AI vs Human Expertise in Figurative Language Comprehension

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Abstract

As artificial intelligence (AI) continues to evolve and integrate into various facets of our lives, a deeper understanding of its linguistic capabilities, especially the comprehension of figurative language, has become increasingly important for both further AI development and language education. The current research focuses on the challenges of EFL students to properly understand and accurately use idiomatic expressions while completing a series of designated language activities in contrast to the anticipated potential of AI-driven technology. The findings reveal main differences in comprehension strategies and outcomes, highlighting the unique cognitive processes represented by human learners versus the algorithmic approaches of AI. While EFL students demonstrate their ability to draw on context, cultural knowledge and personal experience, AI tools often rely on patterns and data-driven models. Upon comparing the collected results, and commenting on strengths and weaknesses of both sides, the research points out some pedagogical implications that could potentially improve existing TEFL practices.

Keywords: *TEFL, figurative language, EFL students, Artificial intelligence (AI)*

1. Introduction

In recent years, the rapid development of Artificial Intelligence has significantly influenced various fields, including education and foreign language learning. AI-powered technologies and applications have proved to have the potential to improve teaching approaches, personalize learning experiences and facilitate administrative processes [1] [2]. Teaching English as a foreign language (TEFL) is one of the fields of education where artificial intelligence is having a significant impact. AI-powered tools such as online language learning platforms, virtual tutors and natural language processing systems are changing the ways in which learners acquire new languages.

Latest research on the role of AI in language learning and teaching continues to push the boundaries of traditional methodologies, offering innovative ways to enhance the learning experience. For instance, Baranwal [3] has been searching for empirical evidence on the application of intelligent agents in English learning; Du and Daniel [4] have introduced a systematic review of AI-powered chatbots for English practice, providing insights into enhanced English speaking learning outcomes, engagement, motivations and practice opportunities outside the classroom; whereas Okolo *et al*. [5] investigated the application of AI in adaptive learning systems, demonstrating their effectiveness in personalizing learning experiences based on individual student needs, thereby improving language proficiency. The research conducted by Vanisree *et al*. [2] has covered a comprehensive review of wide range of AI tools and techniques used in language learning. These advancements highlight the potential of AI to offer more personalized, interactive, engaging and accessible language learning solutions, making it a promising area for the future of education.

One area of particular interest that has emerged recently is how AI can support language learners in understanding figurative language, an essential component of fluency that includes the usage of metaphors, idioms, collocations and other non-literal expressions. Figurative language is a great challenge for learners, as it often requires cultural knowledge, contextual cues, and the ability to understand the meaning beyond the literal interpretation of words. Adequate comprehension and use of idiomatic expressions can facilitate more fluent and natural communication in the target language. As Ferguson [6] points out, understanding figurative language can be seen as a marker of language proficiency, which serves various communication purposes, such as expressing politeness, softening messages or conveying criticism in a subtler way.

The aim of the current research is to examine the differences in how EFL students and AI-driven tools comprehend and use idiomatic expressions. It focuses on the challenges faced by language learners

and the potential of AI technology to support language acquisition. Subsequently, this research provides insights that could supplement existing TEFL methodologies.

2. Literature Review

2.1. Importance and Challenges of Figurative Language in Second Language Acquisition

Figurative language commonly refers to expressions that convey meaning beyond their usual or literal understanding [7] by enriching communication and adding layers of complexity and creativity. It creates a special effect, clarifies an idea, and makes language more colourful and forceful [8] [9]. Some of the main forms of figurative language include metaphors, similes, idioms, collocations, prepositional expressions and so on.

The study of figurative language has a rich and complex history that spans across several disciplines, such as linguistics, literature, philosophy and psychology. One of the earliest occurrences can be traced back to Aristotle, who analysed metaphors and their significance in language and literature, establishing a foundation for understanding figurative expressions [10]. The modern approaches marked a significant shift with the advent of cognitive linguistics, mainly through the work of Lakoff and Johnson [11] in “Metaphors We Live By”, which highlighted the understanding of metaphors as a specific mental mapping and a form of what people perceive, how they get around in the world, and relate to other people [8]. The same idea was also developed by Fauconnier and Turner [12], who provided insight into the cognitive processes underlying the creation and interpretation of figurative language.

Figurative language is important in achieving language proficiency [6] [8] [13] because it is deeply embedded in everyday communication. However, its comprehension and purposeful usage presents a number of challenges for non-native speakers, which arise from the intrinsic complexity of figurative expressions and the user’s need to deal with linguistic, cognitive, and cultural layers simultaneously.

According to Boers [14], the learning and understanding of idiomatic expressions and metaphors in a second language (L2) require not only linguistic competence but also cultural and contextual knowledge. Mastering figurative expressions allows learners to engage in more natural conversations, moving beyond literal language to understand humour, sarcasm, and emotional undertones. Further research by Kovecses [15] emphasizes the role of conceptual metaphors, which are inherent to an individual’s cultural background, in the process of learning the figurative language of L2. These conceptual metaphors serve as cognitive tools that learners use to make sense of new figurative expressions, highlighting the interplay between cognitive processes and cultural context in L2 learning.

Figurative language often involves play on words, including puns, polysemy, ambiguity or linguistic features unique to a particular language, making direct translation ineffective or misleading [16]. Linguistic diversity requires learners to not only learn the language but also understand the finest details that predetermine how figurative language is used. One more difficulty can be related to the ability to process figurative language, which requires abstract thinking and the ability to understand language beyond its literal meaning [10]. This can be cognitively demanding for non-language speakers, especially for those at the beginner or intermediate levels, who might still be grappling with the basics of the language. The lack of adequate resources or instructional strategies focused on teaching figurative language can also be an obstacle to success. Traditional language teaching methods may not adequately address the complexity of figurative expressions, leaving learners underprepared to use or understand them effectively in real-life situations [14].

Without the ability to understand figurative meanings, learners may miss out on the richness of the target language, limiting their ability to comprehend and respond to native speakers effectively.

2.2. Artificial Intelligence and Language Comprehension

We have already witnessed the rapid development of the artificial intelligence era. Whether ready or not, we can now see it spreading over all spheres of human activities. Technological advancements have introduced new expectations and obstacles for educators and learners [2], and have so far proved their reliability while offering initial insights, facilitating tasks and intercultural communication. This has become a routine practice that is rarely questioned nowadays. The potential of modern technology is driven by continuous advancement and further development on a daily basis.

When applied in an educational setting, AI can enhance the teaching and learning experience for both teachers and students [1] [2]. In order to develop both receptive and productive skills, language teachers have relied on all the tools available, including audio, video recordings, smartboards, and a

vast majority of applications available and aimed to facilitate, improve or make the learning process more engaging and efficient. Among those that have recently made their way into our lives is artificial intelligence, which underpins many of the novelties we are both eager and afraid to explore. Notably, machine learning algorithms and natural language processing tools have advanced to a point where they can accurately model human language patterns, facilitating more intuitive and interactive language learning experiences. Additionally, technologies like Virtual Reality and Augmented Reality are being integrated into language learning platforms, offering learners immersive environments to practice real-life conversations and scenarios [2]. The potential of these tools to provide and analyse unprecedented amounts of data, collected in real time, combined with novel methods from the field of AI are bringing the optimization of teaching and learning processes [17].

Even figurative language, which is often a challenge for non-native speakers, can be facilitated by employing modern systems and tools. With the growing capability of AI and extensive language corpora, it is expected that modern tools can easily recognize a wide range of lexical combinations, including collocations, idiomatic expressions, and phrasal patterns. In an educational context, AI can assist learners by breaking down complex figurative language into more understandable forms, offering explanations and examples. Tools that analyse metaphors and idioms can help language learners understand non-literal meanings by providing contextual definitions and usage in a specific context [18].

As non-native speakers become more fluent in a language, they get better at recognizing and using figurative expressions themselves [8] [13]. They then start relying on context, exposure, and learning from the patterns encountered to understand idioms. By practising and actively learning idioms, non-native speakers gradually incorporate these expressions into their language skills. This not only helps them communicate better but also helps them connect more deeply with the culture associated with the language they are learning.

3. Research Methodology

Having extensive TEFL experience and practice in using various ICT means with language learners, as well as being aware of the inevitable spread of artificial intelligence, we decided to carry out research exploring strengths and weaknesses of the two sides – namely, EFL students on the one hand and AI-supported tools on the other – in handling the cases of figurative language, such as idioms, metaphors, collocations and phrasal constructions.

The practical part of the research involved the following steps:

1. *Text preparation*. An authentic English text was designed specifically for this purpose. It contained intentional gaps, requiring participants to fill in contextually relevant words associated with figurative language.
2. *Assignment for students*. A total of 82 students majoring in English, with English language proficiency ranging from B2 to C1 level were asked to read the text carefully and fill in the blanks with the missing word, which they think is relevant for the given context.
3. *Assignment for AI*. The same text, with identical gaps was uploaded on ChatGPT-3.5 and instructed to perform the same task of filling in the missing linguistic items.

The methodology employed in this research focused on evaluating the comprehension of the figurative language demonstrated by students in contrast to artificial intelligence.

4. Research Results

The data collected on students' responses regarding the usage of figurative language in a specific context showed varying levels of success across the different language patterns.

First of all, the results reveal a high level of their comprehension and accuracy in collocations with prepositions. The following extracts are part of the assignment for students, where the word in bold was missing from the given text.

- *… keep reminiscing ____ (**about)** the days …*
- *… instead ____ (**of)** opting for …*
- *… is not rich ____ (**in)** night life …*
- *… book their trips ____ **(on)** a whim …*
- *… take you by ____ (**surprise**) …*
- *… that took our____ (**breath**) away …*

For instance, most students correctly completed phrases such as ‘instead of’ and ‘rich in’. This points to a solid understanding of the syntactic structures linked to these linguistic units. However, less familiar phrases, such as ‘on a whim’ and ‘reminisce about’ presented greater difficulty, particularly for the students at lower proficiency levels, as only about a half of them correctly used the missing prepositions. There were a number of variations provided by learners, including ‘for a whim’, ‘with a whim’, ‘in a whim’, and ‘reminiscing on’, ‘reminiscing of’, ‘reminiscing all’, etc., which might imply a certain level of confusion or inconsistency in the students’ understanding of these specific phrases. Moreover, there were also responses that were left blank, suggesting uncertainty or unfamiliarity of these expressions. In addition to selecting the correct preposition for the given word in the context, the students were also asked to provide the appropriate word that follows the preposition to complete the phrase accurately. In the case of the expression ‘by surprise’, the students demonstrated a strong familiarity and understanding of the phrase as the word ‘surprise’ was consistently used correctly. This shows that they were able to accurately pair the preposition ‘by’ with the noun ‘surprise’ in the context provided, demonstrating a clear understanding of this linguistic combination.
A similar tendency was observed in some other idiomatic expressions characterized by strong collocability. For example, phrases like ‘wine and dine’, ‘take one’s breath away’, ‘recharge your batteries’ and ‘enjoy to the fullest’ were well understood and accurately used by most students.

- *… our host couldn’t wine and ____ (**dine**) us …*
- *… took our ____ (**breath)** away …*
- *… decide to ____ **(recharge)** your batteries …*
- *… enjoy it to the ____ (**fullest)** and …*
- *… people **____** (**rolling)** in dough …*
- *… **____** (**off)** the ____ (**beaten)** track …*

However, the results also revealed variations provided by students while recognizing and completing certain idiomatic expressions.

- *… on your **____** (**bucket**) list?*
- *… prefer exploring every nook and ____ (**cranny)** …*
- *… is nothing to **____** **(write)** home about …*
- *… **____** **(make)** some remarkable memories …*

For instance, the in the case of ‘bucket list’, while most students correctly filled in the word ‘bucket’, several alternative responses were provided as well, such as ‘to do list’, ‘main list’, ‘wish list’, ‘travel list’, ‘check list’, ‘top list’, etc. Similarly, while completing the phrase ‘make some remarkable memories’, alongside the correct responses, students gave other variations of the verb, including ‘do’, ‘experience’ and ‘create’. Likewise, in the phrase ‘every nook and cranny’, some students misspelled the missing word as ‘crany’ or filled-in such alternatives as, ‘hook’, ‘corner’, ‘inch’ and ‘detail’. Furthermore, in the expression ‘nothing to write home about’, the missing verb ‘write’ was replaced by other alternatives ‘leave’, ‘brag’, ‘tell’, ’boast’ by some of the students. This variety in responses indicates individual interpretations and comprehension of idiomatic expressions among students.
However, in some cases students encountered difficulties in understanding the intended meaning of certain idiomatic expressions, with only a few accurately identifying them.

- *… it was just what the **____** **(doctor)** ordered …*
- *… always think **____** **(twice**) before …*

For example, the phrase ‘what the doctor ordered’ was recognized correctly only by a minority of students, while others provided such responses as ‘mind ordered’, ‘heart ordered’, ‘group ordered’, ‘locals ordered’. Similarly, for the phrase ‘think twice’, only a handful of students gave correct responses, whereas many offered variations like ‘think ahead’, ‘think hard’, ‘think carefully’, ‘think right’, ‘think through’, etc.
Some instances of figurative language appeared to be particularly challenging to all students, as none provided correct responses.

- *… decision to travel **____** **(light)** …*
- *… during **____** **(low)** season …*
- *… prices generally go through the **____** **(ceiling)** …*

- *… often travel on a ____* ***(shoestring)*** *and …*
- *… enjoyed the fortnight spent there to* ***____*** ***(bits)*** *…*
- *… if you have a* ***____*** ***(whale)*** *of a time …*
- *… whether the chosen destination will give* ***____*** ***(bang)*** *for your buck …*

In particular, the phrase ‘travel light’ led to varied responses including ‘travel there’, ‘travel together’, ‘travel around’; the expression ‘low season’ was completed with the following adjectives and nouns as ‘warm’, ‘cold’, ‘summer’, ‘holiday’, ‘peak’; the idiomatic expression ‘go through the ceiling’ was commonly indicated by ‘go through the roof’, and ‘travel on a shoestring’ elicited responses like ‘travel on a budget/whim/’ or adding a means of transport, such as ‘train’ and ‘plane’.
The students’ inability to recognize and correctly complete the mission part of the figurative language could be attributed to several factors. Firstly, idiomatic expressions often rely on cultural context or colloquial usage, which may be unfamiliar to language learners, particularly those from different linguistic or cultural backgrounds. The examples of the completed phrase ‘spent there to bits’ resulting in responses like ‘spent there to relax’ and ‘spent there to explore’ indicate a tendency to interpret idioms literary or based on individual word meaning rather than understanding the figurative expressions as a whole. Additionally, the complexity or obscurity of these idioms may have posed a challenge, especially if they are less common in everyday language or if their meanings are not immediately apparent. Students mostly made errors by taking idiomatic expressions word-for-word, rather than grasping their intended figurative meaning. For instance, using such words as ‘there’, and ‘around’ together with the verb ‘travel’ makes the phrase as a variable word group rather than an idiomatic phrase meaning ‘to take very little with you when you go on a trip’ as in ‘travel light’.
On the contrary, the results of testing the same activity using generative AI tool (the free version of ChatGPT-3.5) show that the majority of responses were accurate. All highly collocable idioms were identified precisely, with only minor variations observed in certain phrases. For instance, ‘travel light’ was referred to as ‘travel there’, and ‘bang your buck’ was expressed as ‘value for your buck’. Additionally, the idiom ‘low season’ was replaced with ‘off season’, and ‘a whale of time’ was suggested as ‘a blast of a time’. Despite these slight deviations, the AI demonstrated a high degree of precision in recognizing and completing idiomatic expressions, which implicates its capability to handle figurative language with considerable accuracy. Idioms and phraseological units are stable expressions that have fixed meaning that is different from literal interpretation of the individual words. Because idioms are common in language and often used in a variety of contexts, AI-driven tools are typically quite good at recognizing them. This is because AI models have trained on vast amounts of corpora data, which include numerous instances of figurative language [18]. They can learn the patterns and contexts in which idioms are used, enabling them to recognize and understand them more effectively.

5. Discussion and Conclusions

Figurative language enriches communication by conveying meaning beyond literal interpretations through expressions such as metaphors, idioms and other phraseological units. Understanding figurative language is very important for achieving language proficiency, particularly for non-native speakers, as it involves the ability to handle linguistic, cognitive and cultural complexities.
The research aimed to compare the ability of AI and EFL students to recognize complex figurative language revealed, that contrary to the initial assumption that humans would perform better, AI-driven tools demonstrated great accuracy and precision.
The research findings indicate that while advanced language learners showed a profound understanding of well-known idiomatic expressions and those similar to their native language, they faced significant challenge in recognizing and employing less common phrases. The main difficulties for students involved not being familiar with certain instances of figurative language and culturally bond idioms, which led to individual interpretations, the usage of literal expressions rather than idiomatic ones or confusion and mistakes. The varying levels of figurative language comprehension among students further underline the necessity for tailored educational approaches that cater to individual learning needs.
In contrast, AI tools demonstrated impressive accuracy in recognizing and completing idiomatic expressions, suggesting that AI can effectively facilitate the understanding of figurative language.
Despite the limitations of the research (due a relevantly small sample size) and the limited number of figurative language items tested, the findings suggest that AI is more reliable in handling abstract language than previously thought. From a TEFL perspective, these results imply that AI could be

integrated into educational practices, offering students additional resources while dealing with figurative language and improving their overall communication skills.
Further studies could focus on the long-term impacts of integrating AI tools in second language acquisition, particularly regarding students' fluency and their ability to master occurrences of figurative language in diverse contexts. It is also important to note that this research focused on AI trained in English, the dominant language in both global communication and AI development. Future research could be explored how AI deals with less widely used languages, which might yield to some rather different results.

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