"The people are trading."	"The people are buying and selling."	AI misinterprets "na-azụ" as only "buying," ignoring "selling."	Distorted meaning, as it only captures one side of the trade process.
"! ga-ahụ ya n'ọdịnihu"	"You will see it in the future."	"You will see it later"	AI interprets "n'ọdịnihu" as "later" rather than "in the future."	The translation becomes too vague, losing the long-term implication.
"O nwere nsogbu"	"He/she has a problem"	"He/she has difficulty"	AI translates it as "He/she has a problem" when it should mean "difficulty"	Overemphasis on problem rather than difficulty, shifting the tone of the statement.
"! nwere ọrụ?"	"Do you have work?"	"Do you have a task?"	AI translates it as "Do you have work?" ignoring the context of a task at hand	Leads to confusion about the type of work being referred to.

Another example is "Ndị mmadụ ahụ na-azụ ahịa", which means "The people are trading." AI systems often misinterpret the phrase "na-azụ" as only meaning "buying," missing the fact that "azụ" also refers to "selling" in the context of commerce. This contextual oversight leads to a translation that only captures half the transaction process, which could significantly distort the meaning of the sentence. The impact is especially felt when the context of the statement is about a full exchange process, and the AI misses one side of it (Ubanyionwu, 2024). "! ga-ahụ ya n'ọdịnihu" is another example where contextual understanding is crucial. The phrase translates to "You will see it in the future," but AI tools may mistakenly interpret "n'ọdịnihu" as simply "later," which dilutes the meaning of "future." This is a critical distinction, as "future" implies something that will occur after a considerable amount of time, whereas "later" refers to a much shorter time span. The translation error changes the temporal expectation implied in the original Igbo phrase (Ijioma & Ezeafulukwe, 2015).

"O nwere nsogbu" is a phrase that could either mean "He/she has a problem" or "He/she has difficulty." When AI translates it as "He/she has a problem," it shifts the focus from a mild challenge or difficulty to a more severe issue, changing the tone of the sentence. This misinterpretation can lead to an overly negative or exaggerated portrayal of the situation (Ukonu et al, 2022). Lastly, "! nwere ọrụ?" is another example where the AI might translate it as "Do you have work?" without understanding the context. In Igbo, the word "ọrụ" can refer to work, but it can also refer to a task, responsibility, or duty. When AI translates it as "Do you have work?" the sensitivity of a specific task or responsibility is lost. This is particularly problematic when the statement pertains to something other than employment, such as an assigned task or duty.

Case Study 4: Incorrect Word Substitutions

Incorrect word substitutions are a common issue in AI translation systems, and this is particularly challenging when translating Igbo phrases, where context and word choice play a significant role in communication. These errors are often due to the limitations of AI models that

primarily operate on literal translations, failing to grasp the sensitive meanings of certain words in context. For example, "Aga m ewere ya" means "I will take it." However, when AI translates it as "I will carry it," it completely changes the meaning. "Take" in this context implies the intention of taking ownership or possession, while "carry" refers to physically moving an object. This substitution can result in confusion about the action being described. Another instance of incorrect substitution occurs with "A hụrụ m ya n'anya", which translates to "I love him/her." The AI incorrectly substitutes "hụrụ" (love) with "saw," resulting in "I saw him/her with my eyes." This translation error distorts the emotional context of the phrase, turning it from a deep expression of affection into a simple statement about vision, altering the sentiment entirely.

Table 4: Incorrect Word Substitutions

Igbo Phrase	Intended Meaning	AI Translated Meaning	AI Translation Error Example	Impact on Meaning
"Aga m ewere ya"	"I will take it"	"I will carry it"	AI incorrectly substitutes "ewe" (to take) with "were" (to carry)	The meaning shifts, as "take" implies ownership or possession, while "carry" refers to physical movement.
"A hụrụ m ya n'anya"	"I love him/her"	"I saw him/her with my eyes"	AI translates "hụrụ" (to love) as "saw," distorting the emotional context.	Changes the sentiment of the sentence, turning love into a simple visual observation.
"Ọtụtụ ụmụaka na-eme nchọpụta"	"Many children are researching"	"Many children are playing"	AI substitutes "nchọpụta" (research) with "egwuregwu" (play)	Alters the activity entirely, creating a false impression of play rather than academic research.
"O mere nke ọma"	"He/She did it well"	"He/She did it right"	AI translates "ọma" (well) as "right," which changes the meaning of doing something well versus correctly.	The sensitivity of how something was done is lost, changing the quality of the action.
"Ụlọ akwụkwọ ahụ dị elu"	"The school is on a high ground"	"The school is tall"	AI translates "elu" (high ground) as "tall," focusing on height instead of location.	The physical setting of the school is misrepresented, which could lead to a misinterpretation of the school's position.

The phrase "Ọtụtụ ụmụaka na-eme nchọpụta", meaning "Many children are researching," is translated by AI as "Many children are playing." The AI substitutes "nchọpụta" (research) with "egwuregwu" (play), which misrepresents the nature of the children's activities. This could lead to confusion, as the action of researching is far different from playing, especially in an educational context. In the case of "O mere nke ọma", the translation error arises when AI substitutes "ọma" (well) with "right," turning "He/She did it well" into "He/She did it right." This subtle difference changes the evaluation of the action, where doing something "well" implies a high quality or proficiency, while doing something "right" simply indicates correctness. This error undermines the depth of the original statement.

Lastly, "Ụlọ akwụkwọ ahụ dị elu" translates to "The school is on a high ground," but AI incorrectly translates "elu" (high ground) as "tall," leading to "The school is tall." This substitution misrepresents the physical positioning of the school, changing the description of its location on high ground to a focus on the school's height. This error is particularly problematic when describing geographical or architectural features.

Discussion, Implications for Meaning and Communication

The case studies on lexical ambiguity, misinterpretation due to contextual deficiencies, and incorrect word substitutions in AI translations of Igbo highlight significant implications for meaning and communication. These issues undermine the accuracy and reliability of AI translation tools, especially when translating African languages like Igbo, which possess unique grammatical and semantic structures. The first case study, which addresses lexical ambiguity in AI translations, emphasizes the difficulty AI faces in interpreting words that have multiple meanings depending on context. For instance, the translation of "Aga m ewere ya" as "I will carry it" instead of "I will take it" results in a loss of clarity regarding the action. The word "take" in this context suggests possession or intention, while "carry" refers to the physical act of moving an object. This ambiguity according to Lilienfeld et al, (2015) can lead to misinterpretations and confusion, particularly in legal, academic, or emotional contexts, where precision is essential. Lexical ambiguity creates gaps in communication, as users may not understand the intended meaning, leading to ineffective communication.

Misinterpretation due to contextual deficiencies is another significant issue in AI translations. For example, translating "A hụrụ m ya n'anya" as "I saw him/her with my eyes" instead of "I love him/her" distorts the emotional weight of the phrase. In Igbo, the verb "hụrụ" can imply both "to see" and "to love," depending on the context. The lack of context awareness in AI systems leads to a failure to capture the true intent of the speaker, which is critical in maintaining the integrity of the message (Kim et al, 2022). The misrepresentation of emotional or situational context diminishes the depth of the communication, making AI translations unreliable for conveying sentiments accurately.

The third case study, which focuses on incorrect word substitutions, illustrates how AI often struggles with finding the most appropriate word in a given context. The example of "Ụlọ akwụkwọ ahụ dị elu", translated as "The school is tall" instead of "The school is on a high ground," highlights how AI can overlook key elements of meaning. In this case, "elu" refers to "high ground," a geographical feature, while "tall" describes a physical characteristic. This substitution can lead to serious misunderstandings, especially when conveying specific information about locations or features. Incorrect substitutions can cause confusion, leading to a breakdown in effective communication, particularly when dealing with technical, geographical, or cultural contexts.

Impact of AI Errors on Igbo Language Integrity and Prospects of AI-Based Igbo Translation

AI translation errors pose a significant threat to the integrity of the Igbo language, a language rich in culture, history, and sensitivity. Igbo words are often deeply contextual, carrying meanings that go beyond simple translations. When AI tools fail to grasp these sensitivities, it leads to misinterpretation and loss of cultural value. For instance, words in Igbo can have multiple meanings depending on context. An AI system that translates "A hụrụ m ya n'anya" as "I saw him/her with my eyes" rather than "I love him/her" fails to capture the emotional depth of the sentence. This leads to a disconnect between the original sentiment and the translated message. Incorrect word substitutions further erode the language's integrity. A simple translation error like "Ụlọ akwụkwọ ahụ dị elu" being rendered as "The school is tall" instead of "The school is on a high ground" can mislead the reader, reducing the precision of the language (Lian & Sangarun, 2017). Such errors are particularly dangerous when conveying specific geographical or cultural terms, where the accuracy of the translation is paramount for effective communication. As more people turn to AI for translation and communication, the risk of these errors growing becomes even more pronounced. If AI continues to misinterpret or substitute words incorrectly, it could result in a generation of speakers who misunderstand their own language, weakening their connection to their cultural roots. AI errors thus contribute to the gradual decline of Igbo's integrity, diminishing its role in cultural and educational contexts.

There are promising opportunities to enhance AI-based Igbo translation, particularly through improvements in contextual understanding. Currently, AI systems often struggle to capture

the cultural and semantic sensitivities of Igbo, which can lead to misinterpretations. However, as AI models evolve, particularly with the integration of machine learning and deep learning techniques, there's potential for AI tools to better grasp context, making translations more accurate. This could involve training AI systems with a more robust understanding of Igbo culture, idioms, and expressions, allowing for a deeper connection with the language's subtleties. Collaboration between linguists and AI developers is another key to success. Igbo scholars can help developers fine-tune AI systems to respect the language's cultural elements. Including a variety of traditional proverbs, expressions, and regional dialects in the AI's training dataset will help ensure more accurate translations that reflect Igbo's rich cultural heritage. Additionally, crowdsourcing can be a valuable tool in gathering a wide range of Igbo speech patterns, improving the overall quality of the translation.

Conclusion and Recommendations

The present study covered AI translation errors in Igbo covering lexical ambiguity, misinterpretation, and incorrect word substitutions due to contextual deficiencies. The study found that while AI translation tools have made impressive strides in breaking down language barriers, they still struggle with translating Igbo accurately, especially when it comes to lexical ambiguity, misinterpretation due to contextual deficiencies, and incorrect word substitutions. The study has shown that these tools often fail to capture the depth and sensitivities of Igbo, a language that relies heavily on context and cultural meanings. Without a deeper understanding of these elements, AI translations can result in confusion and miscommunication, ultimately undermining the integrity of the Igbo language. Moving forward, there is a clear need for improvement in how AI systems handle Igbo translations. A stronger partnership between linguists, AI developers, and native speakers is essential. This collaboration can help refine the datasets used to train AI, ensuring they reflect the true meaning of Igbo words and expressions, and the cultural context in which they are used. Moreover, AI systems need to evolve beyond literal word-for-word translations to better grasp the contextual sensitivities that are vital in languages like Igbo. The inclusion of various dialects and regional variations will also help capture the full range of Igbo, making AI translations more inclusive and accurate.

AI developers should focus on understanding the context of Igbo language better, moving away from literal translations and incorporating regional dialects into their training models. This would make AI translations more accurate and culturally appropriate. Linguists and language experts should work closely with developers to create high-quality datasets that capture the sensitivities of Igbo, including idiomatic expressions and cultural meanings, to improve AI's grasp of the language. Educators and language advocates can help raise awareness about the importance of preserving Igbo's integrity in AI tools, supporting education in computational linguistics and translation. Governments and policy makers should back initiatives that promote the development of AI systems for local languages like Igbo, ensuring that policies and incentives are in place to foster the integration of African languages in AI technology.

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