Accuracy of Artificial Intelligence (AI) in Arabic Translation of Malay Idiomatic Phrases

Muhammad Luqman Ibnul Hakim Mohd Saad, Razimi Zakaria, Mohd Sollah Mohamed, Mohd Baharim Mayidin, Tengku Mohd Farid Tengku Abdul Aziz

Academy of Language Studies, Universiti Teknologi MARA (UiTM) Kelantan Branch, Malaysia

DOI: https://dx.doi.org/10.47772/IJRISS.2025.907000359

Received: 08 July 2025; Accepted: 17 July 2025; Published: 18 August 2025

ABSTRACT

This article evaluates the precision of Artificial Intelligence (AI), specifically Neural Machine Translation (NMT) techniques, in rendering Malay idiomatic expressions into Arabic. Idioms, being culture-specific linguistic entities, pose significant challenges due to their non-compositional meanings and deep cultural embeddedness. This article adopts a qualitative approach by synthesizing and analysing existing scholarly works on idiom translation and the distinctive linguistic features of the Malay-Arabic language pair. The findings indicate that, although NMT systems can perform literal translations with precision, their efficacy is substantially diminished when handling figurative language with cultural resonance. This may lead to semantic inaccuracies, cultural misinterpretations, or syntactically flawed outputs, directly affecting translation precision. The article highlights the gap between literal and figurative translation capabilities in modern AI. It emphasizes the need for enhanced cultural and contextual understanding in NMT models to improve their accuracy, especially for low-resource language pairs such as Malay and Arabic.

Keywords: Figurative language, idiomatic expressions, neural machine translation (NMT), Malay-Arabic translation

INTRODUCTION

Language serves as a profound storehouse of cultural identity, containing a community's worldview, historical accounts, and collective wisdom, in addition to being a tool for communication. Idiomatic expressions, or *simpulan bahasa* in Malay, are vibrant linguistic artefacts that are part of its complex fabric and whose meanings cannot be deduced from the literal sum of their individual words (Shafie et al., 2021). These expressions are essential elements of linguistic fluency and cultural literacy because of their inherent non-compositionality, deep cultural specificity, and frequently metaphorical nature. For example, local flora, fauna, and indigenous societal practices are frequently the source of the imagery and conceptual underpinnings of Malay idioms, giving them distinctive contextual layers that are deeply embedded in the Malay linguistic and cultural consciousness. A deep understanding and careful use of idioms clearly indicates a highly developed command of the language and a sophisticated understanding of its cultural nuances.

However, translating colloquial language is always a significant challenge for these advanced systems (Mourad & Benkhira, 2022). Navigating between typologically and culturally different languages, like Arabic and Malay, is especially difficult. A literal word-for-word translation in these situations almost always leads to a significant loss of the intended figurative meaning, making the translated text either culturally inappropriate or semantically incoherent. The inherent cultural specificity of idioms dictates that a straightforward literal transfer rarely preserves the original communicative intent, thereby mandating a comprehensive understanding of both source and target cultures. This directly affects the translation's accuracy because a literal translation that is incorrect in metaphor does not accurately represent the meaning.

The Malay expression "anak emas" (literally, "golden child") serves as an example of this intricacy. This denotes a beloved person or a favored individual in Malay cultural jargon, frequently suggesting special treatment or intense affection. "طفل ذهبي" (tiflun dhahabi), translated literally into Arabic, would completely

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue VII July 2025

misrepresent the figurative meaning and probably conjure up an image of a child made of gold, which is a far cry from the intended emotional resonance. In Arabic, the proper idiomatic equivalent would be "محبوب" (mahbub) or "مفضل" (mufaddal), which mean "beloved" or "favorite," or a more culturally nuanced phrase like "قرّة عين" (qurratu 'ayn), which means "the coolness of the eye," expresses deep affection and joy (Shafie et al., 2023). The idiomatic expression "makan angin" (literally: "eat wind"), which denotes going on a walk or vacation, is another striking example. "يأكل الريح" (ya'kulu al-rih), a literal Arabic translation, is illogical in the context of Arabic. On the other hand, culturally and semantically equivalent expressions such as "يتنزه" (yatanazzah) or "يسافر" (yusafir) accurately convey the meanings of "to stroll" or "to travel." These examples highlight areas where accuracy is often compromised by current AI systems, underscoring the critical need for cultural and semantic mapping beyond simple lexical substitution. This is particularly important in the translation of idioms, which relies heavily on selecting the appropriate word meanings; otherwise, they can be misinterpreted if translated as ordinary words without considering the context of the sentence (Zainal Abidin et al., 2020).

This article examines and critically evaluates the level of AI-driven translation of Malay idioms into Arabic. This article seeks to clarify the capabilities and inherent constraints of current NMT systems in handling complex language phenomena by synthesizing existing research and meticulously assessing their performance in this field. This article is valuable for its potential to advance scholarly discourse in translation studies and promote the creation of more sophisticated, culturally sensitive, and contextually aware translation technologies, ultimately improving translation accuracy.

LITERATURE REVIEW

Idiomatic Phrases in Translation Studies

Idiomatic expressions are a common and structurally complex aspect of natural language that present a significant challenge to translation theory and linguistic analysis (Aldahesh, 2013). Experts have consistently defined idioms by their non-compositional semantic property, which suggests that the expression's overall meaning cannot be inferred logically from the meanings of its constituent lexemes alone (Nor Hashimah Jalaluddin, 2018; Zaitul Azma Zainon Hamzah & Ahmad Fuad, 2011). Due to their intrinsic semantic opacity, idioms are essentially distinct from free lexical combinations. Idiom classifications generally fall into one of three categories: pure idioms, which are completely opaque (e.g., "kick the bucket"), semi-idioms, which have a noticeable level of transparency (e.g., "spill the beans"), and fixed collocations, in which words frequently occur together without necessarily forming a single, fused semantic unit. Achieving communicative fidelity in translation requires a precise understanding of idioms and their felicitous rendering (Abdullah Hassan & Ainon Mohd., 2011).

The accuracy and quality of the translation can be directly impacted by misinterpreting or mishandling an idiom, which can result in drastically distorted, nonsensical, or culturally inappropriate renditions in the target language. This can undermine the original communicative intent and cause pragmatic failures. Additionally, empirical research consistently shows that an idiom's translatability is significantly modulated by its degree of transparency or opacity, with highly opaque idioms posing significantly greater challenges for computational and human translation systems (Al-Majali, 2019). Discovering the idiom's underlying conceptual metaphor or cultural reference and then constructing or identifying its functional and cultural equivalent in the target linguistic and cultural system are crucial steps in the challenge, beyond simple lexical substitution. Human translators use various idiom translation techniques, such as literal translation, functional equivalent, paraphrasing, and omission, depending on the context and cultural differences between the source and target languages. This flexibility is mainly lacking in automated systems that are currently in use. This complexity is further compounded by idioms that are frequently culturally specific, reflecting particular historical events, societal norms, or geographical features (Cacciari & Tabossi, 1988). To achieve accurate and nuanced translations, translators must possess profound socio-cultural competence.

AI and Machine Translation (MT)

NMT systems can produce remarkably accurate and fluent translations across various language pairs, especially for propositional content, by learning intricate linguistic mappings from astronomically large parallel corpora. However, even with these enormous improvements, their performance deteriorates when exposed to figurative language, particularly idiomatic expressions (Mourad & Benkhira, 2022). Determining and learning statistical patterns and co-occurrences in their training data is the basic mechanism by which NMT models function. Because figurative expressions intentionally depart from literal interpretations, they present a significant challenge to models primarily trained on direct word-to-word or phrase-to-phrase correspondences. This frequently results in "partial accuracy" or "literal translation with loss of meaning" when an idiom is encountered because the model usually falls back on its most likely, literal interpretation, which is inaccurate.

Although NMT is very good at capturing long-range dependencies and producing syntactically fluent output, it is prone to misinterpreting idiomatic nuances due to its statistical nature. It is challenging for the model to generalize beyond literal interpretations or to accurately infer the intended figurative meaning from contextual cues alone because these expressions often constitute low-frequency patterns within general corpora (Al-Majali, 2019). Importantly, NMT models cannot determine with certainty whether a word sequence is a non-compositional unit. As a result, they are unable to retrieve or produce an appropriate idiomatic equivalent from their learnt knowledge bases. Because idioms' meanings are frequently derived from deeply ingrained cultural specificities, NMT's ability to handle them effectively is further limited by the widespread lack of explicit representation of cultural context and real-world knowledge (Cho & Lee, 2020). While models can achieve high accuracy on literal translations, recent research investigating explainable AI in NMT shows that their decision-making process for idioms is opaque and frequently unpredictable, indicating a lack of true semantic understanding and a significant barrier to consistent accuracy (Riedl & Biemann, 2023).

Studies of Malay-Arabic Translation

Research on translating between Malay and Arabic constantly emphasizes the distinct and complex difficulties brought on by the significant linguistic and cultural differences between these two languages. The Malay language has characteristics like relatively flexible word order and agglutinative morphology. On the other hand, Arabic is a Semitic language that stands out for its complex grammatical inflections and root-and-pattern morphology. "Ada udang di sebalik batu" (literally: there is a prawn behind the stone, meaning: hidden agenda) is an example of a Malay idiom deeply rooted in indigenous imagery. It draws metaphorical conceptualizations from local flora and fauna, environmental phenomena, and socio-cultural practices typical of the Malay worldview (Imran Ho Abdullah, 2011).

In contrast, Arabic idioms like "ضرب عصفورين بحجر واحد" (ḍaraba ʿuṣfūrayn bi-ḥajar wāḥid, literally: killed two birds with one stone, meaning: to achieve two things at once) express concepts that are often universal but are often influenced by Islamic texts, Bedouin customs, and desert environments. The unique difficulty in translating Malay-Arabic idioms is found in the ways that each language uses its cultural perspective to conceptualize and concretize abstract concepts. A significant percentage of idioms lack such direct correspondences because of different cultural referents and metaphorical systems, even though some conceptual metaphors may have direct idiomatic equivalents (for example, "lidah bercabang" (forked tongue) in Malay conceptually resonates with "ذو لسانين" (dhu lisanayn) in Arabic, both of which denote a dishonest person). For example, the Malay expression "berat tulang" (literally: heavy bones, meaning lazy) has no direct anatomical or physiological equivalent as an Arabic idiom for "laziness". Instead, an Arabic speaker would usually use descriptive adjectives like "كسول" (kasul, lazy) or phrases like "ثقيل الروح" (thaqīl ar-rūḥ, heavy-spirited). These meticulously explore Malay idioms' aesthetic and semantic intricacies, emphasizing their deep cultural resonance and unique linguistic structuring. Additionally, Shafie et al. (2023) assess explicitly a range of human translation techniques and pragmatic approaches for translating Malay idioms into Arabic, offering important empirical insights into the success and failure rates of various translation strategies and, consequently, the accuracy that can be achieved.

Table 1 Sample of Ai translation for Malay idiom

Malay Idiom: *"ukur baju di badan sendiri"* **Example:** Jangan terlalu mengikut gaya hidup mewah orang lain, lebih baik ***ukur baju di badan sendiri***.
Ai Translation: لَا تَتَّبِعْ أُسْلُوبَ حَيَاةِ الْآخَرِينَ الْمُتَرَفِ بِشَكْلٍ مُفْرِطٍ، فَمِنَ الْأَفْضَلِ أَنْ **تَقِيسَ ثَوْبَكَ عَلَى جَسَدِكَ أَنْتَ**.

The Malay proverb *"Ukur baju di badan sendiri,"* which literally means "Measure your clothes to fit your own body," conveys the message of living within one's means. This aligns closely with the Arabic proverb " كُلْ عَلَى قَدِّ حَالِكَ" (Eat according to your means) or "مُدَّ رِجْلَيْكَ عَلَى قَدِّ لِحَافِكَ" (Stretch your legs according to the length of your blanket). Both proverbs use relatable domestic imagery to emphasize financial prudence and practicality, advising individuals to act within their limitations. When translated literally into Arabic as " تَقِيسَ ثَوْبَكَ عَلَى جَسَدِكَ أَنْتَ" (measure your garment on your own body), (as presented in table 1), the phrase retains the surface metaphor but loses its idiomatic and cultural weight. While the imagery remains understandable, this expression is not recognized in Arabic as a standard proverb or idiom. Consequently, it lacks the pragmatic force and cultural familiarity that would allow it to convey the same level of ethical or moral resonance. This highlights the broader issue in translation where preserving figurative meaning and cultural function is often more important than maintaining literal structure.

In terms of legacy and character, the Malay saying "Harimau mati meninggalkan belang, manusia mati meninggalkan nama" ("A tiger dies leaving its stripes, a man dies leaving his name") highlights the importance of personal reputation and the lasting memory one leaves behind. While not a direct equivalent, the Arabic proverb "هاك الشبل من ذاك الأسد" (Hāk ash-shibl min dhāk al-asad), meaning "That cub is from that lion," reflects the cultural value placed on inherited qualities and familial legacy. Though it focuses more on the continuation of character traits through descendants rather than posthumous reputation, both proverbs underscore the lasting influence of a person's character through remembrance or lineage.

However, significant differences arise due to distinct cultural references and linguistic structures. For instance, the Malay idiom "Kaki bangku," literally translated as "chair leg," is used to describe someone clumsy, particularly in sports. In this context, Arabic lacks a direct idiomatic equivalent using "leg" or "chair", instead relying on descriptive adjectives or phrases. In Arabic, a person who lacks skill in sports might be described using expressions like ضعيف في اللعب ("weak in playing") or لا يجيد اللعب ("does not play well"), which are more literal and descriptive rather than metaphorical. This illustrates how Malay often employs vivid, concrete imagery drawn from daily life to convey abstract qualities. In contrast, Arabic tends to favor explicit characterization, reflecting different stylistic conventions in idiomatic expression and cultural perception. This illustrates the culturally specific imagery inherent in Malay that does not translate directly. This example shows how the expression of idiomatic phrases is closely related to the cultural elements and environment in the context of language, which shapes the imagery, and the meaning conveyed.

The Malay wisdom *"Pisang tidak berbuah dua kali"* ("A banana tree does not bear fruit twice") reflects a unique metaphorical framework grounded in the natural environment. It communicates that one should not fall victim to the same mistake or deceit more than once. This expression is particularly distinctive in its use of botanical imagery a banana tree as a metaphor for opportunity, consequence, or trust deeply rooted in the Malay-speaking societies' agrarian and tropical context. In contrast, Arabic lacks a directly analogous proverb that employs a fruit-bearing metaphor to express the same cautionary principle. Instead, Arabic proverbs that convey similar meanings—such as "لا يُلدغ المؤمن من جحر مرتين" ("A believer is not bitten from the same hole twice") rely on imagery of danger, harm, and self-defense rather than natural growth cycles. This absence of metaphorical overlap reveals important cultural and linguistic differences in idiomatic construction.

Another example, a quirky Malay idiom *"Hangat-hangat tahi ayam"*, literally translated as "warm-warm chicken droppings", describes someone who begins a task with great enthusiasm but quickly loses interest.

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue VII July 2025

While Arabic does have expressions that convey fleeting enthusiasm, none use "chicken droppings" as a metaphor, highlighting how local, everyday observations uniquely shape Malay idiomatic expressions. Additionally, the use of body parts in idioms illustrates cultural divergence. Malay and Arabic employ anatomical references metaphorically—for example, the *"hati"* (liver) in Malay is associated with emotions and courage, while in Arabic, the liver can symbolize deep affection or emotional intensity. Similarly, "hands" in Arabic idioms often represent cooperation or agency. These differences often necessitate conceptual, rather than literal, translation or an acknowledgement of the untranslatable cultural layers embedded within them. These examples underscore that translating idioms between Malay and Arabic transcends simple linguistic conversion; it requires deep cultural insight and sensitivity to the figurative frameworks that define each language.

Previous research has mostly focused on human translation techniques, comparative linguistic studies, or teaching approaches related to translating idioms between these languages. This article intends to fill the research gap by thoroughly assessing the accuracy of modern AI-driven NMT systems, particularly about Malay-Arabic idiomatic expressions. This gap includes describing the specific limitations of NMT, methodically identifying and measuring recurrent error patterns, and suggesting focused enhancements catered to the unique difficulties presented by this language pair. The severe lack of extensive, high-quality parallel corpora that are carefully annotated for idiomatic expressions exacerbates the unique challenge facing Malay-Arabic idiom translation and directly hinders NMT models' ability to learn accurate figurative mappings (Al-Majali, 2019; Cho & Lee, 2020). A major barrier to the development of NMT for this particular linguistic task is the lack of reliable, idiom-rich training data, which directly impacts the output's accuracy.

METHODOLOGY

This article employs a qualitative method by analyzing and comparing the relevant literature reviews to evaluate AI's function in translating Malay idioms into Arabic, focusing on the accuracy of these translations. This method was chosen for its ability to provide a comprehensive and replicable synthesis of the existing literature on machine translation, idiomatic translation, and specific Malay-Arabic linguistic research. This methodology facilitates a thorough comprehension of the existing capabilities, problems, and research deficiencies impacting translation accuracy through the systematic identification, evaluation, and interpretation of relevant research. A qualitative thematic synthesis approach was used to analyze the gathered idiomatic phrases, and the results of specific NMT tools (referred to as the "AI-rendered translations" based on reported literature performance).

The idiomatic translations and their intended meanings are checked against reputable dictionaries like Kamus Peribahasa (Abdul Aziz Abdul Rahman, 2012) and Kamus Peribahasa Kontemporari (Abdullah Hassan & Ainon Mohd., 2011), publications from Dewan Bahasa and Pustaka, PRPM (https://prpm.dbp.gov.my), and experts in Malay and Arabic linguistics to ensure currency and relevance.

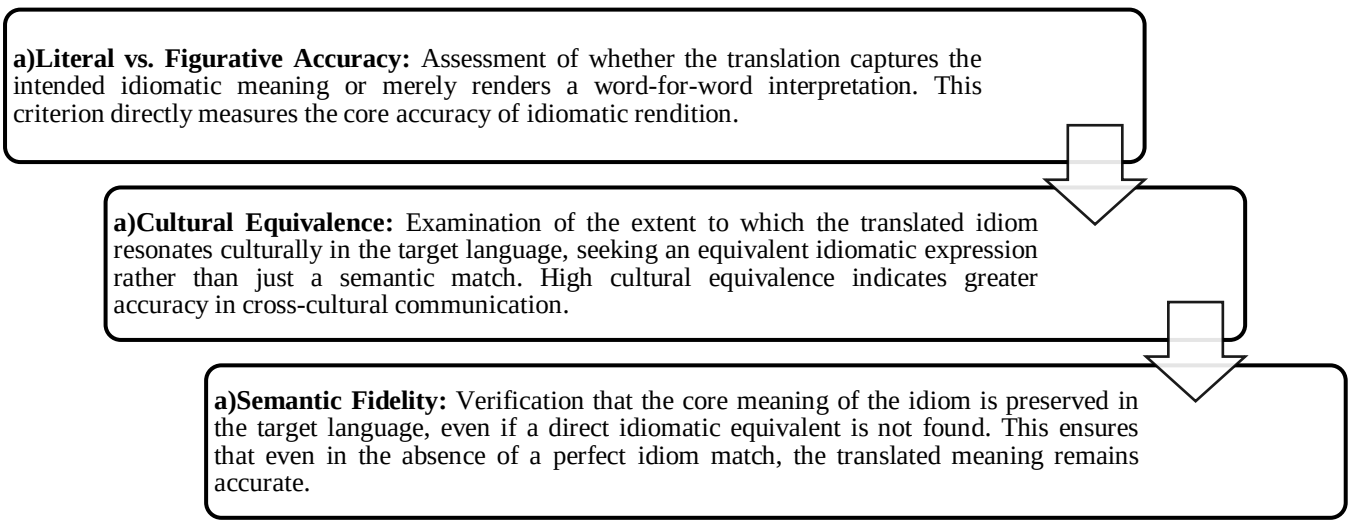

Figure 1: The assessment's standards for translation quality

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue VII July 2025

The analytical method compared the performance of AI-rendered translations (from NMT tools) with translations produced by human experts. This comparison provided a thorough evaluation of AI's accuracy by highlighting differences, advantages, and disadvantages in its ability to handle the intricate figurative nature of Malay idioms when translated into Arabic.

Findings and Analysis

The systematic literature reveals different patterns in AI's translation of Malay idioms into Arabic, underscoring a recurring difficulty in bridging the gap between literal and figurative language and affecting translation accuracy. Observations from previous studies on NMT performance with idiomatic expressions serve as a critical basis for this analysis.

Different Translation Outcome Types

Three analytically separate categories can be used to analyze reported NMT outputs, which represent the different levels of accuracy and success in capturing idiomatic meaning:

a) The most common result for complicated or ambiguous idioms is Literal Translations with Significant Accuracy Loss, which denotes a basic accuracy failure. The non-compositional meaning is frequently not inferred by NMT systems, which rely mainly on statistical associations of words and phrases. The Malay phrase "makan garam" (literally: "eat salt," meaning "experienced") is often translated in Arabic as "أكل الملح" (akala al-milh), which is grammatically correct but semantically void, indicating a significant loss of the original idiomatic accuracy. The NMT model's dependence on surface-level lexical mappings rather than in-depth semantic or cultural knowledge is the direct cause of this result. Syntactically fluent but pragmatically incoherent output with low accuracy regarding the intended meaning results from the models' lack of a mechanism to initiate a shift from literal to figurative interpretation when an idiomatic phrase is encountered. An additional example is the Malay idiom "tangan panjang" (literally: long hand), which means "a thief." NMT systems frequently translate this as "يد طويلة" (yad tawilah), which in Arabic literally translates to "long hand" but lacks the idiomatic meaning of thievery, so it misses the essential meaning. Similarly, the literal translation of "ada hati" (literally: has heart), which means "to have desire or ambition," is "لديه قلب" (ladayhi qalb), which is a direct literal translation but loses the figurative sense of ambition or inclination. Another example is "buta huruf" (literally: blind letter), which means "illiterate." NMT frequently translates it as " حرف أعمى" (harf a'ma), which is a literal but meaningless phrase in Arabic that entirely omits the idiomatic concept of illiteracy.

b) Semi-idioms and situations where the NMT model successfully translate a fundamental conceptual element but fails to capture the full idiomatic nuance or the culturally appropriate figurative expression fall into the category of partially accurate translations with nuance deficits. An NMT translates "air muka" (literally: face water, meaning facial expression) as "تعبير الوجه" (ta'bir al-wajh). Although the general meaning of "facial expression" is conveyed by this translation, the idiomatic flavor and directness inherent in the Malay phrase are lost. This result implies that while the NMT lacks the cultural or metaphorical mapping necessary to generate a completely equivalent idiomatic expression, it partially understands the idiom's constituent parts, which compromises the overall accuracy of expressing the stylistic and cultural richness of the source. Another example is "ambil berat" (literally: take heavy), which means "to care about" or "to take seriously." An NMT translate this as "يأخذ بجدية" (ya'khudh bi-jidiyyah), which expresses seriousness but fails to capture the emotional depth of "caring" that is inherent in the Malay idiom, thus offering only partial semantic accuracy. Furthermore, "ringan tulang" (literally: light bones), which means "diligent" or "hard-working," could be translated as " عظام خفيفة" (ʿiẓām khafifah). This literal translation might allude to ease of mobility but completely ignores the moral quality of diligence.

c) Successfully Accurate Idiomatic Equivalents: These relatively rare occurrences reflect the highest level of accuracy neural machine translation (NMT) systems can achieve with idiomatic expressions. Such accuracy typically arises when the idiom is well represented in the NMT's training corpus, accompanied by a correct figurative translation, or when the source idiom has a well-known and widely used equivalent in the target language. For example, the Malay idiom *buah hati* (literally “fruit of the

heart," meaning "a beloved person") may be accurately rendered in Arabic as فلذة كبدي (fildhatu kabidi, literally "a piece of my liver"), an established expression of deep affection, particularly for a child. This form of successful translation is often attributed not to accurate semantic understanding but to pattern recognition and memorization of parallel aligned data containing those idioms. Another instance is the Malay idiom putus asa (literally "broken hope"), meaning "to despair." When correctly translated as يأس (ya's) or فقد الأمل (faqda al-amal, "loss of hope"), it indicates both semantic and functional equivalence. Likewise, jatuh cinta ("to fall in love") is often correctly translated into Arabic as يقع في الحب (yaqa' fi al-hubb), reflecting a direct and idiomatically accurate counterpart. These examples underscore the crucial role of relevant and idiom-rich training data in enabling NMT systems to produce contextually and culturally appropriate translations.

Accuracy-Related Error Pattern

The frequent mistakes found in NMT translations of Malay idioms into Arabic are not coincidental; instead, they point to structural flaws in the paradigms of AI translation that directly compromise accuracy:

a) The most common error, semantic mismatches leading to inaccuracy, is caused by the NMT's basic inability to identify and interpret non-compositional meaning, significantly reduces accuracy. The statistical learning of the NMT, which is based on predicting sequences based on observed patterns, fails when the meaning of an idiom cannot be inferred from its words. For example, translating "putih mata" (literally: "white eyes," which means "disappointed/ashamed") into "عيون بيضاء" ('uyūn bayḍā') results in a semantic void in Arabic because the literal phrase lacks an equivalent idiomatic meaning. This mistake reflects the models' incapacity to make the cognitive shift from literal to figurative interpretation, which is crucial for accurate translation and heavily depends on cultural context and world knowledge. In Malay architecture, "kaki lima" (literally: five feet) refers to a covered walkway five feet wide. This is another instance of a semantic mismatch. This is frequently translated literally by NMT as "خمسة أقدام" (khamsat aqdām), which entirely ignores the architectural and cultural meaning and produces an incorrect translation for a distinctive Malay idea. Another example of semantic mismatch is "harga mati" (literally: dead price), which means "fixed price" or "final price." NMT translated this as "سعر ميت" (si'r mayyit), which is literally"dead price" and is unintelligible in Arabic for this context. This shows a total breakdown of semantic accuracy.

b) Cultural Misunderstandings Impacting Equivalence Accuracy: Idioms are ingrained in a language's culture and use metaphors derived from shared experiences, history, and surroundings. An NMT lacks integrated cultural intelligence when it provides a semantically equivalent but culturally incongruous phrase or translates an idiom literally, which results in inaccurate cultural equivalence. For instance, if "kaki bangku" (literally: bench leg, meaning someone who is not good at sports) were translated literally into Arabic, it would make no sense because there is no such metaphor. These misunderstandings result from the lack of culturally appropriate parallel corpora for these subtleties, rendering the translation culturally incorrect even though it is lexically plausible. Another example is "besar kepala" (literally: big head), which means "arrogant" or "stubborn." "رأس كبير" (ra's kabir) would not have the same idiomatic meaning in Arabic and would be culturally incorrect. Take "ada angin" (literally: has wind), which means "moody" or "eccentric." The literal translation "هناك رياح" (hunaka riyah) would not capture the emotional state, indicating a cultural misinterpretation.

c) Syntactic and Grammatical Inaccuracies in Arabic Outputs: Although NMT typically generates grammatically correct sentences for literal text, the intrinsic difficulty with idioms can occasionally result in strange or awkward syntactic constructions in the target language, jeopardizing grammatical accuracy. This happens when the NMT attempts to approximate a meaning without a clear idiomatic mapping, producing a verbose or convoluted phrase, or attempting to force a literal translation of an idiom that violates Arabic grammatical structures or idiomatic expressions. This implies that even when individual words are translated correctly, the models fall back on a crude literal rendering when confronted with an unfamiliar idiomatic construction, which could jeopardize the target language's idiomaticity and natural flow. For example, if the NMT tries to preserve the 'setting' verb with 'ears' in a literal construction, instead of finding the fluent Arabic equivalent "أصغى" (asgha - 'to listen attentively') or "أنصت" (ansat - 'to pay attention'), an idiom like "pasang telinga" (literally: set ears,

meaning: to listen attentively) may be awkwardly translated. Another example would be the Malay idiom "gulung tikar" (literally: "roll up mat"), which means "to go bankrupt." A literal translation could result in an odd or non-idiomatic structure in Arabic, such as "يلف البساط" (yaliff al-bisat), rather than the proper idiomatic phrase "أفلس" (aflasa - "went bankrupt'), which would compromise grammatical and natural accuracy.

Cognitive and Computational Discrepancies Impacting Accuracy

Significant differences between human cognitive processes and contemporary computational approaches to language are highlighted by the difficulties in translating Malay idioms into Arabic using AI, which directly impacts the accuracy of the translation. To accurately interpret and translate idioms, human translators use a complex interaction of linguistic proficiency, cultural encyclopedic knowledge, contextual awareness, and inferential reasoning. Even without a direct lexical match, their cognitive flexibility enables them to recognize culturally appropriate target language equivalents and recognize when a phrase is non-compositional, guaranteeing high accuracy.

NMT models, on the other hand, rely primarily on statistical correlations discovered through extensive datasets. Although this paradigm is very good at identifying patterns and creating sequences for literal language, it is incapable of making accurate semantic inferences or having a thorough awareness of the cultural and real-world context. Even when a successful idiomatic translation is generated, it is frequently because the model has encountered idiomatic pairings frequently in its training data, rather than through a process similar to human understanding or metaphorical mapping. This is because deep learning models are "black boxes." When confronted with novel, uncommon, or highly opaque idioms less likely to be widely represented in general-purpose parallel corpora—NMT is especially susceptible due to its reliance on statistical recurrence rather than intrinsic semantic comprehension. As a result, such idioms continue to have low accuracy. In order to achieve consistently high accuracy in idiomatic translation, artificial intelligence must overcome a deeper conceptual obstacle beyond simple linguistic mapping. This challenge involves simulating human cognitive and cultural intelligence.

DISCUSSION

The results highlight the persistent difficulty that idioms and other figurative language present for neural machine translation systems, which directly affects translation accuracy. Even though AI has made great strides in translating texts generally, its capabilities are still limited to the literal domain. Malay idioms like "anak emas" and "makan angin," which serve as examples, effectively illustrate this intrinsic restriction. The main obstacle is the AI's basic incapacity to comprehend the semantics that idioms naturally convey, which are non-compositional and deeply culturally bound. NMT models are very good at identifying patterns in large datasets. However, idioms often appear as sparse data points that are difficult to map directly and predictably, which is especially problematic in low-resource language pairs where large parallel corpora full of idiomatic expressions are hard to find.

Targeted strategies are required to address the limitations in NMT accuracy for idioms, particularly regarding low-resource language pairs like Malay-Arabic. The infrequent and intrinsically metaphorical nature of idioms is a persistent challenge for current NMT methodologies, which mainly rely on statistical frequencies and contextual co-occurrence of words. As a result, the creation of carefully selected datasets that precisely tag and offer idiomatic equivalents is needed. NMT models would be better able to learn these subtle mappings with the help of such specialized corpora, improving their idiomatic translation accuracy. Significant human annotation would be required for this improvement, requiring skilled linguists and translators to carefully recognize, gloss, and match colloquial expressions with their corresponding translations in the target language.

Additionally, the significance of cultural knowledge and contextual cognizance in improving the precision of AI translation is immeasurable. Modern AI systems lack this innate comprehension, unlike human translators who automatically use rich world knowledge, shared cultural schemata, and inferential reasoning to interpret idioms. The meaning of an idiom is frequently closely associated with historical occurrences, dominant social conventions, or distinctive cultural metaphors. These tools will continue to produce translations that are

technically correct at the lexical level but functionally flawed at the semantic and pragmatic levels, failing to achieve high accuracy, unless a deeper stratum of cultural intelligence is incorporated into the designs of NMT systems. Therefore, future studies should investigate sophisticated computational techniques, such as hybrid translation models that integrate mechanisms that support contextual reasoning beyond immediate linguistic proximity or combine the advantages of neural networks with symbolic or knowledge-based systems. These methods are crucial to overcoming the inherent accuracy barriers for extremely idiosyncratic linguistic phenomena.

CONCLUSION

This review has effectively explored the capabilities of artificial intelligence (AI) and neural machine translation (NMT) in facilitating cross-language communication. It also critically addresses their limitations in handling the complexities of Malay idiomatic expressions when translated into Arabic. The findings demonstrate that current NMT systems produce literal translations, often leading to significant semantic distortion or cultural misinterpretation. Such outcomes underscore a persistent challenge in accurately conveying figurative language across languages. The article offers multiple contributions that are valuable to translation studies and the broader field of AI development. It reaffirms the inherent difficulty idioms and highlights the indispensable role of human linguistic and cultural competence in achieving accurate translations. By focusing on a complex and low-resource language pair, this article provides empirical insights into specific error patterns and performance limitations of NMT, thereby identifying key areas needing enhancement. Future research must strategically target several critical domains to advance the precision of idiomatic translation. These include the rigorous construction of idiom-focused, specialized parallel corpora; the integration of culturally rich knowledge bases into NMT frameworks; and exploring hybrid models that combine the rule-based precision of symbolic systems with the adaptive strength of neural networks. Such interdisciplinary approaches are essential if AI is to bridge the gap between literal and figurative meanings, ultimately enabling more accurate, culturally sensitive, and effective cross-linguistic communication.

REFERENCES

1. Abdul Aziz Abdul Rahman. (2012). Kamus Peribahasa. Pan Asia Publications Son. Bhd.Abdullah Hassan & Ainon Mohd. (2011). Kamus Peribahasa Kontemporari, Edisi Ketiga. PTS Professional Publishing.
2. Aldahesh, A. Y. (2013). On idiomaticity in English and Arabic: A cross-linguistic study. Journal of Language and Culture Review, 4(2), 23-29.
3. Al-Majali, A. (2019). The challenges of translating Arabic idioms into English: A corpus-based study. Journal of Translation Studies, 8(1), 55-72.
4. Cacciari, B., & Tabossi, P. (1988). The comprehension of idioms. Journal of Memory and Language, 27(6), 668-683.
5. Cho, J., & Lee, S. (2020). Cultural Considerations in Neural Machine Translation. Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP), 779-779.
6. Imran Ho Abdullah. (2011). Analysis kognitif semantik peribahasa Melayu bersumberkan anjing (canis familiarised). Gema Online™ Journal of Language Studies, 11(1), 125-141.
7. Mourad, B., & Benkhira, S. (2022). The Challenges of Translating Idiomatic Expressions: A Case Study of English-Arabic Machine Translation Systems. Arab World English Journal (AWEJ) Special Issue on Translation, 8, 305-316.
8. Nor Hashimah Jalaluddin. (2018). Peribahasa dan Akal Budi Melayu. In N. H. Jalaluddin & M. Maslida (Eds.), Kiasan, Kognitif dan Akal Budi Melayu. Penerbit UKM.
9. Riedl, J., & Biemann, C. (2023). Explainable Neural Machine Translation: A Survey. ACM Computing Surveys, 55(6), 1-38.
10. Shafie, L. A., Hassan, H., & Hamid, A. H. (2021). Kendhang dan keunikan simpulan bahasa Melayu. Journal Melayu, 20(2), 231-250. http://jurnal.dbp.my/index.php/Melayu/article/view/7933
11. Shafie, L. A., Hassan, H., Hamid, A. H., & Othman, R. (2023). Terjemahan simpulan bahasa Melayu ke dalam bahasa Arab: Satu penilaian kaedah dan pendekatan. GEMA Online Journal of Language Studies, 23(1), 70-89. https://ejournal.ukm.my/gema/article/view/37691/10916

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS | Volume IX Issue VII July 2025

12. Zainal Abidin, E. Z., Mustapha, N. F., Abd. Rahim, N., & Syed Abdullah, S. N. S. (2020). Penterjemahan idiom Arab-Melayu melalui Google Translate: Apakah yang perlu dilakukan? GEMA Online® Journal of Language Studies, 20(4), 191–211.
13. Zaitul Azma Zainon Hamzah & Ahmad Fuad. (2011). Peribahasa Melayu Penelitian Makna dan Nilai. Penerbit UKM.