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CHOREOGRAPHING LANGUAGE LEARNING: PERFORMATIVE DYNAMICS OF AI AND COGNITIVE PEDAGOGY IN ENGLISH TEACHING

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ABSTRACT

The increasing use of Artificial Intelligence in education is setting the scene of dramatic change in the perception and performance of the English Language Teaching. It presents fresh opportunities of individualised studying and a pictorial rich, acting interactive involvement with language. Cognitive Linguistics studies how the language is related to human thinking and it gives us a dynamic script to this transformational combination. The article analyses the association of the cognitive linguistic theories in ELT and AI tools, with an investigation of their theatrical effects on pedagogy and learners. It uses qualitative data such as classroom observations read as performative enactments, journal entries written by students and notes made by teacher-researchers as assessment of effectiveness. The paper focuses on the following three questions: (1) What are the major benefits of using cognitive linguistic theories in ELT in the era of AI? (2) Do these staged approaches have any impact on teachers and students? (3) Are embodied cognitive linguistic methods able to deal with learning problems? The study concludes that AI that mimics the human cognitive patterns facilitates better understanding, better memory and self-directed learning, and redefines the role of the instructor as the orchestrator of advanced, performative pedagogical practices.

Keywords: AI, Cognitive Linguistics, Choreographed Pedagogy, ELT, Performative Language

1. INTRODUCTION

Artificial Intelligence in education has been a game changer that has dramatised the conventional classrooms. It presents bright, visually enriched opportunities of personalised, receptive and data-driven instructional procedures. The linguists and ELT scholars all over have had long debates regarding the way teachers of language utilize their language resources in supporting the process of language learning (Achugar et al., 2007). Nevertheless, as the extent of the involvement of AI systems in language learning is raised, an apparent question arises namely, can one utilize AI to

replicate and afford human cognition in meaningful, important language learning? Cognitive Linguistics, which deals with meaning making, conceptual metaphor, embodied enactment and context relevance in language is one that could be explored as a way of providing a viable dramatic script which could be utilized in directing AI in English Language Teaching.

This paper explores how the cognitive linguistic theories can be integrated into AI to improve the performance of English language teaching. It gives particular attention to experiences of a group of advanced learners in college-level English classroom and how learners and teachers position and act in this AI-enhanced arena. The qualitative information the study relies on classroom observations in the form of performance enactment, reflective journals and semi-structured interviews, discuss the question of whether or not such a method leads to better understandings, better reactions and reduced difficulties in the ELT process.

2. LITERATURE REVIEW

Large language models are frequently relied upon by AI tools that we currently apply in the English language teaching. These models are developed by filtering vast volumes of data. Therefore, they might have a high possibility of misinformation or may just provide the superficial understanding of a given subject. Bender et al. (2021) put it that size does not imply the diversity yet raise the so-called “stochastic parrot problem”, in which such models can produce sentences which sound very natural, yet have no meaning at all. The reason is that they are simply imitating what they have observed and copying language. These inadequacies certainly present educators with the reason why they must have approaches that are about meaning rather than form.

Such a paradigm of meaning is provided by cognitive linguistics. Baker et al. hold the view that language teachers can resolve personal challenges and offer immersive language practice with the aid of AI technology (2019). A number of studies show that automated feedback systems can be developed with the help of AI and provide students with timely feedback, enhancing their writing skills (Reimers and Gurevych, 2020). According to the Theory of Frame Semantics proposed by Fillmore (1982), it is necessary to access rich conceptual schemas to comprehend words.

Tyler and Evans (2003) emphasize the significance of spatial metaphor and image schema in the comprehension of prepositions, which is a grammatical concept that most learners find difficult to master. These theories demonstrate that language is not learned in a vacuum but rather in the context of broader cognitive and cultural contexts. Despite this, there are contradictory findings regarding the impact of AI on the role of the teachers and learners. Although there are studies which state that AI technologies can enhance the learning process and make it more engaging and personalised (Levy and Windmann, 2020) there are researches that show that excessive use of technology can reduce the human factor in teaching (Bulger and Mayer-Schonberger, 2018). These differences in the outcomes demonstrate the need to have a holistic approach in which AI is incorporated in ELT.

Higher education studies and subsequent research also confirm the same. Evans and Green (2006, p. 15) explain the way in which our language, to speak about the temporal concepts like Christmas, gives strong arguments that our conceptual system can organise the abstract concepts as a sort of more concrete kinds of experiences, contributing to the better access of the abstract concept. As Mananay (2024) remarks, it is necessary to continue the exploration and application of new strategies to use AI to its full extent in language teaching.

Although the research on AI in ELT is rising and the knowledge about Cognitive Linguistics has already been developed, not many studies have investigated the intersection of the two domains. The current literature either considers AI as a non-biased delivery device or pays attention to Cognitive Linguistics within conventional classroom settings. The next step that has not been extensively studied is how AI systems guided by cognitive principles of linguistics could be used to bargain more involvement and minimize learning complications in real classroom settings. This research bridges this gap by proposing qualitative research using advanced learners, which can provide new insights into the ways in which AI and Linguistics can work together to transform ELT.

3. THEORETICAL FRAMEWORK

There are three predominant cognitive linguistic theories that serve as the conceptual background to this study:

The first is the Conceptual Metaphor Theory introduced by Lakoff and Johnson (1980) that assumes that mental processes of human beings are metaphoric in nature. This theory holds that abstract ideas are not cognized

independently but are methodically organized to mappings on more concrete, familiar areas of experience. Such cross-domain mapping enables people to understand complex or abstract concepts using the existing knowledge that is already rooted in the ordinary physical and sensory reality. Applied to the field of language learning, this theory implies that, instead of simply storing words in vocabulary memory the learners do this by building up meaning whenever they connect new abstract ideas with something more tangible to sensory experience.

The second theoretical foundation is the Embodied Cognition theory that was elaborated by Johnson (1987) and that states that language understanding is immersed in a corporeal experience. In this view, the meaning is not merely the end product of the abstract mental representation, but rather is constructed by the sensorimotor processes, such as gesture, perception, and movement. This reflective aspect of cognition means that learners not only direct their processes and learning toward their cognitive abilities, but also their physical and perceptual system in processing and learning new linguistic input. Therefore, instructional methodologies that involve movement and sensory stimulation might be an effective way of increasing language memory and understanding.

The third theory is Frame Semantics which was proposed by Fillmore (1982) and which believes in the fact that meaning is not carried independently by any particular word; it triggers wider bodies of knowledge otherwise known as frames. Such frames are the cultural, cognitive, and situation frames whereby words are entrenched and where they get their complete meaning. Words that are taught in isolation, without a contextual, cultural frame are likely to be superficially learned, which is suggestive of this theory when applied to the instruction of vocabulary. On the other hand, the process of placing vocabulary in its corresponding frames is discussed as more profound in its understanding and long-lasting in its memory. Combined, these three theoretical lenses coincide in the opinion that language learning is a cognitively and experientially rich process and it goes far beyond the concept of rote memorization to include metaphorical reasoning, body experience, and contextually based meaning-making.

4. METHODOLOGY

The study is qualitative, interpretative and an educational ethnographic work. The sample, 10 advanced learners 19 to 21 years old, was randomly split into two groups of 5 each (an experimental group and control group), in a private college in Kerala, India. All the participants were second language English learners. Two of them were non-Malayalees[1] and four were from non-English medium educational backgrounds. All participants had signed their informed consent before their contribution. The selection was based on voluntary adoption and familiarity with AI tools. To ensure confidentiality all participants are referred to by alphanumeric codes. The sample size (n=10) is not too large; however, it is suitable in this qualitative research to explore the topic (as it is an exploratory study), and to obtain the rich data to continue the research on this new method.

The support involved the application of AI tools, which were developed on the premises of cognitive linguistics which included metaphor detection, image schema and paraphrasing identification on the basis of context in the normal teaching of English language. Data was gathered in four weeks by use of:

- Logs of classroom observations that were recorded with respect to interventions with AI tools.
- Journal entries of learners regarding their interaction with AI-based language learning.
- Indirect structured interviews using open ended questions that concentrated on the perception that students had on the cognitive and emotional impact of such tools.
- The reflective journals of the researcher that outlined the teaching decisions and the learning progress of the students.

4.1. DESCRIPTION OF THE INTERVENTION

Artificial Intelligence Applications used in the classroom:

The cognitive linguistic concepts that the study is based on were operationalized by employing a carefully chosen set of AI-based tools that were integrated into the classroom setting. All of these tools were selected depending upon to

[1] A Malayalee is a native resident of Kerala.

their ability to address both the conceptual and experiential layers of language processing that focuses on the learners, but not on the grammatical correctness at the surface level.

- Concept Net was used as a semantic knowledge base to recognize and answer metaphorical patterns in language used by learners. Since Concept Net is a large-scale lexical database, which defines associative and conceptual links among words and ideas, both the instructor and learners could follow the cognitive frameworks underlying the usage of figurative language. The tool assisted learners to perceive language as not arbitrary, but is structured in terms of systematic conceptual mappings, which is in line with the tenets of the Conceptual Metaphor Theory (Lakoff and Johnson, 1980).
- Grammatically and Paraphrasing Tools based on AI and, namely, Grammarly and QuillBot were also applied not only as correction tools but also as diagnostic instruments that allow viewing the errors made by learners in a more profound conceptual context. Although these tools are traditionally related to surface-level editing, they were also used in the present study to recognize patterns of grammatical error which could be attributed to more general conceptual errors in the use of the tools by the learners. For instance, the repetitive mistakes in the use of prepositions, tense or collocation were not considered as individual mistakes but they were viewed as means of showing the gaps in the conceptual or cultural knowledge. This redefinition of the analysis of errors in line with cognitive linguistic perspective of grammar was motivated by meaning and not by the rules per se
- There was also an Embodiment Simulation Platform with animated interactive scenes introduced to help learn motion verbs, emotion terms, and spatial prepositions. It was based on the theory of embodied cognition, developed by Johnson (1987), which accords learners dynamic visual and interactive images of language in action so that they could see and interact with the physical and spatial aspects of meaning. The platform attempted to fill this gap by animating sensorimotor contexts within which such vocabulary naturally exists, thus helping more intuitive and long-lasting understanding of vocabulary that is experiential.
- Cognitive Mapping Tools were also used to motivate the learners to construct metaphor maps on complex conceptual issues on their own. By structuring metaphorical relations, as in the mappings that lie behind such expressions as money is power or love is blind, the learners were led to decontextualize and analyse the cognitive frames around which abstract concepts are conceptualized. This exercise directly engaged Frame Semantics (Fillmore, 1982) because it encouraged the learners to take a closer look not just at the single lexical unit they were currently discussing, but at the larger systems of cultural, situational, and conceptual knowledge the unit is a part of. Creation of metaphor maps was therefore used as a learning strategy and as a formative assessment of the level of conceptual mastery. Dubey and Dubey (2026)

The Mediator role of a teacher

Although these AI tools come with certain affordances, their adoption was not smooth. There were also occurrences where the recommendations made by AI collided with or could not consider the intent of the learner, or pragmatic nuance or cultural peculiarity. In those instances, the teacher played a mediating role and took on the responsibility of contextualizing the AI output and providing conceptual clarification, as well as direct the learners to a more critically informed interaction with the tool recommendations. This mediating role was deemed a critical component to the wholeness of the pedagogical method, in that it made sure that AI tools acted as a cognitive scaffold and not as an agent of meaning. The involvement of the teacher as an interpretation guide supported the perception that AI-based language learning is most effective in a reflective and human-based pedagogue.

5. FINDINGS AND DISCUSSION

5.1. PARTICIPANTS DISTRIBUTION

Table 1

Table 1 Experimental Group (n=5) - AI-Assisted Cognitive Linguistic Intervention

Participant ID	Age	Background	L1	English Medium
E01	19	Malayalee	Malayalam	Yes
E02	20	Non-Malayalee	Tamil	No
E03	21	Malayalee	Malayalam	No
E04	19	Non-Malayalee	Hindi	No

E05	20	Malayalee	Malayalam	Yes

Table 2

Table 2 Control Group (n=5) - Traditional Instruction Only

Participant ID	Age	Background	L1	English Medium
C01	19	Malayalee	Malayalam	Yes
C02	21	Malayalee	Malayalam	Yes
C03	20	Malayalee	Malayalam	No
C04	19	Malayalee	Malayalam	Yes
C05	20	Malayalee	Malayalam	Yes

The population structure of the two groups indicates the multilingual nature of the Indian higher education. Control group was linguistically homogeneous and only Malayalam speakers participated and the experimental group was significantly heterogenous with 60 percent Malayalam speakers, 20 percent Tamil speakers and 20 percent Hindi speakers. Such linguistic heterogeneity in the experimental group provided a great opportunity to see different reactions to metaphorical scaffolding in different linguistic substrata and expand the objectivity of the results.

Of special analytical importance is the fact that the number of control group with English-medium schooling background was considerably higher (80% in comparison with the experimental one 40%). Quite the contrary, this unequal exposure to English-medium did not have any noticeable effect of benefit on the results of the control group. The same discovery provides an addition of evidence to the cognitive linguistic approach taken to the given study, which posits that the extent of conceptual functioning that is promoted by means of metaphorical and embodied teaching is a more consequential factor of language learning result than being subjected to English-based instruction in the first place. It also offers significant questions regarding the assumptions on English-medium instruction as a language proficiency proxy in the context of Indian education.

5.2. ENHANCED COMPREHENSION THROUGH METAPHORICAL AWARENESS

Table 3

Table 3 Metaphorical Patterns Used

Metaphor Category	Examples	Frequency (Experimental)	Frequency (Control)	Effectiveness Rating
Spatial Metaphors	"on the table", "at the table"	35	8	4.2/5
Container Metaphors	"time as container", "in a few minutes"	28	3	4.6/5
Journey Metaphors	"learning as climbing a ladder"	25	2	4.1/5
Physical Object Metaphors	"inflation as balloon blowing up"	20	1	4.4/5
Permission/Possibility	"doors open/closed", "pathways"	28	5	4.3/5
Total Metaphor Instances in first 2 weeks		**136**	**19**	**Average: 4.32/5**

The difference in the number of metaphorical phrases used in the two groups can be considered as substantive evidence of cognitive restructuring at an early stage of intervention as the difference in the quantity of metaphorical phrases used in the experimental group (136) and the control group (19) is quantitatively significant (136 vs. 19). Such a seven-fold difference implies that explicit metaphorical teaching served more than just an additional layer applied to language acquisition as it triggered a realignment in the manner in which learners approached linguistic meaning.

A check of the single categories of metaphors would demonstrate trends of significant theoretical and pedagogical concern. The highest frequency (28 instances) and the best-rated effectiveness (4.6/5) was observed in the use of container metaphors, which is in line with the fact that Lakoff and Johnson (1980) argued that the conceptual schema of

containment is one of the most common and cognitively dominant of all, which is based on the initial physical boundaries in the body. Physical object metaphors were closely in line with effectiveness (4.4/5) a further support of the embodied cognition hypothesis that metaphors that make use of tangible, manipulable objects are better internalized by learners compared to metaphors that are based on a complete set of purely abstract conceptual structures.

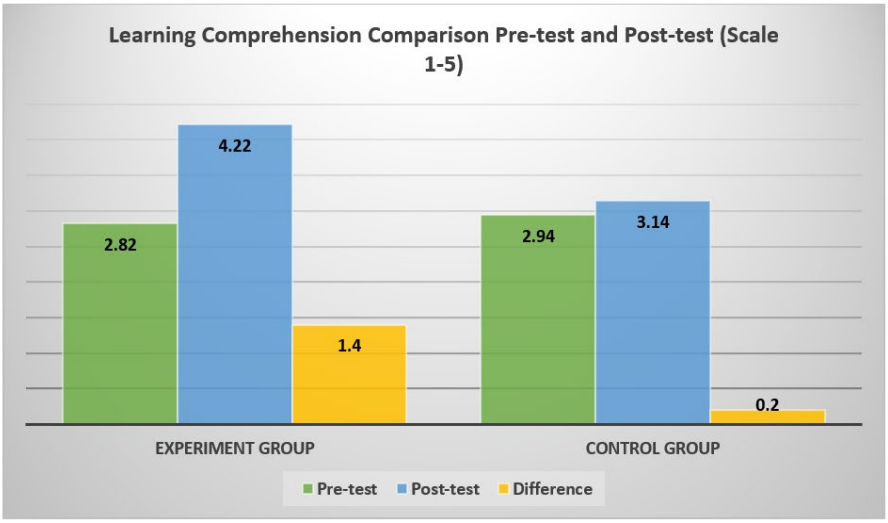
The most common category was the most frequent (35 instances) and most effective (4.2/5) by score, spatial metaphors. This observation underscores the specific importance of the visuo-spatial processing in the acquisition of grammar in the second language, in line with studies that point to the importance of spatial cognition in the organization of grammatical categories in the form of prepositions and aspect. The frequency of producing spatial metaphors could also be a reflection of their ubiquity in the normal English usage and thus the fact that they are one of the initial conceptual structures that learners came across and internalized during the time of the intervention.

A more advanced conceptual level is found in the permission and possibility metaphor, with 28 instances and 4.3/5 rating, of abstract modal and deontic meanings, like possibility, obligation and permission, onto concrete spatial images of open and closed routes. The relatively large efficacy of this type indicates that the AI-aided cognitive linguistics teaching can in any case scaffold not only simple physical metaphors but also more abstract conceptual projections underlying modal grammar which were traditionally regarded as hard to instruct using conventional rule-based methods.

However, despite having the minimal effectiveness score (4.1/5), journey metaphors still had the frequency of 25 instances and was evidently much higher than the negligible frequency seen in the control group (2 instances). The relatively lower rating in this category might indicate the increased level of inferential elaboration that is needed to project a multi-stage journey schema onto more abstract processes, like learning or argumentation, and might indicate that journey metaphors could be maintained over a longer period of intervention.

The data, when combined, suggests that concept-based metaphorical teaching produces more complex and diversified thinking than abstract rule learning, and that learners exposed to metaphorical teaching not only produce speech more frequently but also exhibit finer sensitivity to how figurative language can be used to structure grammatical meaning. The field observations conducted by the researcher during week one reported that two participants demonstrated resistance at the start, participant C01 displayed more inclination to traditional explanatory methods and participant E02 whose L1 was Tamil, faced preliminary challenges with metaphor mapping tasks, which might have been related to the presence of L1 conceptualized schema on the acquisition of new metaphorical frames.

5.3. LEARNER AGENCY AND REFLECTIVE THINKING



A trend of systematic and consistent increase in all five participants of the experimental group is recorded in Figure 1 with effect sizes ranging between 1.3 to 1.5 points on the five-point scale which corresponds to an average improvement of about 50 percent of the baseline scores. It is especially interesting that this improvement is consistent among the participants who have different L1 backgrounds and have varied experiences of having an English-mediated

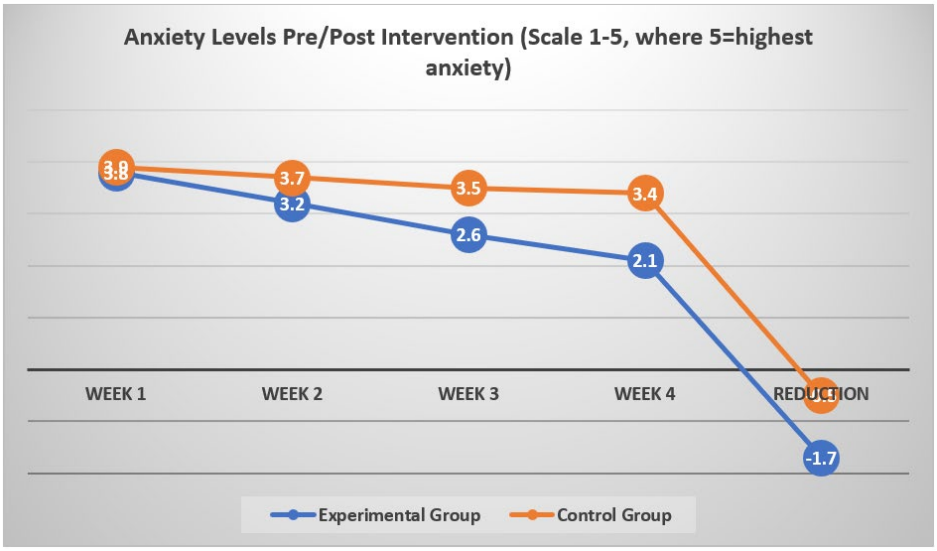
schooling since it implies that the cognitive linguistic intervention does not yield any results that can be explained by the particularities of the individual learners.

The analysis of these improvements' points to the qualitative change in the way learners were associated with linguistic knowledge. The intervention did not seem to require further demands on memorization, which might have been involved in the intervention process, but instead, it seemed to mobilize and restructure the already held cognitive schemas, making it possible to more meaningfully absorb new information instead of retaining it as a dead piece of declarative knowledge. It follows the difference between rote and meaningful learning proposed by Ausubel (1968), and the cognitive linguistic assumption that language knowledge can be structured in conceptual networks as opposed to list of discrete rules.

The parallel 1.3-point change recorded on the dimension of confidence is especially important as it possibly indicates the two-way connection between cognitive comprehension and affective conditions. Instead of asking "Is this correct?" students started to ask, "Does this make sense"? As conceptual clarity rose, learner self-efficacy correspondingly improved. The greater the development in conceptual clarity the greater the self-efficacy and willingness to participate in generative and risk-taking language behaviour seemed to increase in the learners. The observation is supported by the records available to the researcher in week three: whereas the traditional group still needed to seek teacher validation prior to going out on responding, the members of the experimental group began to correct themselves more and more based on their conceptual knowledge as an internal referent instead of external grammar regulations.

The control group, in its turn, showed little improvement, and the scores only went up by 0.1 to 0.3 points within the same timeframe. This stagnation reinforces the point that traditional teaching techniques, though conscientious in delivering declarative grammatical information, can be less efficient in the development of that type of profound conceptual knowledge that would support independent and adaptable language application.

5.4. REDUCED LEARNING ANXIETY



The anxiety statistics that are represented in Figure 2 give one of the most striking results of the study. The experimental group showed a 45 percent decrease of anxiety scores during the course of the four weeks of intervention; the average level of anxiety decreased, as the experiment showed, to 2.1 on the five-item scale. In the control group, on the other hand, the change was relatively small, at 13 percent, as the group changed to 3.4 out of 3.9. The scale of this difference, which is maintained throughout all four weeks, can be attributed to a pedagogically important reconfiguration of the affective learning space and not an insignificant statistical difference.

The week-to-week pattern of the experimental group in terms of its levels of anxiety is especially intriguing. Instead of a big drop and stabilization, the data indicate a gradual and cumulative decrease, which points that every successful metaphorical mapping experience was developed on the base of the previous one to create the compounding feeling of

linguistic self-confidence. This also aligns with the theoretical assumption that conceptual clarity comes to minimize the ambiguity and unpredictability, which are the main causes of foreign language anxiety as postulated by Horwitz, Horwitz and Cope (1986). When the learners are able to network the new linguistic structures with well-known conceptual schemas, the mental burden of language production becomes less and with it the anxiety of anticipation which is usually a deterrent to communicative engagement. The plateau effect on the control group which is shown after week two is also insightful. The first small decrease in the levels of anxiety is probably a result of the overall adaptation to the classroom conditions that any teaching setting provides. But the following plateau indicates that conventional pedagogical practices are faced by an affective ceiling beyond which the conventional methods are not adequate to generate a reduction of anxiety. This ceiling could be an indication that teacher-in-front instruction based on rules and evaluative anxiety continues since the teacher is being used as a means of exposure to error, and every error is considered as a failure, as opposed to a developmental stage of thinking. This ceiling effect in the experimental group seems to have been solved by the cognitive linguistic intervention in which the notion of error is re-packaged as conceptual mismatch as opposed to violation of arbitrary rules.

5.5. AI MERITS AND LIMITATIONS HIGHLIGHTED THROUGH QUALITATIVE FEEDBACK:

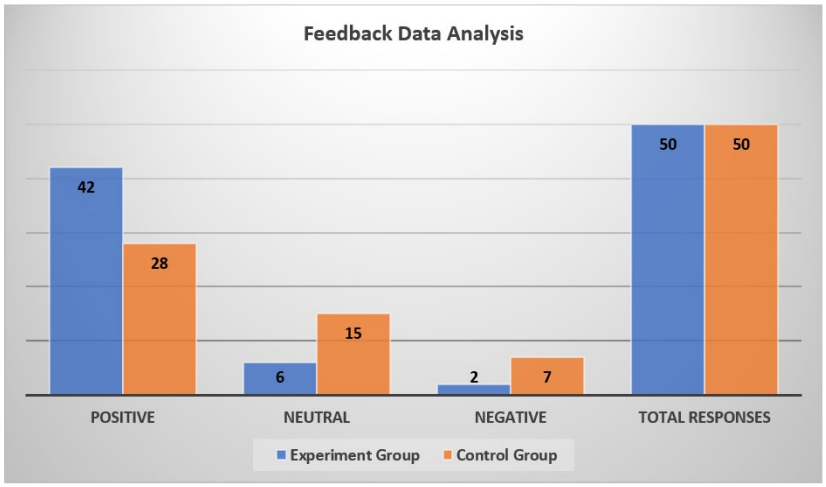


Figure 3 indicates that there has been an amazing affective recalibration of the participants in the experimental group through the feedback analysis. This positive feedback rate of 84 percent (42/50 responses) as opposed to the 56 percent (28/50 responses) positive feedback rate of the control group, indicates not just a change in satisfaction but a more basic shift in the attitude of the learners to the very process of learning the language. It is also important that the proportion of negative feedback in the experimental group is significantly lower- 4% (2/50) as compared to 14% (7/50) in the control group, which means that the AI-assisted cognitive linguistic instruction managed to achieve the desired outcomes in decreasing the number of causes of frustration and disengagement that often typify the process of traditional language teaching. The rest 12% of responses of the experimental group and 30% of the control group responded as neutral or mixed, neither significantly endorsed nor dissatisfied by the learning experience.

A number of reasons seem to have led to this favourable change. The participants consistently reported the non-judgmental quality of AI feedback as one of its affordances. In comparison to teacher-guided error correction, viewed as an object of social and evaluative pressure, the AI-mediated feedback allowed learners to experiment and correct their linguistic errors in a low stakes' environment, enabling them to take risks and revise their linguistic errors without the demeanour of peer/educator pressure. The example of participant E04 was especially telling in this respect. The researcher stated in the log: "E04's transformation remarkable from copy-pasting to original composition. AI feedback loops proving effective". It is an impressive change of initial reliance on copy-pasting to the creation of original compositions during the four weeks course, which was directly explained by the scaffolding effect of AI feedback loops.

Nevertheless, the qualitative data also revealed invaluable shortcomings to the existing AI language tools capacity, especially in regard to socio-pragmatic and cultural competence. The participants have indicated instances when AI systems have proved to be frustrating due to their inability to appreciate irony, sarcasm, or culturally diverse figure of

speech. The description given by one of the participants concerning the failure of the AI to decode the meaning of the utterance, "The bot didn't get that I was being sarcastic when I said 'What a wonderful day' on a rainy Monday" as sarcastic, reflects a larger separation between structural language modelling and the pragmatic inference of true communicative competence. This observation suggests a highly critical direction in which AI development will evolve in the future: integration of socio-pragmatic awareness and cultural contextual sensitivity in language learning systems as well as their current structural and lexical capacities.

On the other hand, a notable example of cultural responsiveness was that the AI understood the Malayalam colloquialism "അളിയാ" (aliya), which usually translates to brother-in-law, but as commonly used in the informal interaction among men in areas like Kochi, as a term of friendship or in jest, functionally synonymous to English terms like dude or bro. The understanding of this regional colloquialism and its proper contextual processing of the AI was presented to the participants as a confirmation of their multilingual belonging, and it is plausible to expect that AI tools that can include regional linguistic repertoires might help to increase learner engagement and their sense of belonging to a given cultural environment.

5.6. SEMI-STRUCTURED INTERVIEW RESPONSE THEMES

Table 4

Table 4 Interview Insights

Theme	Experimental Group Responses	Control Group Responses	Key Quotes
Metaphorical Understanding	5/5 mentioned improvement	1/5 mentioned metaphors	"I could see the grammar, not just memorize it" (E03)
Anxiety Reduction	4/5 reported less anxiety	2/5 reported anxiety reduction	"I didn't feel judged when the chatbot corrected me" (E01)
Cultural Understanding	3/5 mentioned cultural awareness	1/5 mentioned culture	"The bot knew Malayalam words like അളിയാ" (E02)
Learning Engagement	5/5 showed high engagement	3/5 showed moderate engagement	"Like having a non-judgmental partner" (E04)
Metacognitive Awareness	4/5 developed questioning skills	1/5 showed metacognition	"I realized how I always imagined 'time' as a container" (E05)

The thematic analysis of the semi-structured interviews brings out the phenomenological aspects of cognitive linguistic transformation that cannot be captured entirely by the quantitative data. Among the most striking findings of the study are the contrast between the unanimous report of the study group who indicated that they had a better understanding of the metaphor (5/5) compared to the control group who virtually did not realize that they had understood the metaphor at all (1/5). It indicates that its absence of teaching metaphorical cognition is such that learners are more likely to interpret figurative language as opaque convention, instead of as conceptual mapping systematic, which means that a large part of linguistic meaning could lie out of conscious thinking and intentional application.

Anxiety reduction theme, noted by 80 percent of experimental participants was also associated with non-judgmental quality of AI-mediated feedback by all measures. The fact that Participant E01 did not feel judged by the chatbot when it was correcting her captures a larger pedagogical affordance of AI interaction the elimination of the social vulnerability that comes with an error in the face-to-face instruction. This result is in line with the studies on foreign language anxiety that the evaluative social aspect of classroom interaction is a leading factor of inhibition and communicative avoidance among L2 learners.

The theme of cultural understanding, which was mentioned by 60% of those participating in the experimental, identifies one of the under-researched aspects of AI-aided language learning namely how culturally responsive AI tools can support, as opposed to undermine, regional linguistic identities. The certain case of the AI as described by participant E02, the fact that it identified the word Aliya will imply that the more favourable to the perceivers of the L1 culture is the acknowledgement of a target language learning environment, the greater will the affectively oriented interaction with the latter.

The metacognitive awareness theme, which was found to occur in 80 percent of experimental participants and only 20 percent of the control group, demonstrates the overall cognitive benefits of the intervention. The reflection by participant E05 that she realized she habitually conceptualized time as a container is typical of the type of metalinguistic consciousness that the intervention instigated, which is an awareness of what language really means.

5.7. CLASSROOM OBSERVATIONAL DATA ANALYSIS

Table 5

Table 5 Classroom Observation Logs (4 weeks)

Observation Metric	Experimental Group	Control Group	Difference
Total Hours	24	24	-
Metaphor Usage Instances	156	23	133
AI tool Interactions (per session)	12.4	0	12.4
Voluntary Participation Rate	89%	62%	27%
Question Initiation	3.2	1.1	2.1

The classroom observational corpus which was a combination of a total of 48 hours of structured observation in both groups (24 hours each) over a period of four weeks generated behavioural data which support and build upon the results of the quantitative and interview analysis. The experimental condition produced 156 cases of metaphor use versus 23 in the control condition - close to a seven-fold difference which reflects the trend that the metaphorical use of language still emerged and solidified throughout the entire period of the study.

Perhaps the most easily visible behavioural indicator of the intervention effect is presented by the voluntary participation rate. The rate of participation of the experimental group was found to be significantly higher than the 62% of the control group, a difference of 27 points, which directly converts to higher cumulative exposure to target language use and interaction with peers. This increased involvement is correlated with both the anxiety reduction data of section 5.4 and indicates that cognitive clarity and less affective inhibition in combination created a more communicatively active classroom culture in the experimental condition.

The data on the question initiation - 3.2 initiations per hour in the experimental group and 1.1 in the control group - also indicate the qualitative change in the sense of agency among learners. This change aligns with the self-correction aspects observed by the researcher in the week three log and with the general theoretical operation that conceptual base of metaphorical schemas would facilitate self-making meaning as opposed to relying on outside authority.

The interactions with AI tools in the experimental group were on average 12.4 per session, which is about one interaction per five minutes, reflecting the active and intentional use of AI tools as a part of the classroom activity instead of occasional and noncommittal use. The 48-hour classroom observation corpus over four weeks showed about 156 instances of metaphor usage compared to 23 in the control group. The difference in voluntary participation (89% experimental versus 62% control) indicated nearly a tripled increase in the experiment group. They asked questions more frequently with an increase of 2.1. AI interactions averaged once every 5 minutes during learning sessions.

5.8. REFLECTIVE JOURNALS ANALYSIS

Table 6

Table 6 Journal Entries by Participants

Journal Analysis Metric	Experimental Group	Control Group	Difference
Total Entries (28 per participant over 4 weeks)	140	140	-
Conceptual Clarity Mentions	78%	34%	44%
Self-efficacy References	71%	29%	42%
Positive Emotional Responses	68%	41%	27%
Learning Strategy Mentions	82%	33%	49%

The reflective journal data give longitudinal records of the cognitive and affective processes that had developed in the individual learners throughout the four weeks in intervention. In all four metrics, the experimental group significantly surpassed the control group by large margins: conceptual clarity mentions (78% versus 34%), self-efficacy references (71% versus 29%), learning strategy mentions (82% versus 33%) and positive emotional responses (68% versus 41%). The largest of them is that there is a 49 % difference between mentions of learning strategy, indicating that cognitive linguistic instruction was not just transferring of content knowledge but instilling transferable metacognitive strategies that could be consciously described and used by the learners even after the intervention was over.

Combined, these numbers suggest a qualitative change in the relationships of the participants of the experimental group with the language learning per se. With the increase in depth of conceptual framework, journal entries showed a sense of increased linguistic ownership-- the conviction of the ability of learners to create, judge and revise language on their own, which is significant with the two-way interaction between the clarity of cognition and the confidence of the effect presented in the comprehension and anxiety data. The simultaneous increase in positive emotional reactions also verifies that cognitive, behavioural, and affective aspects of learning were reinforcing each other during the intervention and resulted in a significantly different attitude towards learning a language than in the series of entries in the control group.

5.9. GROUP COMPARISONS

Data analysis was conducted using independent samples t-tests for group comparisons.

Table 7

Table 7 Final Measures

Measure	Experimental Group	Control Group
	Mean (SD)	Mean (SD)
Final Anxiety Levels	2.1 (0.45)	3.3 (0.52)
Metaphor Usage (Week 4)	31.2 (4.2)	4.6 (1.8)
Learning Comprehension	4.22 (0.13)	3.14 (0.11)

Statistical Test Results

Measure	t-value	df	p-value	Interpretation
Final Anxiety Levels	-3.90	8	<0.01	Significant
Metaphor Usage	13.01	8	<0.001	Very significant
Learning Comprehension	14.21	8	<0.001	Very significant

The final outcome measures were statistically significant in terms of differences between the experimental and the control groups in every of the three dimensions being tested by independent samples. The experimental group performed better in all measures compared to the control group and these results achieved the levels of statistical significance that justify that the findings are strong, despite the small sample used.

The negative t-value of anxiety (-3.90, $p < 0.01$) indicates that the final scores of the anxiety variable in the experimental group are significantly lower, as opposed to the presence of the effect of natural stomach emptying or other environmental factors. The t-values of the metaphor use (13.01, $p < 0.001$) and learning comprehension (14.21, $p < 0.001$) are very high and indicate the greatest effect sizes in the study and reflect that the cognitive linguistic AI-assisted intervention had generated significant and statistically significant increases in the productive use of the metaphorical language and the depth of linguistic understanding.

The standard deviations of the final outcomes of the experimental group in all the three measurements are very low, especially in the area of learning comprehension (SD = 0.13), which indicates that the intervention managed to achieve a high score consistently among the participants and not among a group of learners with high performance. This consistency is particularly significant since the linguistic diversity of the experimental group was high and was likely to

assume that the advantages of the cognitive linguistic AI-assisted teaching were available to various L1 backgrounds and previous educational experiences.

Implications of the Study

The research results of this paper have strong implications to the theory and practice of teaching English in the midst of multilingual education. Theoretically, the findings have empirical value to the pedagogical applicability of Conceptual Metaphor Theory, Embodied Cognition and Frame Semantics in L2 classroom environments, proving that the three models, when proceduralized through AI-assisted tools and activities have a quantifiable impact on understanding, metaphorical creativity, and affective interaction.

On a practical level, the research indicates that AI tools implemented in the language classrooms must be programmed and implemented not only as corrective or evaluation tools but also as conceptual scaffolds that can trigger and restructure the pre-presented cognitive schemas of learners. The results show that the technique lessens the learning anxiety, enhances the voluntary attendance, and develops metacognitive awareness - results that traditional ELT techniques though useful, have lacked any ability to create by themselves.

The research also brings up the significance of teacher mediation in the AI-assisted learning setting. The cultural contextualize and conceptual interpreter aspect of the teacher were fundamental when the AI systems failed to be socio-pragmatically sensitive enough to process irony, sarcasm or culturally sensitive expressions. This observation indicates that the most effective AI integration model in language teaching will be a collaborative model, whereby AI tools and teachers will act as complementary and not competing resources.

Lastly, the culturally responsive features exhibited by the AI in identifying regional patterns, including Aliya, allude to the possibility of AI systems becoming instruments of linguistic inclusion in the multilingual classroom, argumentative and not marginalizing the various linguistic repertoires that learners can come to class with.

Limitations of the Study and Scope for Future Research

This study has a number of methodological limitations under which the findings can be interpreted. The sample size was small and limited to advanced learners. Future studies ought to aim at repeating the results using larger and more diverse populations in various institutional and regional settings. The intervention duration was brief. The follow-up studies would need to be longitudinal in order to determine the sustainability of these results. Cultural biases embedded in AI models can affect the effectiveness of metaphors or frames used. Lastly, subjectivity in reflective journals and interviews is based on self-reported data, which creates the risk of social desirability bias and retrospective bias as an alternative to inter-rater agreement of more objective measures of linguistic performance. Future research could examine the cross-linguistic effectiveness of metaphor-based instruction particularly in environments with AI support. Studies could also look into how well students remember language structures that are taught using conceptual frameworks.

6. CONCLUSION

It has been shown that the implementation of AI-supported tools in a cognitive linguistic pedagogical framework provides fruitful outcomes in the aspects of metaphorical awareness, understanding, and emotional engagement of English language learners. The correspondence between technological affordance and embodied, context-based and metaphoric aspects of human cognition raised the intervention out of the superficiality of error correction - typical of a great deal of AI-based language learning - to choreograph learners into the deeper levels of conceptual meaning-making and performative comprehension. These findings uphold the argument that language is not an arbitrary code to memorise but a visual narrative of human experience and that the process of viewing it as such; using intelligently designed AI tools and reflective, staged pedagogical practice, have a high potential to redefine the spectacle of English Language Teaching as an expressive art in the twenty-first century.

CONFLICT OF INTERESTS

None.

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REFERENCES

Achugar, M., Schleppegrell, M. J., & Oteiza, T. (2007). Engaging teachers in language analysis: A functional linguistics approach to reflective literacy. English Teaching: Practice and Critique, 6, 8–24.

Ausubel, D. P. (1968). Educational psychology: A cognitive view. Holt, Rinehart and Winston.

Baker, R. S., Ocumpaugh, J., Gowda, S. M., Heffernan, N. T., & Heffernan, C. L. (2019). The impact of using off-the-shelf, grade-appropriate language and domain models on understanding and retention. International Journal of Artificial Intelligence in Education, 29(3), 346-370.

Bender, E. M., Gebru, T., McMillan-Major, A., & Shmitchell, S. (2021). On the Dangers of Stochastic Parrots: Can Language Models Be Too Big? Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency, 610–623. https://dl.acm.org/doi/10.1145/3442188.3445922

Bulger, M., & Mayer-Schönberger, V. (2018). Regulating the future: Understanding the societal impacts of artificial intelligence. SSRN Electronic Journal.

Dubey, A. K., & Dubey, A. (2026). Digitalization in Teaching and Learning: Impact on Student Engagement and Academic Achievement. ShodhAI: Journal of Artificial Intelligence, 3(1), 37–42. https://doi.org/10.29121/shodhai.v3.i1.2026.73

Evans, V., & Green, M. (2006). Cognitive Linguistics: An Introduction. Edinburgh University Press. https://www.brsu.by/sites/default/files/englang/Distance/strizhevich_evans_green_-_cognitivelinguistics-anintroduction.pdf

Fillmore, C. J. (1982). Frame Semantics. In Linguistic Society of Korea (Ed.), Linguistics in the Morning Calm (pp. 111–137). Hanshin Publishing Co. https://brenocon.com/Fillmore%201982_2up.pdf

Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. The Modern Language Journal, 70(2), 125–132. https://doi.org/10.1111/j.1540-4781.1986.tb05256.x

Johnson, M. (1987). The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason. University of Chicago Press. https://archive.org/details/bodyinmindbodily0000john

Lakoff, G., & Johnson, M. (1980). Metaphors We Live By. University of Chicago Press. https://ceulearning.ceu.edu/pluginfile.php/100337/mod_forum/attachment/9319/Metaphors%20We%20Live%20By.pdf

Levy, R., & Windmann, A. (2020). Intelligent computer-assisted language learning. In N. Van Deusen-Scholl & S. May (Eds.), Second and Foreign Language Education (pp. 449-469). Springer.

Mananay, Janet. (2024). Integrating Artificial Intelligence (AI) in Language Teaching: Effectiveness, Challenges, and Strategies. International Journal of Learning, Teaching and Educational Research. 23. 361-382. 10.26803/ijlter.23.9.19.

Reimers, N., & Gurevych, I. (2020). Neural machine translation: A survey. IEEE Transactions on Pattern Analysis and Machine Intelligence, 42(9), 2262-2286.

Tyler, A., & Evans, V. (2003). The Semantics of English Prepositions: Spatial Scenes, Embodied Meaning, and Cognition. Cambridge University Press.