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From the Editor

Hello, everybody and welcome to our Spring issue of the ICC Journal. Congratulations to all attending the annual ICC Languages conference in Larnaka, Cyprus and we look forward to publishing some summaries of talks in our next issue.

We have a large number of excellent keynote articles contributed by experts in various fields but focusing strongly on the influence of technology on our language teaching materials and teaching approaches and so I have decided to put back coverage of webinars and book reviews to our next issue.

So, down to business. Geoff Tranter has published his latest highly entertaining and incisive Testing Times feature, this time imagining the possibility of US English, possibly replacing British English. Given the developments in the USA, Geoff presents the case for MAEGA, standing for Make American English Great Again, complementing MAGA, Making America Great Again.

In our first of four Keynote articles, Professor Georgios Alexandropoulos of the University of Thessaly examines how the study of literature in the classroom can help develop literacy in the language they are learning. Using examples from Greek literature (but could be any language), he presents hour by hour lesson plans so that the class can progress working in groups to decipher the work and discuss its implications for culture and society.

Our second Keynote article by Heiner Boettger, explains the role of the study of neuroscience in learning languages. He introduces a new concept, LEN (Language Educational Neurosciences) and explains how it can support successful language learning, especially for young children..

Minjie Zing of Manchester University and Amiliy Guenier of Lancaster University look at how the use of ChatGPT is being applied to students' academic essays. A fascinating and highly relevant discussion with examples from students in China presenting both the positive and negative sides of using ChatGPT which Minjie is presenting in the Larnaka conference.

Continuing the debate on the role of technology in language teaching Ines Farhadi of Carthage University in Tunisia and Janet Wolf of the University of Hradec Kralové in Czechia examine the influence of technology skills on teaching English as a Foreign Language (EFL)

Lastly, but definitely not least, are two more really useful and entertaining classroom teaching tips by Nick Mickelioudakis.

Enjoy the issue!

Euroлта Update

EUROLTA, the European Certificate in Language Teaching to Adults, remains a popular and inclusive qualification, welcoming educators of all languages—not just English.

At the ICC Languages Larnaka Conference, EUROLTA is represented by Myriam Fischer-Callus and leading course trainer Tatjana Kovac, who are also the joint chairs of ICC Languages.

Looking Ahead: Enhancements in 2025

In 2025, the ICC will continue to enhance the quality of the EUROLTA program by integrating valuable feedback from past participants. A key focus of the New EUROLTA is improved flexibility and accessibility. The updated course structure will feature shorter, more manageable modules, including asynchronous components that allow trainees to engage in learning at their own pace and from the comfort of their homes.

New content will also reflect current trends in language education, such as the integration of AI into teaching practices. These updates aim to create a more convenient, effective, and forward-looking training experience.

We believe these improvements will make the EUROLTA program more attractive to aspiring and current language educators, reinforcing its position as a leading certification in the field.

The first iteration of the updated program is set to launch in autumn 2025, marking a significant milestone in our ongoing commitment to delivering high-quality, adaptable professional development.

EUROLTA continues to be recognized as an excellent entry point into the field of language teaching, as well as a valuable opportunity for experienced educators to refine their skills and advance their careers.

For the latest
news on
international
test
developments

TESTING TIMES

Special American
English Edition

For the latest
news on
international
test
developments

US PRESIDENT TO ANNEXE BRITISH COUNCIL AND GOETHE- INSTITUT TO **MAKE AMERICAN ENGLISH GREAT AGAIN!**

Within hours of the 47th US President's inauguration, a wide range of seemingly megalomaniac and kleptomaniac policies were proclaimed in a number of TED (Trump Executive Decree) monologues. According to well-informed sources, the incoming President's antipathy towards Europe has now motivated him to promote the linguistic interests of American English by incorporating and/or re-naming some of the most renowned European language institutions such as the Association for Lauding Trump in English and the Interstate Agency To Eradicate Foreign Lingos).

For worried British and European linguists, the question now is what consequences such a 'trumped-up' executive order might have, especially in view of the extremely discriminatory attitude towards anything and anybody that is considered to be non-MAGEA = Make American (English) Great Again, e.g. the grammar and vocabulary should not only be right, it has to be extremely right. According to insiders at the Council of Europe, as yet unconfirmed rumours (or should that be rumors?) suggest that the following 'tariffic' and 'booty-ful' MAEGA English language amendments may soon well apply unconditionally.

- + American English will with immediate effect be known as the President's English; the alternative name King's English is still under consideration.
- + The concept of EFL will be replaced by EAL (English as an American Language), which by presidential decree has now been declared to be THE only official language in the US.
- + The irregular past tense form of the verb 'to wake' will be banned.
- + All trans-itive verbs will be eradicated from the American English lexicon.
- + To ensure the financial security of the MAEGA movement, all male and female forms of the language will be known as Musk-uline and non-Musk-uline.
- + American English usage will withdraw from 'WHO' and use WHOM exclusively.
- + All DEIctic words and all other forms of DEI-xis are to be prohibited, especially in connection with the past tense of the verb 'wake' (f. above).

KEYNOTE ARTICLE 1

Towards Critical, Digital and Sustainable Literacy through Literature

Georgios Alexandropoulos

Postdoc researcher at the University of Thessaly

Abstract

The aim of this article is the pedagogical approach to Greek literature. We study the way of teaching equality through folk songs about migration, sustainability regarding hunger, and moral values in our lives in the Texts of Modern Greek Literature for the 2nd grade of Gymnasium. The pedagogical approach aims at fostering the critical and digital literacy of students, enabling them to delve into the ethical virtues presented by the texts of Greek literature. Some digital tools used by students were: web 2.0, electronic dictionary, ChatGPT online, picsart, Craiyon, AI Image Generator, voyant.tool.

KEYWORDS critical literacy, digital literacy, Greek literature, sustainability, digital education, enhanced learning, digital tools, drama education.

1.Introduction

Fairclough (1992) connects language and discourse with the interpretation of capitalist society, as many changes are made through discourse or reflected in discourse through critical discourse analysis. Janks (2000) argues that education today should focus on preparing young people to critically read both words and the world. Critical literacy¹ refers to the ability to analyze, interpret, and evaluate information with a discerning and questioning mindset. Critical literacy through the multiliteracies model can contribute to this processing of texts as carriers of ideological predispositions. Multiliteracies (by Cope & Kalantzis 2000) encompass the various textual genres developed within a multilingual and multicultural society, and they are linked to new technologies and their integration into the learning process. Within this context, the theory of multiliteracies operates and continues to operate, which views literacy as a social practice (Barton, Hamilton & Ivanic R 2000:7), through which critical thinking is

¹ See Baker C, Freebody P (1989) and Barton D, Hamilton M. & Ivanic R. (2000).

developed or should be developed. Digital literacy² refers to the ability to use, understand, and critically evaluate information and communication technologies (ICT) in various digital platforms.

Research indicates that incorporating critical and digital literacy into the curriculum not only enhances students' engagement and learning outcomes but also equips them with the competencies needed to navigate and critique digital information critically (Buckingham, 2007). As the Greek education system continues to adapt to technological advancements and global educational standards, the emphasis on merging critical and digital literacy reflects a commitment to holistic education, ensuring that students develop into discerning and digitally savvy individuals. Similar efforts to connect critical and digital literacy are also being made for students aged 16-18 in the teaching of various subjects (see Alexandropoulos 2023, 2024ab).

Regarding the use of technology, the aim of this particular teaching scenario is for students to learn how to utilize the internet, the Google website, conduct searches, and follow posts on e-class. They are encouraged to search for information, images, and photos on Google, find videos, explore pages of educational and social interest, use electronic dictionaries, the GPT³ model, and their email. Additionally, within the framework of transformed practice, students will engage in creative writing and utilize digital storytelling tools like Movie Maker.

All of the above are applied within the framework of collaborative teaching according to Bruner (1997), Vygotsky (1986), and McConnell (1994). Our objectives are three texts: Greek folk songs⁴ about immigrants and diversity, Tolis Nikiforou's poem about hunger and Cavafy's⁵ poem "*Thermopylae*" in the Texts of Modern Greek Literature for the Second Grade of Gymnasium. In Greece, the term "*Gymnasium*" (Γυμνάσιο) refers to a type of secondary school that caters to students aged 12 to 15, encompassing grades 7 through 9. These instructional design and scenarios were applied to students in 2023. These teaching scenarios were implemented in the year 2023 with 14-year-old students in the subject of Modern Greek literature. Despite the lack of equipment, we managed to approach topics such as migration, hunger, ethical values, and humanitarian education that today's individuals, especially the youth,

² See Trust, T. (2020).

³ The Generative Pre-trained Transformer 3 is a self-regressive language model that was released in 2020 and utilizes deep learning for generating text that resembles human-like output.

⁴ For the history of the Greek demotic and folk songs see Politis (2010).

⁵ Constantine Cavafy (1863-1933): for more information about his life and work, see Liddell, R. (1980).

should possess to face life's challenges. This was achieved through the use of a computer and the assignment of tasks via e-class for home. The primary goal was to activate critical thinking, enhance digital skills, and promote sustainability. Lastly, the teaching technique of the "hot seat" provided the opportunity for students to experience significant experiences through dramatization and work together as a group (see Neelands 2002, Neelands & Goode 2010).

2. Teaching folk songs

1st teaching hour

- Reading of the Greek folk songs "*I Want to Go Abroad*" and "*My Migratory Bird.*"
- Conceptual interpretation of words such as "*abroad*," "*expatriation*," "*migration*," "*nostalgia*," or other unfamiliar words found in the two folk songs using an online dictionary (https://www.greeklanguage.gr/greekLang/modern_greek/tools/lexica/triantafylides/).
- Students are asked if they are familiar with other types of folk songs and if they have noticed any elements regarding their structure.
- Determination of the characteristics of folk songs in general and specifically in relation to the two songs in the textbook through a series of questions and discussion.

2nd and 3rd teaching hours

- Stylistic analysis of the two folk songs and assignment of textbook tasks.
- Homework assignment for students to listen to the following songs: "*Those Who Leave*" by Yannis Pouloupoulos, the folk song "*To Tzivaeri*," and the set poem "*The Dark Nightingale*" by Alexandros Papadiamantis, interpreted by Socrates Malamas. Through the flipped classroom teaching technique, students should take notes on what impressed them the most and identify any similarities among the audios during their study at home (in their own space, and at their own pace, and time).

4th teaching hour

- Following listening to the songs at home, students are asked to combine what they have learned and become active users of the information based not only on their experiences but also on their critical thinking. Then they can create a conceptual map centered around the "*Traveler*," which will help them understand the cognitive and mental representation of the concept of a traveler. Through specific interventions and techniques, students will become aware of and contemplate issues related to migration, immigrants, and their problems, which will serve as the basis for exploring the social and historical determinants of the phenomenon. This can be extended to create a letter from an emigrant or a digital poster on immigrant rights as transformative practices in connection with art and literature.

5th teaching hour

- During this teaching hour, students will explore the historical and social dimensions of migration. They have been assigned to watch the following videos on e-class through flipped classroom group work:
 - "*The Greek Diaspora in America*" from the TV show "*360 degrees*" (https://www.youtube.com/watch?v=ipD_Ho74rWk)
 - "*Greek Immigrants in America*" from the TV show "*The Time Machine*" (<https://www.youtube.com/watch?v=qTaeVcUiyDM>)
 - "*Pantelis Voulgaris' Brides*" (excerpt from the movie or movie trailer) (<https://www.youtube.com/watch?v=KJhX7BAnXV4>)
 - "*Asia Minor Catastrophe: I Was a Refugee Too*" from the TV show "*The Time Machine*" (<https://www.youtube.com/watch?v=9jC32IKUKGQ>)
 - Short film "*Outcast*" (https://www.youtube.com/watch?v=-894KZF_aYM&embeds_euri=https%3A%2F%2Ffouit.gr%2F&feature=emb_imp_woyt) created by the Pedagogical Department of Primary Education of the University of the Aegean.

This will be followed by a presentation and group discussion on the key points of the audiovisual material they watched.

6th teaching hour

- Students have been assigned to read literary texts on e-class. During this teaching hour, students will present the content of the texts from the Literature textbook for 8th-grade students: Ilias Veneze's '*The Return of Andreas*' and D. Chatzis' "*Kaspar Hauser in the Deserted Country*." A discussion will follow on the common aspects of the lives of emigrants using the teaching technique of the hot seating (a student is placed in the center on a chair and asked questions about the content of the literary work) and through the conscience corridor (a student is presented with a dilemma whether to reveal the truth about the death of her friend Andreas' son to his mother).

They will be introduced to Bruno Catalano's artwork "*Travelers*" (Les Voyageurs) and engage in a discussion about the sculptor and the sculptures he has made. Finally, they will be asked to bring photos of other artists who have been influenced by migration.

7th-8th teaching hour

- Students present the photographs of artworks that have the theme of migration and discuss their common points.
- Creative activities in groups: a. Digital poster (using the glogster or canva program) on immigrant rights in relation to Human Rights Day and International Migrants Day. b. Digital comic strip about the life of an immigrant using the Pixton program.
- Presentation of their works.
- Discussion on points for improvement.

3. Teaching the poem *When a child dies* by T. Nikiforou

Tolis Nikiforou⁶ was born in Thessaloniki in 1938. The poem 'When a child dies' focuses on the children of the third world who face death due to malnutrition. The initial reading gives the impression that the poet is emphasizing statistical data and the impersonal reference to malnutrition. However, with a second reading, a critical and ironic tone emerges. The poet condemns the society that conceals the truth, shapes

opinions, distorts reality, highlighting the power of the media and so-called intellectuals who exploit the ordinary citizen. The poem exposes the true cause of problems in third-world countries: greed, predatory intent, and the ruthless greed of developed Western nations exploiting impoverished populations for their natural resources, offering them absolute nothingness in return.

3.1 Steps of teaching

1st Teaching Hour

During the first hour, students will be divided into four groups. Then, the teacher will read them the poem. Next, each group will be given a worksheet for processing for ten minutes. Each group will present their answers in the plenary session. Finally, they will be given the second worksheet with parallel texts or it will be posted on e-class for them to study at home (flipped classroom) and discuss in the next teaching hour. See for more details Nikiforou (1938).

2nd Teaching Hour

In this hour, students work on the parallel texts. This way, they understand the timelessness of the problem and propose solutions. At the end, they are assigned the next worksheet, which will be posted on e-class. They are asked, in groups, to write a poem about the children of the world and then create a digital video using Movie Maker or create a digital poster about children's rights using Canva or Gloster.

3rd Teaching Hour

During this hour, students present the results of their work in the plenary session. Finally, they engage in self-assessment and peer assessment.

4. Teaching poem *Thermopylae* by Cavafy

Constantine Cavafy, is one of the most significant Greek poets of the modern era. When the Alexandrian poet composed the poem 'Thermopylae' in 1901, he used a historical event as the material for his work, but at the same time, the story served as a source of inspiration to express his own emotional states and ideas. The poem belongs to Cavafy's didactic poems, more specifically to the ethical ones, which focus on dignity and the concept of "*duty*". The symbols of the poem are as follows:

a. *Thermopylae*: This word symbolizes moral values and high ideals, the sense of duty without reward, and the utmost determination in the face of inevitable outcomes,

b. *Ephialtes*: The name symbolizes betrayal, whether external or internal, and Medes: They symbolize insurmountable obstacles, opposing forces that will prevail, and destruction. Through this poem, Cavafy praises the personalities that passionately and bravely fight for noble ideals while still maintaining their humanity and ethics. He emphasizes values such as generosity, benevolence, honesty, and compassion, which the poet considers significant but believes have faded in modern societies. In contrast to the poem's protagonists, Cavafy places Ephialtes, who stands as a timeless example of immorality and betrayal. According to "*Thermopylae*," despite the strong efforts of those committed to their purpose, there will always be individuals who succumb to the temptations of ease and immorality, undermining collective interests. The message of the poem is that we should be concerned about the constant vigilance in safeguarding the values, ideals, and principles of society. Cavafy presents the model of a healthy citizen, a citizen who is just, honorable, generous, sincere, and altruistic. The message is still timeless and can lead us to reassess our values to create a new world based on humanitarian principles.

4.1 Steps in Teaching the poem Thermopylae

1st, 2nd, 3rd Teaching Hours:

Using the flipped classroom technique, students are assigned to watch audiovisual material about the life and work of Constantine P. Cavafy (<https://www.youtube.com/watch?v=KyPthjeva7k>) from the previous teaching hour or through e-class. They are also asked to read the poem and find the unknown words using the electronic dictionary (https://www.greek-language.gr/greekLang/modern_greek/tools/lexica/triantafyllides/) or with the help of ChatGPT. They can search for additional information about Cavafy or the Battle of Thermopylae. Then, they are divided into four groups, the desks are rearranged into work surfaces, and they are given different worksheets. Students listen to the poem (<https://www.youtube.com/watch?v=ARXKENSmCFs>) and have time to process their answers and present them orally in the plenary session. They can use the computer to search for information. The teacher facilitates, coordinates, and guides the discussion.

4th and 5th Teaching Hour:

Students are given a common worksheet for group activities. During these two hours, the following can be done:

- Using the voyant tool program, students identify the most frequently appearing words in the poem and create a word cloud.
- Students interpret the epigram by Simonides of Keos and answer questions about the dominant concept.
- Students are asked to replace specific words with their opposites in Cavafy's poem and explain the new meaning that emerges.

6th and 7th Teaching Hour:

- Students search on Google for other artworks related to the Battle of Thermopylae and describe similarities and differences.
- The "*hot seating*" technique is used, where a volunteer plays the role of Ephialtes. They can draw arguments from ChatGPT, Wikipedia, or other reliable online sources.
- Students create a one-minute digital narration about the specific poem (key points: creator, meaning, and relationship to the historical event). They can use picsart or Craiyon, AI Image Generator as images.
- Self-evaluation and peer evaluation.

5. Conclusion

During these hours, students improved their reading, interpretation, and digital skills, gained awareness of the proximity and timelessness of historical events and their relevance to contemporary life. During the aforementioned teaching scenarios, students also reflected and critically thought about improving the world while maintaining humanitarian education and promoting it through digital activities. Finally, these scenarios are not obligatory in their implementation since everything depends on the students' level, willingness to participate, social situation, and for this reason, the magic word for education as advice is flexibility, as the path is not predetermined but is created.

The students, given that they live on an island (Kos) in rural Greece, had the opportunity to approach various texts using digital tools, both of artificial intelligence and computing, and were given the chance to engage with the new way of thinking about text analysis. This enhances equality among other students from urban centers

as well as the global community. They all received the process with great pleasure and felt the value of equality, understanding how technology can be integrated into teaching and the promotion of culture. At the same time, they collaborated, and everyone felt equal and empowered in the learning process.

At the heart of this synergy between digital literacy and sustainability lies a shared commitment to leveraging digital technologies to foster equitable and inclusive learning environments. This collective volume lays the theoretical groundwork, emphasizing the importance of understanding the complex interplay between equity, inclusion, and technology in contemporary education. It calls for a deeper exploration of how educators can harness digital tools to address systemic inequalities and promote social justice in educational settings. Building upon this theoretical foundation, our teaching plans offer concrete examples of how these principles can be translated into practice. Through descriptions of teaching scenarios where students improve their digital skills while engaging critically with historical events and humanitarian education, the tangible impact of integrating digital pedagogies into the curriculum becomes evident. It is important to understand how technology can be used not only to enhance academic proficiency but also to cultivate empathy, social responsibility, and a sense of agency among learners. We highlight the importance of considering the diverse needs and backgrounds of students, promoting flexibility in educational practices, and empowering teacher-scholars to navigate the rapidly evolving landscape of digital education. By combining theoretical insights with practical strategies, educators are equipped to create learning environments that are not only technologically proficient but also socially just, inclusive, and empowering for all learners. Generally, it is perceived that the aforementioned teaching plans can, in the era of digitization, assist students in acquiring digital skills, developing critical thinking, and understanding the need for equality and inclusion through the digitalization of art. They can also help students acquire ethical principles and values in the age of amorality, collaborate, and identify with literary heroes through dramatization. In the process of self-assessment through discussion, students themselves considered that the issues of exile, hunger, and betrayal are timeless themes, and technology helped them express themselves on these topics and subsequently express themselves creatively, either in a written assignment, dramatization, or digital creation.

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REFERENCES

- Alexandropoulos (2023). Teaching political speech at secondary level schools. In the 4th Annual International on ELT Interlinking Research and Educational Practice. November 24th 2023, virtual presentation (Hosted by Arab Open University). DOI: <https://doi.org/10.60149/STSL9113>.
- Alexandropoulos, G. (2024a). Teaching the Scientific Discourse at the Secondary Level Schools: Towards Critical and Digital Literacy. In M. Khaldi (2024). *Innovative Instructional Design Methods and Tools for Improved Teaching*. IGI Global, pp. 286-302.
- Alexandropoulos (2024b). Teaching the Political and Media Discourse at the Secondary Level Schools: Towards Critical and Digital Literacy. In Afzal Sayed Munna, Husam Alharahsheh, Alessandro Ferrazza, Abraham Pius (2024). *Transforming Education for Personalized Learning*. IGI Global, pp. 219-240.
- Baker C, Freebody P (1989). *Children's First School Books: Introductions to the Culture of Literacy*. Oxford: Blackwell.
- Barton, D. & Hamilton M. (2000). Literacy Practices. In Barton, D. Hamilton, M. & Ivanič, R. (ed.) *Situated Literacies. Reading and Writing in Context*. London: Routledge.
- Bruner, J. (1997). *The acts of meaning*. Cambridge, Mass.: Harvard University Press. Translated by Ivie Roko & Kalomiris George. *Acts of Meaning*. Athens: Greek Letters.
- Buckingham, D. (2007). Digital media literacies: Rethinking media education in the age of the Internet. *Research in Comparative and International Education*, 2(1), 43-55.
- Cope, B. & M. Kalantzis (2000). *Multiliteracies. Literacy learning and the design of social futures*. London: Routledge.
- Fairclough, N. (1992). *Critical Language Awareness*. London: Longman.
- Janks, H. (2005). *Language and the design of texts*. English Teaching: Practice and Critique (<https://files.eric.ed.gov/fulltext/EJ847267.pdf>).

- Liddell, R. (1980). *Cavafy: A Critical Biography*. Translated by K. Logotheti-Anderson. Athens: Ikaros.
- McConnell, D. (1994). *What is Cooperative Learning, in Implementing Computer Supported Cooperative Learning?* Kogan Page Limited: London.
- Neelands, J. (2002). *Making sense of Drama: A guide to classroom practice*. Oxford: Heinemann Educational Publishers.
- Neelands, J. & Goode, T. (2010). *Structuring Drama Work: A handbook of available forms in theatre and drama*. Cambridge University Press.
- Nikiforou, T. (1938). When a Child Dies. In *Swinging the Red-Black Flag of Utopia* (1997) Poems 1966-2002, Nea Poreia, Thessaloniki 2004, p. 230.
- Politis, L. (2010). *History of Modern Greek Literature*. Athens: M.I.E.T.
- Trust, T. (2020). *Teaching with Digital Tools and Apps* (1st ed.). EdTech Books. Retrieved from <https://edtechbooks.org/digitaltoolsapps>.
- Vygotsky, L. S. (1986). *Thought and language* (rev. ed.) A. Kozulin (ed.). Cambridge, M.A.:The MIT Press.

KEYNOTE ARTICLE 2

Transferring language educational neurosciences (LEN) to primary contexts: Evincing a new perspective on language teaching and learning

Heiner Böttger, Professor, Katholische Universität Eichstätt-Ingolstadt, Germany, and Bianca Höppner

INTRODUCTION

This paper introduces evidence-based concepts and methodological approaches to primary foreign language learning substantiated by language educational neurosciences (LEN). The aim is to illustrate the potential that educational neuroscientific research holds to complement insights from psychology, FL didactics and applied linguistics. Firstly, the importance of having an early start to (foreign) language learning is proven. Findings reveal that the years between 3 and 12 are essential to the successful learning of languages.. Secondly, insights from LEN that substantiate the immense capacities of the implicit long-term memory (e.g. Schacter, 1995) are connected and transferred to the primary language learning context, before introducing two suitable classroom activities (storytelling, gamification) to foster it. For both main concepts (early start, implicit learning) and the latter's implementation activities (storytelling, gamification), implications for the learning process are further derived. Together, this allows a first glimpse of the potential that LEN holds for primary language teaching and learning.

1 The untapped potential of LEN

In the primary context, neuroscientific findings are key to changing the way foreign languages are taught and learned. This is because they provide a deeper understanding of the neurological processes of learning and can – or should – be used to adapt teaching processes and learning approaches accordingly. It is therefore not surprising that the application of neuroscientific insights to educational practices, particularly in the context of foreign language teaching and learning, is gaining ground in educational sectors worldwide.

In particular, the evidence highlights the increased plasticity of the brain during the primary school years, making it a neurobiologically perfect predisposition for foreign language (FL) acquisition. However, policymakers (e.g. ministries of education in Germany) have repeatedly been reluctant to embrace this evidence and the changes it implies for education (Eurydice Report, 2023). More generally, there seems to be a gap between scientific progress and policy, which delays the implementation of findings and their practical implications in the education system. Similarly, didactics – the science of teaching and learning practices – and applied linguistics – the application of findings of linguistic research to practical areas such as language teaching – often leave educational neuroscientific findings unconsidered, while at the same time, research is increasingly focusing on early language learning. Pioneering research in didactics and applied linguistics, which has become much more detailed over the last decade, has instead focused mainly on language input and output (Böttger et al., 2016). This focus has been, and continues to be, extremely valuable, revealing the impressive and previously underestimated language learning potential of young learners. However, this emphasis also seems to have led to a point where more and more detailed findings do not add much in the way of new insights. At least

not unless the focus is broadened to include language processing – or what happens in children's brains.

That is, research in this field seems to focus mainly on *sensory input*, e.g. looking at different facets of content, materials and media, and *output*, for example, oral or written communication in the foreign language, which seems not to bring about major new insights. This is not to say that earlier findings have not been revealing and essential for educational change. For example, a number of studies support the understanding that multisensory attention and motivation are essential for facilitating the long-term retention of linguistic material in the brain (Krashen, 1982; Willis & Willis, 2007). This has supported the inclusion of divergent input stimuli in classrooms, such as video material. In addition, the effects of visible and audible foreign language usage, or *performative output*, are also well documented, because they are easily accessible through observation, recording and temporal analysis of the data. Evidence from numerous research initiatives also provides a comprehensive understanding of the language skills of school children aged 6–10. Accordingly, we have accurate knowledge of their ability to acquire foreign languages and also understand the areas where further development is required (Gass & Mackey, 2015; Swain, 1995).

Yet, there remains the less explored domain in this field – the intricate process of language processing in the brain itself – *the intake*. The mechanisms that determine when, how, and to what extent foreign language is absorbed and retrieved, as well as the duration of such retention and the circumstances that influence it, remain largely elusive. Existing research has addressed this topic, outlining the role of cognitive load, working memory, and attention in language processing (Baddeley, 2003; VanPatten, 1996). However, the precise intricacies of these processes have

yet to be fully elucidated, providing a rich opportunity for future investigation. Thus, despite the continued growth of knowledge about language input and output, it requires new theoretical and methodological innovations to continue its progression and to answer new questions about early (foreign) language learning. The authors of this paper propose to change the way forward towards including language educational neuroscience (LEN).

Thereby, LEN is a brand-new term coined by this article's authors that is to extend the field of educational neuroscience and shall refer to the multidisciplinary field that combines insights from language education, neuroscience, and psychology. It focuses on understanding how the human brain processes, learns, and uses language, and how this knowledge can be applied to improve language teaching and learning methods. In connecting these reference sciences that are associated with (early) language education, it offers a new perspective on language acquisition that builds on the existing empirical evidence from foreign language didactics and linguistics. This paper aims to substantiate this line of reasoning by elaborating on four exemplary fruits that LEN has already yielded. First, the theoretical background and a short display of the reviewed research field follow.

2 Theoretical background

The theoretical background aims to understand the different fields of study that, when combined, can enhance our understanding of foreign language learning. It outlines the interconnected elements of these fields and explains the research methods used in (educational) neuroscience. It serves as background for the literature review conducted and the delineation of the selected research-based concepts and methodological approaches considered central and easily

implementable. These are outlined in section 4 and aligned with more detailed didactic considerations.

To begin with the interrelated fields of research, developmental psychology contributes critical perspectives on the stage-wise growth of children's cognitive, emotional, and social capacities, providing a fundamental understanding of the child's ability to acquire and use foreign languages (Siegler et al., 2011). At the same time, educational psychology provides pedagogical insights into the optimal ways to teach and motivate children, and shapes the environmental context in which foreign language learning takes place (Woolfolk, 2013). Neuropsychology links both with the study of the brain; specifically, neuropsychology is the study of behaviour and cognition in relation to the central nervous system. In addition, the burgeoning field of educational neuroscience sheds light on the neural mechanisms that underpin language acquisition, showing how the brain changes in response to foreign language learning and exposure (Kuhl, 2010). It provides us with the biological basis of how children absorb, process, and recall foreign languages, bridging the gap between observable behaviour and its underlying neural activity. Taking the outlined areas of interest into account, it is clear that there is a great deal of overlap with regard to foreign language learning. Collectively, they allow us to deepen our understanding of the complexities involved in early foreign language learning and guide us towards more effective instructional practices and educational policies. In addition, the multifaceted dynamics of early foreign language acquisition encompass several intertwined elements. The most important ones, which are explored in this paper, are listed below. First, the processes of language acquisition are closely linked to the age of the learner. Research suggests that the ability to learn a language, particularly in terms of auditory comprehension, changes as a

function of age (Singleton & Ryan, 2004). For example, narrative or story-listening approaches can be beneficial in promoting language acquisition among young learners due to their ability to captivate attention and stimulate the imagination. Secondly, the mechanisms of memory, which encompass the processes of encoding (remembering), storage (recalling), and retrieval, are central to language learning. Much of language acquisition is implicit, where learning occurs unconsciously through exposure and interaction in the target language (Reber, 1993). Thirdly, and finally, it is crucial to challenge and dispel prevalent myths associated with foreign language acquisition (cf. e.g. Howard-Jones, 2014; Willingham et al., 2015). Based on empirical evidence, the principles of didactics and pedagogy of early foreign language instruction serve to debunk possible teachers' misconceptions and provide a scientifically sound framework for effective language teaching and learning (Lightbown & Spada, 2013). By consolidating the evidence from these three areas, a more comprehensive understanding of early foreign language acquisition can be developed, informing better teaching strategies and educational policies. The ultimate goal would be the architecture of a more natural, albeit institutionalised, language acquisition environment.

In order to develop appropriate research tools to support this proposed new approach, neuroscientific investigations are needed alongside those from the fields of psychology (e.g. experimental designs), didactics (e.g. contrastive analysis of teaching methods) and applied linguistics (e.g. corpus analysis). Neuroscientific research designs thereby intersect with the disciplines of medicine, psychology, and biology, and increasingly use state-of-the-art, non-invasive neuroimaging techniques to probe the intricacies of the human brain. Techniques at the forefront of this cutting-edge research include functional magnetic resonance imaging (fMRI),

magnetoencephalography (MEG), and electroencephalography (EEG) (Buzsáki, 2006; Hämäläinen et al., 1993; Poldrack et al., 2011). Functional magnetic resonance imaging (fMRI) uses the magnetic properties of hydrogen atoms to produce high-resolution images of brain structure and to measure human cognitive functions, which are essential for research into language acquisition (Huettel et al., 2009). The technique capitalizes on changes in blood flow and oxygen concentration – collectively referred to as the blood-oxygen-level dependent (BOLD) contrast – to map regions of the brain that are engaged during specific tasks or at rest (Ogawa et al., 1990).

In contrast, magnetoencephalography (MEG) and electroencephalography (EEG) provide insight into the electrical and magnetic activity of the brain over time. Used in tandem, these techniques provide a comprehensive picture of brain dynamics, with EEG providing excellent temporal resolution and MEG contributing enhanced spatial resolution (Cohen, 1968; Hämäläinen et al., 1993). EE measures electrical activity within cortical areas generated by the synchronised activity of thousands of neurons (in volts).

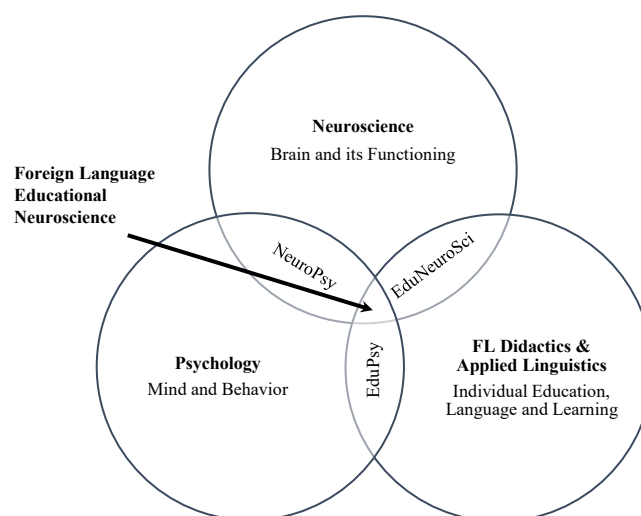
Together, these imaging techniques have transformed our understanding of the brain, providing an unprecedented glimpse into the neural underpinnings of cognitive functions such as language acquisition. They translate changes in cerebral blood flow, oxygen concentration, and electrical activity into computer-generated images, elucidating the complex workings of the brain. This allows for statements to be made as to how strongly, in which way and at what point in the brain language is used.

3 Aim and interlinked disciplines reviewed

The overarching objective of the literature review conducted is to delineate the two evidence-based concepts and the two methodological approaches for foreign language learning selected, with the aim of elucidating their significance and validating the need for an innovative trajectory in research. To achieve this, a rigorous review and synthesis of the relevant literature has been undertaken. The results are to be presented in a highly condensed form in section 4.

The literature reviewed is primarily rooted in three broad domains (cf. Figure 1): neuroscience, psychology, and language didactics as well as applied linguistics. Each of these disciplines contributes unique perspectives and methodologies to the study of language learning, and their integration provides a comprehensive framework for approaching this complex process (cf. Theoretical Background). Therefore, they also form the bedrock of the subsequent section on the two selected main concepts (early start, implicit learning) and the latter's two chosen methodological approaches (storytelling, gamification), which evinces the importance of (educational) neuroscientific findings.

Figure 1. The interlinked disciplines of foreign language education.



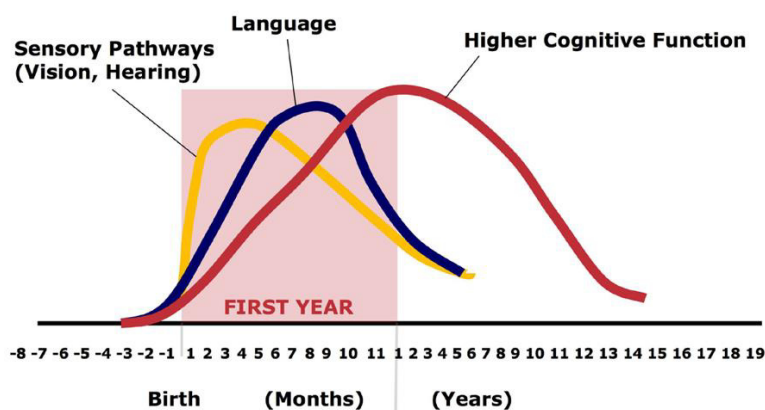
Note. From *Current Issues in Primary Foreign Language Teaching: Part Two: Change Is the Only Constant (Heraclitus)*, by H. Böttger, 2022, September 22, *Advances in Teaching Foreign Languages to Young Learners (ATFLY)*, online.

4 Illustrating the potential of LEN

4.1 Early start

We initiate our examination by exploring the early years preceding a child's inaugural day at school. To begin, the likely most essential component for children to learn foreign languages fluently is to have an early start learning them. This is rooted in the fact that young children's brain is extremely neuroplastic, which implies that its structure is flexible and open to all sensory inputs. In contrast, adult brains no longer have the same plasticity, which reasons differences in learning. Emerging evidence underscores the profound impact of early experiences on the trajectory of brain development. From the prenatal period extending through the initial years of life, the brain undergoes its most dramatic phase of growth, and these early experiences are instrumental in determining the robustness or vulnerability of its architectural design (Knudsen, 2004). A singular and informative graph from Harvard University's Center on the Developing Child, formulated in 2000, provides a comprehensive overview of the challenges associated with our current language education system (Figure 2).

Figure 2. Development of synaptic formation over time.



Note. Adapted from *InBrief: The Science of Early Childhood Development*, by Center on the Developing Child, 2007, retrieved from <https://developingchild.harvard.edu/resources/inbrief-the-science-of-early-childhood-development/>.

The graph delineates the child's brain development corresponding to specific regions. These comprise:

1. The higher cognitive functions associated with the prefrontal cortex (represented by the dark grey curve). These functions encompass decision-making, planning, structuring, and executing.
2. The receptive and productive language skills mainly linked to the Broca's area (indicated by the black curve), which governs (amongst others) listening, speaking, and eventually reading and writing.
3. Vision and hearing associated with the visual/auditory cortex (indicated by the light grey curve).
4. The horizontal axis illustrates the initial months of life and thereafter transitions to years post the first 12 months. The vertical axis, albeit imaginary, signifies the quantity of synaptic connections in the brain. More precisely, a synaptic connection refers to the bond between two neurons. When these neurons interconnect and exchange experiences, it embodies a fundamental form of learning. Hence, the vertical ascent on the graph represents an increase in these connections, which corresponds to the amplifying experiences and learning processes of a child. Each curve in the graph commences before birth, which represents an under-researched phase in terms of scientific evidence. Despite this, it is well-established that auditory and visual functions, as well as conscious perception, for instance, the discernment of parental languages, are considerably developed before birth.

Following a gestation period of nine months, both infant and adult brains exhibit

approximately 100 billion neurons. Despite this numerical parity, the infant brain remains in a rudimentary and immature state. From this point, the brain's development is contingent on the child's natural, social, and cultural environment. In a stimulating environment, a child experiences rapid and significant learning during these "*sensitive phases*" or "*developmental windows*". These phases occur much earlier than considered in our existing educational framework. The curves demonstrate a downward trend as initial, low-level networks and circuits develop, paving the way for more complex, higher-level conscious experiences. Consequently, auditory and visual functions evolve prior to language skills and overall brain maturation. The construction of these initial networks lays the groundwork for subsequent ones (Lerner et al., 2023; Nelson et al., 2019). A crucial observation is that any deficit in learning during these periods or weakened developmental processes will invariably influence future outcomes. It is during these "*sensitive*" phases that early stimulation by parents, guardians, or daycare providers is paramount to realize the child's full potential in the future (cf. Summer & Böttger, 2023). These windows of opportunity, of heightened neuroplasticity occur during early development when the brain's circuitry is particularly receptive to the influence of external experiences (Hensch, 2004). As Figure 2 also highlights, developmental peaks are achieved much earlier than in elementary school, with the child's brain architecture complete by the age of three, when conscious perception becomes apparent. From this juncture, even before starting school, the rate at which synaptic connections form decelerates, resulting in slower learning. By the end of the first decade (around the 4th grade), unused neural connections begin to decay further. The brain tends to discard weaker connections while significantly fortifying stronger ones, leading to early specialization (Böttger, 2023).

The initial five years of a child's life are correspondingly pivotal for their subsequent development, learning, career trajectory, and overall life path. Furthermore, all children intrinsically possess the ability to learn any language in the world – a capability encoded within our genes. This potential can be activated via everyday, interactive conversations with parents, educators, and caregivers – an implicit, unstructured form of learning. Correspondingly, formal language instruction in school is not an absolute necessity; instead, communication serves as the key (Bruner, 1983; Tomasello, 2003; Vygotskij, 1962). As cognitive development progresses, additional components of language learning can be elucidated, demonstrated, and taught. Unfortunately, we often deny our children their innate potentials and opportunities.

4.2 *Implicit learning*

Children have been demonstrated to have the extraordinary capacity to extract rules from linguistic input, provided they are nurtured in an environment rich in natural language (Colmar & Wheldall, 1985). Acquiring their mother tongue essentially involves the implicit learning of language structure and specifics, without the need for detailed explanations. Instead, children learn by listening, exploring, formulating hypotheses, and testing them out in a trial-and-error fashion, and either succeed or self-correct accordingly (Kuhl, 2004).

Formal schooling for a child typically commences around the age of six. By this time, a child has usually mastered the phonetic and grammatical intricacies of their first language (Böttger, 2023). Thus, by the time formal education begins, children already have considerable experience in language acquisition, often more than they

are credited for. This fact highlights the vast potential of the young brain for further language learning, making it unwise to underestimate this capacity.

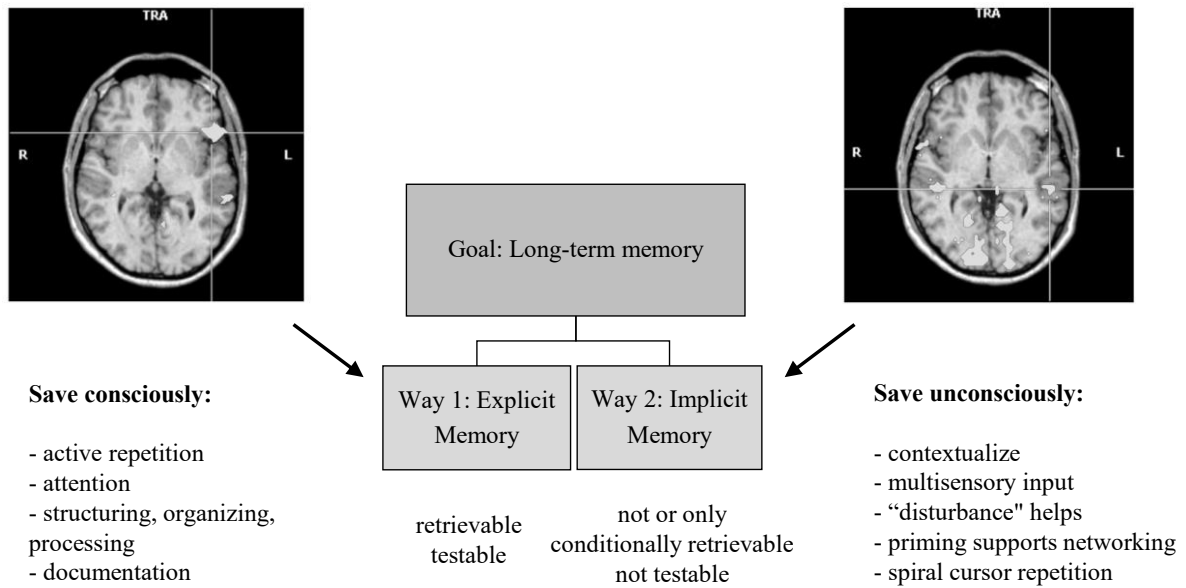
Rather than excessive explanations, descriptions, exercises, and repetitions, children require a set of preconditions for effective language acquisition. These include:

1. **Context:** Children require connected speech material, not isolated vocabulary.
2. **Exploration:** Children need adequate time to explore, create, and exhibit courage.
3. **Relevance:** Topics, texts, and conversations must hold meaning and interest for children. Otherwise, they may disengage or require substantial extrinsic motivation.
4. **Emotion:** Emotion acts as a potent memory catalyst, with multisensory input reinforcing learning (Immordino-Yang & Damasio, 2007).
5. **Feedback:** This promotes cognitive development, with children utilizing feedback to improve, demonstrating an early learning strategy.
6. **Autonomy:** Children need control over their learning process, with independent structuring of learning materials favouring open learning scenarios (Hannafin et al., 2014).

When these prerequisites are met, the language material that has been acquired can be consolidated into long-term memory. The outcome of implicit language learning is neurobiologically represented in long-term memory. There are two pathways leading to this – the explicit memory and the implicit memory (Figure 3):

Figure 3. The two pathways into the long-term memory: the explicit and the implicit memory.

Note. Adapted from “*Neural foundations of creativity in foreign language acquisition,*” by H. Böttger, and D. Költzsch, 2019, *Training, Language and Culture*, 3(2), 8–21. p. 15 (<https://doi.org/10.29366/2019tlc.3.2.1>).



The explicit memory encompasses memories that can be intentionally recalled.

Explicit learning, which is at the root of explicit memory, is the main learning concept employed in our current school system – it has the great benefit of being easily testable. However, it is not without its limitations. For instance, trying to learn a language like English in its entirety through explicit methods would exceed a typical human lifespan (Long, 2014), suggesting that we should enhance our learning approaches.

The implicit memory, in contrast, represents an elementary form of memory that operates unconsciously and uncontrollably, and therefore is difficult to test. Various actions, such as riding a bicycle, swimming, playing an instrument, or using linguistic clause elements or idiomatic expressions, once learned, are performed automatically or intuitively. Such actions require individual skills like knowledge of musical notes, motor functions, and semantic-syntactic language skills, all retained in memory. Despite their complexity, these actions are almost exclusively performed without cognitive control, demonstrating that conscious access to or conscious retrieval of implicit knowledge is not directly possible (R. Ellis, 2002).

Two primary implicit modes are priming and habituation. In priming, language stimuli are processed by the brain even when they remain beneath the threshold of conscious perception, such as during sleep. Priming unconsciously leads to the development of mental networks, connecting semantically related words, thereby justifying the use of word webs in language learning. Habituation, following repetitions and exercises, leads to automatic and unconscious language competencies, underscoring the benefits of implicit learning. An example would be kids naturally greeting (in a foreign language) without consciously thinking about it (N. Ellis, 2005).

The two brain images depicted in Figure 3 highlight that there exist differences between explicit and implicit learners. Explicit learners primarily activate speech-related areas in the left hemisphere (Figure 3), such as Broca's area, which processes language information. Implicit learners, in contrast, utilize both brain hemispheres, activating more corresponding brain regions, which is deemed more efficient (Ullman, 2001). Hence, implicit learning should also be central to primary foreign language education in schools.

Shown as a contrastive comparison, here (Figure 4) are the most important aspects of explicit and implicit language learning in a nutshell:

Figure 4. Important aspects of explicit and implicit language learning

Note. Adapted from “*Neural foundations of creativity in foreign language acquisition,*” by H. Böttger, and D. Költzsch, 2019, *Training, Language and Culture*, 3(2), 8–21. p. 17 (<https://doi.org/10.29366/2019tlc.3.2.1>).

explicit	implicit
conscious	unconscious
declarative	procedural
controlled	automatic
deliberate	habitual
voluntary	involuntary
perceptual	pre-perceptual
attentive	pre-attentive
remembered	Non-registered
formal	informal
intentional	incidental

All these observations and interpretations underscore the need for a reassessment of language instruction methods in educational systems, as well as the development of appropriate testing formats for measuring success in language acquisition. Here there is plenty of room to take this into future consideration, e.g. developing implicit task formats through research.

The culmination of this discourse brings us to a few key points that educators should consider in their didactical approach to language learning.

1. Balancing Learning Processes: Research indicates that a blend of explicit and implicit learning strategies, which changes as the child grows older, is beneficial. In younger stages, and in the context of our project, an emphasis on implicit learning is recommended. Implicit memory plays a significant role in language performance, and students can quickly reacquaint themselves with constructing their own hypotheses (Hulstijn, 2005).

2. Constructing Context: Gamification, scaffolding such as robust visualization through images, storytelling, gestures, and speech redundancy can all help create a rich, contextual learning environment (Gee, 2007).

3. Vocabulary Teaching: Educators should strive to teach word meanings at the point of need, thus making the learning relevant and timely for children. Only in desperate situations should a few words be pre-taught (Kötter, 2017).

4. Diverse Texts and Topics: A variety of text types and topics should be used, with the inclusion of repeated readings of old favourites. These read-aloud experiences could include direct explanations of words along with dialogic interactions, akin to storytelling. Following reading, it could be beneficial to engage students in discussions around words to build word consciousness (Beck & McKeown, 2007).

5. Avoid Caretaker Speech: Educators should aspire to be language role models, avoiding overly simplified '*caretaker speech*', and instead using appropriate, fully formed language structures (Hoff, 2006).

6. Positive Feedback: As a catalysing factor, positive feedback, including implicit feedback, should be utilized to motivate and guide students in their language acquisition journey (Hattie & Timperley, 2007).

Through the application of these strategies, educators can better support their students in language acquisition, thereby enabling them to harness their full linguistic potential. In order to foster implicit learning, they can further use stories or gamified learning approaches.

4.2.1 Storytelling

Storytelling offers the first of two outlined methodological approaches suitable to foster implicit learning in primary foreign language contexts. Aligned with the six didactic approaches outlined in the above, storytelling shows great benefits to

foreign language learning. The following subsection's introduction delves into the enjoyment of stories and their specific features from a neuroscientific perspective:

a. Engagement with Stories: Children and adolescents of various age groups derive pleasure from listening to or reading stories. These narratives provide a sense of stability, security, and continuity. This notion can be substantiated by the fact that children often express discomfort when familiar stories are altered (Nikolajeva, 2013).

b. Neurological Reactions to Stories: Stories incite similar responses in the brain as real-life experiences (Landrum et al., 2019). This resemblance explains the robust memorization associated with stories. Additionally, the vivid language, inclusive of descriptive adjectives, employed within stories stimulate images and emotions in the brain. Narrative gaps are not viewed as hindrances; instead, they are intuitively filled with imaginative pictorial and content-related matter. However, in a legal context, the imaginative potential of narratives could pose challenges when testimonies are given as they are essentially stories.

We can identify three primary aspects of stories from a neuroscience standpoint:

1. Stories as Connectors of Experiences

Stories serve as memorable contexts, bridging the old and new. The Default Mode Network (DMN), a cooperative network of brain cells, is engaged half the time we are awake, and is particularly active when we indulge in stories, enabling our thoughts to wander (Buckner et al., 2008). With the DMN's assistance, language is deeply processed on an emotional level. The DMN also helps anticipate linguistic patterns and retain them sustainably, preparing them for individual language production.

Storylines incorporate unknown language, such as new technical terms, into familiar contexts.

Fundamental learning entails blending the known with the unknown. This is mirrored in our brain function, wherein new neural connections are forged and pre-existing neurons form new synaptic connections. This allows for the emergence of new experiences from old ones, thereby enhancing memory and facilitating the quick integration of new sensory impressions and content, especially when transmitted through multiple sensory channels (multisensory) (Mason et al., 2019). Stories are ideally suited for this purpose as they provide extensive context for new linguistic and content-related input.

2. The Holistic Impact of Stories

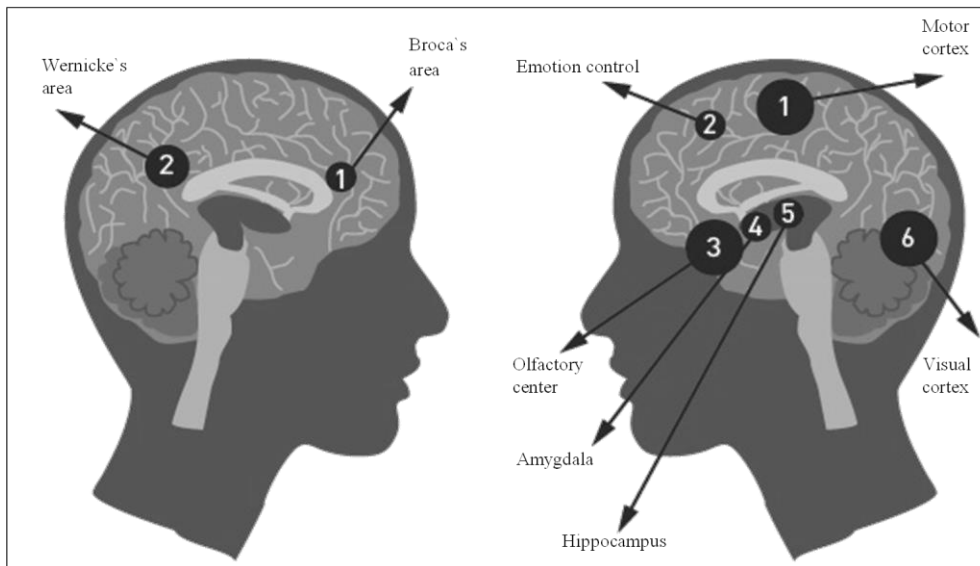
Brain networks foster associative thinking. During pure listening, crucial parts of the language centres in the brain, such as the Broca's area (responsible for language production and grammar) and the Wernicke's area (responsible for language processing and comprehension), are activated (Figure 5). This is where factual information is heard and processed.

In the act of narrating or listening to stories, network-like connections are also created in the DMN. As the DMN supports associative thinking, personal memories and experiences from the episodic long-term memory can establish a sense of identification with the story and consequently, with the narrator. This emotional bonding enhances the impact of the story.

Narratives are amplified in a multisensory and emotional way, a phenomenon facilitated by mirror neurons located in the prefrontal cortex of the brain. These

neurons contribute to empathy, compassionate understanding, and experiential learning (Catmur et al., 2018; Praszkie, 2016).

Figure 5. Active brain regions in pure fact listening (left) and storytelling (right)



Note. From *Current Issues in Primary Foreign Language Teaching: Part Two: Change Is the Only Constant (Heraclitus)*, by H. Böttger, 2022, September 22, *Advances in Teaching Foreign Languages to Young Learners (ATFLY)*, online.

3. Stories: The Emotional Link to Facts

Storytelling promotes long-term memory: Intensive storytelling significantly aids in the long-term retention of knowledge or factual information. Processing isolated bits of information is generally limited in capacity. For instance, memorizing vocabulary in isolation can often be experienced as strenuous work (Nation, 2001). However, when linguistic information is encapsulated within stories, they tend to engage listeners or readers on an emotional level. Consequently, neurotransmitters such as dopamine (commonly referred to as the "*happiness hormone*"), cortisol (the "*stress hormone*"), or oxytocin (the "*bonding hormone*") are released (Zak, 2015). Despite these

neurotransmitters having different general effects, they all enhance the formation of new neural connections and experiences, thus facilitating learning. In essence, the more emotions are evoked, the more intensely the story is experienced, thereby amplifying its long-term retention—a process that we can term as 'emotionally-driven long-term learning'.

In conclusion, stories are believed to be among the earliest forms of education, especially focussing on language education and knowledge transfer. Neuroscientific findings substantiate their power and effectiveness in knowledge transmission. They engage the cognitive, emotional, and imaginative capacities of learners, providing a comprehensive, immersive learning experience that have been standing and will stand the test of time.

4.2.2 Gamification

Similar to storytelling, gamification of learning contents is a promising approach to effective learning and teaching of foreign languages in a mainly implicit manner. Gamification, the application of game elements within non-game contexts (Dicheva et al., 2015), has emerged as a potent approach to teaching and learning foreign languages. Often described as playful learning, gamification retains the core focus on the learning process, even as the act of playing is foregrounded for the learner. One of the principal reasons behind gamification's effectiveness is neuroplasticity, which facilitates experiential learning. During our early years, play forms a significant part of our cognitive and emotional development. Brain maturation is intrinsically linked to learning environments that stimulate new experiences, either real or virtual (Gee, 2007). In this regard, play – be it digital or non-digital – serves as a proxy for real-life situations, providing boundless opportunities for practicing and reinforcing technical content in a trial-and-error fashion.

Learning contexts that spur experiential learning are pivotal for brain development. One key aspect of such a context is the lack of restrictions, fostering an environment where learners can experiment, make mistakes, and learn without fear. This freedom is measurable: the oxygen demand of nerve cells in the amygdala, located within the brain's limbic system, diminishes under fear-free conditions. This reduction in activity contrasts with the heightened activation during anxiety-inducing situations (Böttger & Költzsch, 2020).

Depending on the complexity of a game and its challenges, diverse neural networks are engaged. Generally, the more complex and demanding a game, the greater the neural activation. These networks, some of which operate unconsciously, strive to meet the game's demands by creating new synaptic connections, leading to sudden ideas, insights, and creative solutions (Böttger & Költzsch, 2022).

Importantly, playful forms of teaching should not be graded. Any form of mental pressure or fear counteracts creative problem-solving in a game and hinders active retrieval of stored words and information, leading to speech and thought barriers. Thus, overemphasising grades for playful forms of teaching proves counterproductive (Elkind, 2007; Vygotskij & Cole, 1978).

Simultaneously, success in games activates the brain's reward centres. A clever move in a game, or even just envisioning a successful game outcome, triggers the release of dopamine, colloquially known as the "*happiness hormone*." This leads to feelings of wellbeing, joy, and enthusiasm, and engenders a desire for more success. With regards to learning, these positive experiences improve information processing and storage capacity. The dopamine release also enhances the brain's plasticity, increasing adaptability to new learning situations. In essence, success

breeds success: the brain rewards itself for achievement, laying the groundwork for continued learning triumphs (Wise & Rompre, 1989).

Lastly, gameplay exercises the working memory – the brain's system for temporarily holding and manipulating information. For instance, when processing a sentence, the neural networks of the working memory retain the beginning and middle parts as the end is being comprehended, culminating in overall sentence understanding.

Depending on the sentence's emotional or significant connotations, it can either be committed to long-term memory or fade from working memory (Cowan, 2008).

5. LEN's outlined potential

The combination of findings from educational neuroscience, psychology, didactics and applied linguistics on the two main concepts (early start, implicit learning) and the latter's two methodological approaches (storytelling, gamification) has made it possible to understand the benefits and backgrounds of each in greater detail. In particular, the field of educational neuroscience adds an essential piece of the puzzle to these interrelated fields: It provides the neural basis for how children process and remember foreign language input more broadly. In doing so, it bridges the gap between the other fields' focus on language input and output (R. Ellis, 1994; Krashen, 1982).

Initially, the most important point seems to be to give every child an early start in foreign language learning. This has repeatedly been shown to be beneficial (Enever, 2018) and is rooted in the high neuroplasticity of children's brains – a highly valuable explanation based on neuroscientific research methods. That is, while applied linguists can measure the language performance of children aged 3 and 12 attending the same foreign language classes and uncover differences, neuroscientific research

helps to understand why this is the case. Once again, this flexibility of children's brain structure – or neuroplasticity – in relation to foreign languages shows a downward trend as early as the age of six (see Centre of the developing child). Accordingly, foreign language teaching should begin as early as kindergarten, so as not to deny children their innate potential and the opportunities revealed by neuroscience.

Secondly, neuroscientific research has shown that implicit (foreign language) learning activates both hemispheres of the brain, in contrast to explicit learning, which activates mainly language-related areas in the left hemisphere (Ullman, 2001). This knowledge of the bilateral connections that are established in children's brains through a largely unconscious learning pathway that is similar to natural language acquisition is essential to understanding why translating sentences or using caregiver language, while well-intentioned, should be avoided. As Ellis (2005) states, language teaching should be based on a naturalistic learning process in order to optimise children's language skills and competence. However, without evidence that takes account of (foreign language) processing, this approach may never have had an adequate rationale to counter critics who argue that it is too difficult and overwhelming for children, even if it is simply natural in the sense that it fits the way the human brain works.

Thirdly, educational neuroscience has demonstrated the power and effectiveness of storytelling in conveying information – one important approach to foster implicit learning. For example, stories generally engage children on an emotional level, which leads to the release of neurotransmitters that promote the formation of neural connections – language learning (Böttger & Költzsch, 2022). Furthermore, neuroscience research shows that the default mode network is particularly active

when children are immersed in a story, allowing their minds to wander (Buckner et al., 2008). In summary, it shows that storytelling facilitates learning because it promotes language acquisition by making linguistic input more understandable, meaningful and memorable, thus facilitating the encoding, storage and retrieval of new vocabulary and grammatical structures (Elley, 1989).

Fourth, gamified language learning environments activate the reward centres in children's brains when they succeed. That is, neuroscience has shown that when we succeed in a playful task (e.g. a crossword puzzle), feel-good hormones (e.g. dopamine) are released (Morgan-Short et al., 2012; Panksepp, 2007). This in turn leads to and explains why gamification improves information processing and storage capacity, often without us even noticing (implicit learning). Other findings suggest that combining games with foreign language tasks and physical activities is also particularly valuable for boys (Böttger, 2017, 2023). That is, they need to move to learn more effectively. And while this finding has not been and will not be discussed in detail here, it has been added to show the great further potential of combining the research fields to establish a new constant in research and foreign language teaching.

6. Conclusion

Research on foreign language acquisition has consistently highlighted the advantages of starting language learning at a young age (Enever, 2018). Despite different policies across Europe regarding the start of foreign language instruction, the consensus in the literature suggests that an early introduction improves linguistic proficiency and competence (Eurydice Report, 2023). The implementation of implicit teaching approaches, such as storytelling, gamification, and the use of the target language for communication, complements this early start and provides a highly

promising educational pathway. Such methods, based on theories of implicit memory and learning, make use of the brain's inherent mechanisms for organically absorbing and processing information (Reber, 1989).

The role of implicit memory, a component of long-term memory that is not under conscious control, is instrumental in these processes. This memory system allows individuals to use language automatically through repeated exposure and interaction without explicit instruction, embodying the essence of the implicit learning approach (Cleeremans et al., 1998). Storytelling and gamification are particularly powerful in this regard. Stories not only make language learning engaging but also promote the integration of new information with existing knowledge, facilitating context-based learning. The emotions triggered by stories enhance memory retention and create strong associations that support language recall (Landrum et al., 2019). Similarly, gamification creates a stress-free environment conducive to trial-and-error learning, with games simulating real-life situations. Such experiential learning benefits from the brain's neuroplasticity, promoting the formation of new synaptic connections. The dopamine released during success in games enhances the joy of learning and motivates further learning success (Dicheva et al., 2015). Combined, implicit learning, storytelling and gamification form a formidable trifecta that underpins a pedagogically sound foundation for early language education. Drawing on the tenets of cognitive science and educational neuroscience and psychology, these interactive and immersive methodologies provide the potential of a paradigm shift in language pedagogy, creating a more naturalistic and engaging environment for young learners to acquire and master a new language. Its roots in the multidisciplinary field termed Language Educational Neuroscience seems promising to lay the foundation for further innovative approaches and perspective on (foreign) language acquisition,

which ought yet to be investigated, researched, and promoted – an auspicious new approach to language teaching and learning.

References

- Baddeley, A. (2003). Working memory and language: An overview. *Journal of Communication Disorders*, 36(3), 189–208. [https://doi.org/10.1016/s0021-9924\(03\)00019-4](https://doi.org/10.1016/s0021-9924(03)00019-4)
- Beck, I. L., & McKeown, M. G. (2007). Increasing Young Low-Income Children's Oral Vocabulary Repertoires through Rich and Focused Instruction. *The Elementary School Journal*, 107(3), 251–271. <https://doi.org/10.1086/511706>
- Böttger, H. (2017). About Boyz 'n' Girlz: Consider the differences. *Grundschule Englisch*, 58, 34–36.
https://www.researchgate.net/publication/312491170_About_BoyznGirlz_Consider_the_Differences
- Böttger, H. (2022, September 22). *Current Issues in Primary Foreign Language Teaching: Part Two: Change Is the Only Constant (Heraclitus)*. Advances in Teaching Foreign Languages to Young Learners (ATFLY), online.
- Böttger, H. (2023). *Neurodidaktik des frühen Sprachenlernens: Wo die Sprache zuhause ist* [Neurodidactics of early language learning: Where language is at home] (2nd ed.). utb.
- Böttger, H., & Költzsch, D. (2019). Neural foundations of creativity in foreign language acquisition. *Training, Language and Culture*, 3(2), 8–21.
<https://doi.org/10.29366/2019tlc.3.2.1>
- Böttger, H., & Költzsch, D. (2020). The fear factor: Xenoglossophobia or how to overcome the anxiety of speaking foreign languages. *Training, Language and Culture*, 4(2), 43–55. <https://doi.org/10.22363/2521-442X-2020-4-2-43-55>

- Böttger, H., & Költzsch, D. (2022). The Secret Powers of a Wandering Mind: Underestimated Potential of a Resting State Network for Language Acquisition. In N. Dario & L. Tateo (Eds.), *New Perspectives on Mind-Wandering* (pp. 211–224). Springer. https://doi.org/10.1007/978-3-031-06955-0_12
- Böttger Heiner, Müller, T., Schlüter, N., Kierepka, A., Börner, O., Legutke, M., Kronisch, I., & Lohmann, C. (2016). Der Lernstand im Englischunterricht am Ende von Klasse 4: Ergebnisse der BIG-Studie [The level of learning in English at the end of grade 4: results of the BIG study]. In H. Böttger & N. Schlüter (Eds.), *FFF – Fortschritte im Frühen Fremdsprachenlernen: Tagungsband zur 4. FFF-Konferenz 2014 in Leipzig* (pp. 8–44). Westermann.
- Bruner, J. S. (1983). *Child's talk: Learning to use language*. W.W. Norton.
- Buckner, R. L., Andrews-Hanna, J. R., & Schacter, D. L. (2008). The brain's default network: Anatomy, function, and relevance to disease. *Annals of the New York Academy of Sciences*, 1124(1), 1–38.
<https://doi.org/10.1196/annals.1440.011>
- Buzsáki, G. (2006). *Rhythms of the brain*. Oxford University Press.
- Catmur, C., Press, C., & Heyes, C. (2018). Mirror Neurons from Associative Learning. In R. A. Murphy & R. C. Honey (Eds.), *The Wiley handbook on the cognitive neuroscience of learning* [Enhanced Credo edition], pp. 515–537). Wiley Blackwell; Credo Reference.
<https://doi.org/10.1002/9781118650813.ch20>
- Center on the Developing Child. (2007). *The Science of Early Childhood Development (InBrief)*. Retrieved from

<https://developingchild.harvard.edu/resources/inbrief-the-science-of-early-childhood-development/>.

Cleeremans, A., Destrebecqz, A., & Boyer, M. (1998). Implicit learning: News from the front. *Trends in Cognitive Sciences*, 2(10), 406–416.

[https://doi.org/10.1016/s1364-6613\(98\)01232-7](https://doi.org/10.1016/s1364-6613(98)01232-7)

Cohen, D. (1968). Magnetoencephalography: Evidence of magnetic fields produced by alpha-rhythm currents. *Science*, 161(3843), 784–786.

<https://doi.org/10.1126/science.161.3843.784>

Colmar, S., & Wheldall, K. (1985). Behavioural language teaching: using the natural language environment. *Child Language Teaching and Therapy*, 1(2), 199–216. <https://doi.org/10.1177/026565908500100207>

Cowan, N. (2008). What are the differences between long-term, short-term, and working memory? *Progress in Brain Research*, 169, 323–338.

[https://doi.org/10.1016/S0079-6123\(07\)00020-9](https://doi.org/10.1016/S0079-6123(07)00020-9)

Dicheva, D., Dichev, C., Agre, G., & Angelova, G. (2015). Gamification in Education: A Systematic Mapping Study. *Journal of Educational Technology & Society*, 18(3), 75–88. <http://www.jstor.org/stable/jeductechsoci.18.3.75>

Elkind, D. (2007). *The power of play: Learning what comes naturally*. Da Capo Lifelong Books.

Elley, W. B. (1989). Vocabulary Acquisition from Listening to Stories. *Reading Research Quarterly*, 24(2), 174–187. <https://doi.org/10.2307/747863>

Ellis, N. C. (2005). At the interface: Dynamic interactions of explicit and implicit language knowledge. Studies in Second Language Acquisition. *Studies in Second Language Acquisition*, 27(2), 305–352.

<https://doi.org/10.1017/S027226310505014X>

- Ellis, R. (1994). *The study of second language acquisition* (13. impr). Oxford applied linguistics. Oxford Univ. Press.
- Ellis, R. (2002). Does form-focused instruction affect the acquisition of implicit knowledge? *Studies in Second Language Acquisition*, 24(2), 223–236.
<https://doi.org/10.1017/S0272263102002073>
- Enever, J. (2018). *Policy and politics in global primary English*. Routledge.
<https://doi.org/10.14507/epaa.24.2448>
- Eurydice Report. (2023). *Key data on teaching languages at school in Europe*.
<https://doi.org/10.2797/529032>
- Gass, S. M., & Mackey, A. (2015). Input, interaction, and output in second language acquisition. In B. VanPatten & A. Mackey (Eds.), *Second language acquisition research series theoretical and methodological issues. Input processing and grammar instruction: Theory and research* (pp. 180–206). Routledge.
- Gee, J. P. (2007). *What video games have to teach us about learning and literacy*. Palgrave Macmillan.
- Hämäläinen, M., Hari, R., Ilmoniemi, R. J., Knuutila, J., & Lounasmaa, O. V. (1993). Magnetoencephalography—theory, instrumentation, and applications to noninvasive studies of the working human brain. *Reviews of Modern Physics*, 65(2), 413–497. <https://doi.org/10.1103/RevModPhys.65.413>
- Hannafin, M. J., Hill, J. R., Land, S. M., & Lee, E. (2014). Student-Centered, Open Learning Environments: Research, Theory, and Practice. In J. M. Spector, M. D. Merrill, J. Elen, & M. J. Bishop (Eds.), *Handbook of Research on Educational Communications and Technology* (4th ed. 2014, pp. 641–651). Springer New York; Imprint; Springer. https://doi.org/10.1007/978-1-4614-3185-5_51

- Hattie, J., & Timperley, H. (2007). The Power of Feedback. *Review of Educational Research*, 77(1), 81–112.
- Hensch, T. K. (2004). Critical period regulation. *Annual Review of Neuroscience*, 27, 549–579. <https://doi.org/10.1146/annurev.neuro.27.070203.144327>
- Hoff, E. (2006). How social contexts support and shape language development. *Developmental Review*, 26(1), 55–88. <https://doi.org/10.1016/j.dr.2005.11.002>
- Howard-Jones, P. A. (2014). Neuroscience and education: Myths and messages. *Nature Reviews Neuroscience*, 15(12), 817–824. <https://doi.org/10.1038/nrn3817>
- Huettel, S. A., Song, A. W., & McCarthy, G. (2009). *Functional magnetic resonance imaging* (2nd ed.). Sinauer.
- Hulstijn, J. H. (2005). Theoretical and empirical issues in the study of implicit and explicit second-language learning. *Studies in Second Language Acquisition*, 27(2), 129–140. <https://doi.org/10.1017/S0272263105050084>
- Immordino-Yang, M. H., & Damasio, A. (2007). We Feel, Therefore We Learn: The Relevance of Affective and Social Neuroscience to Education. *Mind, Brain, and Education*, 1(1), 3–10. <https://doi.org/10.1111/j.1751-228X.2007.00004.x>
- Knudsen, E. I. (2004). Sensitive periods in the development of the brain and behavior. *Journal of Cognitive Neuroscience*, 16(8), 1412–1425. <https://doi.org/10.1162/0898929042304796>
- Kötter, M. (2017). *Wortschatzarbeit im Fremdsprachenunterricht: Grundlagen und Praxis in Primarstufe und Sekundarstufe I*. <https://elibrary.utb.de/doi/book/10.5555/9783772711459>
- Krashen, S. D. (1982). *Principles and Practice in Second Language Acquisition*. Pergamon.

- Kuhl, P. K. (2004). Early language acquisition: Cracking the speech code. *Nature Reviews Neuroscience*, 5(11), 831–843. <https://doi.org/10.1038/nrn1533>
- Kuhl, P. K. (2010). Brain mechanisms in early language acquisition. *Neuron*, 67(5), 713–727. <https://doi.org/10.1016/j.neuron.2010.08.038>
- Landrum, R. E., Brakke, K., & McCarthy, M. A. (2019). The Pedagogical Power of Storytelling. *Scholarship of Teaching and Learning in Psychology*, 5(3), 247–253. <https://doi.org/10.1037/stl0000152>
- Lerner, I., Guijarro-Fuentes, P., Filippi, R., Li, F., & Schwieter, J. W. (2023). Editorial: New ideas in language sciences: Language acquisition. *Frontiers in Psychology*, 14, Article 1250307, 1–3. <https://doi.org/10.3389/fpsyg.2023.1250307>
- Lightbown, P., & Spada, N. (2013). *How languages are learned* (4th ed.). Oxford handbooks for language teachers. Oxford Univ. Press.
- Long, M. H. (2014). *Second language acquisition and task-based language teaching*. John Wiley & Sons.
- Mason, G. M., Goldstein, M. H., & Schwade, J. A. (2019). The role of multisensory development in early language learning. *Journal of Experimental Child Psychology*, 183, 48–64. <https://doi.org/10.1016/j.jecp.2018.12.011>
- Morgan-Short, K., Steinhauer, K., Sanz, C., & Ullman, M. T. (2012). Explicit and implicit second language training differentially affect the achievement of native-like brain activation patterns. *Journal of Cognitive Neuroscience*, 24(4), 933–947. https://doi.org/10.1162/jocn_a_00119

- Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge applied linguistics. Cambridge University Press.
<https://doi.org/10.1017/CBO9781139524759>
- Nelson, C. A., Zeanah, C. H., & Fox, N. A. (2019). How Early Experience Shapes Human Development: The Case of Psychosocial Deprivation. *Neural Plasticity*, Article 1676285, 1–12. <https://doi.org/10.1155/2019/1676285>
- Nikolajeva, M. (2013). “Did you Feel as if you Hated People?”: Emotional Literacy Through Fiction. *New Review of Children's Literature and Librarianship*, 19(2), 95–107. <https://doi.org/10.1080/13614541.2013.813334>
- Ogawa, S., Lee, T. M., Nayak, A. S., & Glynn, P. (1990). Oxygenation-sensitive contrast in magnetic resonance image of rodent brain at high magnetic fields. *Magnetic Resonance in Medicine*, 14(1), 68–78.
<https://doi.org/10.1002/mrm.1910140108>
- Panksepp, J. (2007). Can PLAY diminish ADHD and facilitate the construction of the social brain? *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 16(2), 57–66.
- Praszker, R. (2016). Empathy, mirror neurons and SYNC. *Mind & Society*, 15(1), 1–25. <https://doi.org/10.1007/s11299-014-0160-x>
- Poldrack, R. A., Mumford, J. A., & Nichols, T. E. (2011). *Handbook of Functional MRI Data Analysis*. Cambridge University Press.
<https://doi.org/10.1017/CBO9780511895029>
- Quinn, S. J. (2016). *Learning to play and playing to learn: The role of symbolic play in language acquisition*. Unpublished Doctoral Dissertation, The Australian National University.

- Reber, A. S. (1989). Implicit learning and tacit knowledge. *Journal of Experimental Psychology: General*, 118(3), 219–235. <https://doi.org/10.1037/0096-3445.118.3.219>
- Reber, A. S. (1993). *Implicit learning and tacit knowledge: An essay on the cognitive unconscious*. Oxford Univ. Press.
- Schacter, D. L. (1995). Implicit memory: A new frontier for cognitive neuroscience. In M. S. Gazzaniga (Ed.), *The cognitive neurosciences* (pp. 815–824). The MIT Press.
- Siegler, R., DeLoache, J., Eisenberg, N., & Saffran, J. (2011). *How children develop: Exploring Child Develop Student Media Tool Kit & Scientific American Reader to Accompany How Children Develop*. Worth Publishing.
- Singleton, D., & Ryan, L. (2004). *Language acquisition: The age factor*. Multilingual Matters.
- Summer, T., & Böttger, H. (2023). Essentials: Teaching English to Young Learners in Primary School. In T. Summer & H. Böttger (Eds.), *English in Primary Education Concepts, Research, Practice* (pp. 9–47). University of Bamberg Press.
- Swain, M. (1995). Three functions of output in second language learning. In G. Cook & B. Seidlhofer (Eds.), *Principle and practice in applied linguistics: Studies in honour of HG Widdowson* (pp. 125–144). Oxford University Press.
- Tomasello, M. (2003). *Constructing a Language: A Usage-Based Theory of Language Acquisition*. Harvard University Press.
- <https://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=282229>

- Ullman, M. T. (2001). The neural basis of lexicon and grammar in first and second language: the declarative/procedural model. *Bilingualism: Language and Cognition*, 4(2), 105–122. <https://doi.org/10.1017/S1366728901000220>
- VanPatten, B. (1996). *Input processing and grammar instruction in second language acquisition*. Ablex.
- Vygotskij, L. S. (1962). *Thought and language* (12. printing). M.I.T. Press.
- Vygotskij, L. S., & Cole, M. (1978). *Mind in society: Development of higher psychological processes*. Harvard Univ. Press.
<http://www.jstor.org/stable/j.ctvjf9vz4> <https://doi.org/10.2307/j.ctvjf9vz4>
- Willingham, D. T., Hughes, E. M., & Dobolyi, D. G. (2015). The Scientific Status of Learning Styles Theories. *Teaching of Psychology*, 42(3), 266–271.
<https://doi.org/10.1177/0098628315589505>
- Willis, D., & Willis, J. R. (2007). *Doing task-based teaching*. Oxford Univ. Press.
- Wise, R. A., & Rompre, P. P. (1989). Brain dopamine and reward. *Annual Review of Psychology*, 40, 191–225.
<https://doi.org/10.1146/annurev.ps.40.020189.001203>
- Woolfolk, A. (2013). *Educational psychology*. Pearson.
- Zak, P. J. (2015). Why inspiring stories make us react: The neuroscience of narrative. *Cerebrum: The Dana Forum on Brain Science*.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4445577/>

KEYNOTE ARTICLE 3

The Application of ChatGPT in Students' Academic Essay Writing

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Abstract:

This empirical study explores the application of ChatGPT in students' essay writing, assessing its impact on essay quality, student engagement, and learners' perceptions of this AI-assisted writing mode. Quantitative data were collected through pre-test and post-test assessments and qualitative insights from students' reflective accounts and informal interviews. Thirty-five advanced-level students enrolled in a Chinese-degree program participated in the study. Thematic analysis revealed key themes in students' perceptions, including perceived benefits, challenges, and recommendations for effective integration of ChatGPT into academic writing. Quantitative findings showed a significant improvement in essay scores, with students who actively engaged with ChatGPT outperforming those with minimal interaction. Qualitative analysis indicated that students appreciated ChatGPT's support in generating ideas and structures, providing relevant information, expanding vocabulary and idioms, and developing critical thinking through prompt-driven engagements. However, they also noted limitations, such as information overload, mechanical responses, occasional inaccuracies, and a lack of cultural nuance. Based on these insights, students recommended a more structured approach to ChatGPT use, emphasizing the importance for precise prompts and critical engagement, a well-defined role for AI in the writing process. They also advocated for ChatGPT's integration into the curriculum, enabling students to focus on more creative and imaginative aspects of writing. This research contributes to the field of AI-assisted language learning by offering practical recommendations for the effective integration of generative AI into teaching, learning, and research contexts.

Key words: ChatGPT, academic essay writing, language learning, empirical study

Introduction

ChatGPT, a generative Artificial Intelligence (AI) tool, has introduced significant changes across various academic disciplines, including in the field of language education. With its unprecedented capability to generate coherent text and engage in automated conversations, ChatGPT holds the potential to transform not only how students learn but also how they perceive and engage with the learning process. Existing literature suggests that the widespread and inevitable adoption of ChatGPT is poised to play a dominant role in language education. When effectively integrated, such AI tools can accelerate language learning, enhance language instructors'

professional development, support educational research, and improve pedagogical approaches.

Despite its growing prominence, educators are still in the early stages of understanding how students integrate ChatGPT into their actual writing practices while maintaining academic integrity. One of the central concerns is the potential for plagiarism and the challenge of ensuring that students use AI ethically and responsibly. While some scholars advocate for its adoption as a tool to generate ideas, enhance writing quality, and improve efficiency, others raise concerns about its potential to diminish students' analytic skills and promote misconduct. Some universities have imposed bans on its use. Critics argue that overreliance on ChatGPT could hinder the development of critical thinking, foster intellectual complacency, and discourage students from engaging deeply with their work. Still others view it as a potential threat to education, fearing that it could lead to a decline in rigorous academic activities and foster dependency among both students and instructors.

Much of the current discourse on the role of ChatGPT in language education remains theoretical or based on systematic reviews, with relatively limited empirical research supporting the claims. This study seeks to address this gap by examining how students practically engage with ChatGPT in the process of academic essay writing. It explores the perceived advantages and limitations of the tool and foregrounds students' voices to gain a nuanced understanding of its application in real-world educational settings. Through this empirical investigation, the study aims to offer valuable insights into the implications of ChatGPT-assisted writing and contribute to informed, evidence-based discussions on the integration of ChatGPT in language learning.

Literature review

Recently studies have acknowledged the potential of ChatGPT in language education across multiple aspects (Huang et al, 2022), including its use as a source of language input (Baskara, and Mukarto, 2023), as a language practice partner (Mill et al, 2024), a provider of tailored communicative activities (Barrot, 2024), and a mechanism for automated feedback (Su et al., 2023; Tai et al., 2023). These studies highlight how ChatGPT can significantly transform language education.

Language input and learning partners

As a provider of language input and a conversational partner, ChatGPT can generate authentic dialogues and realistic language use (George & George, 2023). It offers learners vocabulary, sentence patterns, and structures to assist students in writing practice in a conversational and adaptive format. Students can interact with ChatGPT by inputting their own text and receiving generated continuations, making it a versatile tool for language practice. A systematic review by Huang et al. (2022), encompassing 25 empirical studies, classified ChatGPT's pedagogical applications

into several categories: interlocutor, assimilation tool, transmission aid, helpline, and recommendation systems. These roles collectively support students' social presence by facilitating affective, open, and coherent communication.

Mollick & Mollick (2023) proposed seven potential roles for AI in education: AI-tutor (personalized instruction), AI-coach (reflection on learning), AI-mentor (feedback on learning), AI-teammate (identification of alternative viewpoints), AI-tool (efficiency in learning), AI-simulator (practice and application), and AI-student (students as teachers of AI). While AI can serve as a supportive language partners, the authors caution against overestimating its accuracy, knowledge consistency, and contextual appropriateness. In their study, Mills et al. (2024) developed an AI companion for student writers and found that learners who enjoyed interacting with AI also demonstrated more positive attitudes toward writing and reported greater self-efficacy.

ChatGPT has also been explored as a scaffold for academic writing (Guo et al., 2023), with researchers emphasizing its role in supporting personalized learning, differentiated feedback, and student engagement (Huang et al., 2022). Lo (2023) observed that AI language tools improved vocabulary acquisition, especially in specialized expressions, while Bedington et al. (2024) emphasized ChatGPT's dialogic interface, which enhances writing by allowing users to refine prompts and align outputs to audience, purpose, and context.

Tailored communicative activities

ChatGPT "*personalizes language learning experiences by tailoring communicative activities to learners' proficiency levels and styles*" (Barrot, 2023a, p2). This adaptability allows students to progress at their own pace and engage in human-like conversations that support self-reflection and autonomy. The real-time responses further enhance engagement, allowing students to delve into specific areas or seek clarification as needed.

Kasneci et al. (2023) synthesised evidence of ChatGPT's capabilities to understand learner prompts, generate instructional exercises, personalize academic interactions, and score academic performance. The tool can also foster academic discussions, answer questions, and aid learners to analyse writing logic by breaking down texts, and by providing relevant commentary (Baidoo-Anu & Ansah, 2023; Kohnke et al., 2023).

ChatGPT also assists with meaningful writing samples (Barrot, 2023), adjusts text difficulty levels (Bonner et al., 2023), offers structural writing advice (Imran & Almusharraf, 2023), and facilitates guided writing (Kohnke et al., 2023). It can analyse language features, diagnose errors, and evaluate essays to enhance communicative competence.

Feedback Provision

Beyond its tutoring functions, ChatGPT provides real-time, automated writing feedback. Tai et al. (2023) emphasized ChatGPT's utility in idea generation, lexical choice, organization, and accuracy. Similarly, Barrot (2023b) also observed ChatGPT's usefulness at all stages of the writing process, from outlining and drafting to revision and refinement. Halaweh (2023) confirmed these findings, noting ChatGPT's strength in content and language analysis. The tool also facilitates adaptive assessments by adjusting task complexity based on learner responses.

Despite these advantages, concerns about feedback quality remain. Steiss et al. (2024) compared 400 instances of human- and AI-generated feedback on student essays. While human feedback excelled in clarity, accuracy, and tone, AI-generated feedback was superior in systematic evaluation and logical organization. These findings underscore the need for a balanced approach to combining AI and human feedback (Ohio University, 2023; Fitria, 2023).

ChatGPT in essay writing

AI has the potential to complement traditional pedagogy in academic writing. As noted by Professor Rodney Jones in a British Council report, iterative engagement with ChatGPT enables students to document and reflect on their writing process, thereby reinforcing learning through dialogue and critique. Han et al. (2023) examined 213 South Korean students' interactions with ChatGPT, finding overall positive experiences, especially with feedback.

Alharbi (2023), in a systematic review of 104 studies, identified four key affordances of AI-powered writing tools: evaluation, feedback, translation, and drafting support. Lee et al. (2023) proposed a learner-generated-context approach, encouraging students to create personalized digital learning environments. These environments help students develop clear writing outlines, an essential element for coherence and flow. In an 18-week AI-integrated online course, Hsiao and Chang (2023) reported improved academic performance through AI-generated lexical analysis and automated scoring.

Nonetheless, some educators expressed concerns that AI's formulaic structures may restrict student creativity (Yan, 2023). These concerns highlight the importance of designing pedagogically sound, human-AI collaborative writing tasks that foster both engagement and originality. Previous studies highlight the impacts of generative AI on academic writing, although empirical classroom-based research remains limited. There is a notable gap in understanding how students integrate AI into their writing processes (Yan, 2023), with minimal systematic research on AI's role in real-world writing processes (Barrot, 2023a).

This study addresses this gap by adopting a naturalistic, exploratory approach to examine how university students use ChatGPT for academic writing. It investigates

students' perceived benefits and challenges, as well as their suggestions for improvement. By offering empirical evidence on the integration of ChatGPT into writing education, this study demonstrates the tool's potential to enhance student engagement and learning when supported by appropriate instructional design. Given the limited understanding of student-AI interaction in writing, a phenomenological lens can provide deeper insights into learners' lived experiences. This study is guided by the following research questions: 1) What are the benefits and limitations of co-writing with ChatGPT in students' academic essay writing? and 2) How do students perceive their AI-assisted learning experience, and what improvements do they suggest?

The study

This study was conducted during the autumn semester of 2024 at a higher education institution in the UK. The course ran for 12 weeks, with academic essay writing accounting for 10% of the final grade. Students had the choice of whether to use ChatGPT or any other AI-assisted writing tools. Those who chose to engage with ChatGPT were designated as the experimental group (EG), while those who opted out to use AI tools were placed in the control group (CG). Transparency, disclosure, and reflection on AI use were mandatory components of the assignment submission for the EG. Meanwhile, students in the CG were permitted to seek assistance from language partners or native speakers during revision stage. This design preserved students' flexibility in planning, researching, drafting, reviewing, and editing their work, while maintaining academic integrity.

Classroom activities included discussions on writing integrity, critical evaluation of AI outputs, and hands-on tasks such as prompt refinement and selective integration of AI-generated information. CG students also received guidance on using ChatGPT for practice, as they chose not to use it for assessments. Given the exploratory and experimental nature of co-writing with ChatGPT, this study aimed to examine its role in academic writing within a structured educational environment.

Participants

The study involved thirty-five advanced-level Chinese-degree university students. The sample consisted of two distinct groups: final-year students who had recently returned from a study-abroad placement in China, and students who had either previously lived in China with their families or attained advanced-level Chinese proficiency through formal qualifications (e.g., GCSE Chinese). All participants were classified at HSK4 level, equivalent to B2 on the Common European Framework of Reference for Languages (CEFR).

Methods

A triangulated mixed-methods approach was employed, incorporating both quantitative and qualitative data to provide a comprehensive analysis of the research

questions. The quantitative component involved pre- and post-test scores to measure academic writing performance, while qualitative component comprised students' reflective accounts, conversational episodes and informal interviews. This approach enabled both a statistical evaluation of writing performance and an in-depth exploration of students' perceptions and experiences with AI-assisted academic writing.

The study was grounded in a phenomenological research design, focusing on how students experienced and made sense of AI-assisted writing. A “*funnel approach*” was used to guide data analysis—starting from broad observations and gradually narrowing to more specific themes—allowing deeper insight into how students engaged with ChatGPT at various stages of the writing process, including brainstorming, drafting, and revision.

The research was carried out in three stages: 1) pre-test assessment, 2) training and intervention, and 3) post-test and reflective discussion. ChatGPT was the primary AI tool used, though a small number of students also reported using other platforms such as YouWrite and Grammarly.

Data collection

Quantitative data were collected via pre- and post-tests using standardized university writing rubrics, assessing content, organization, grammar, and vocabulary. Two independent researchers scored the essays, with discrepancies resolved through discussion with the course tutor. Inter-rater reliability was high, with a Cohen's Kappa value above 0.8, indicating strong agreement between raters.

Qualitative data were gathered through students' reflective journals, conversational chats and informal interviews on their interactions with ChatGPT. These materials provided evidence of students' decision-making processes, revisions, and engagement with AI outputs. Students were encouraged to discuss the benefits and drawbacks of using ChatGPT, describe how they integrated AI into their writing process, and reflect on their perceptions.

This data collection strategy aligns with the principles of interpretative phenomenological analysis (IPA), which prioritizes understanding how participants interpret and give meaning to their lived experiences. The triangulation of reflective writing, interview data, and written drafts enriched the dataset and improved the study's credibility.

Data analysis

Given the exploratory nature of the research, a thematic analysis approach was employed to identify and interpret recurring patterns across the data. An inductive coding strategy was used, allowing themes to emerge directly from the data rather than imposing a pre-existing theoretical framework (McDonagh & Sanders, 2024). The analysis included student essays, reflective accounts, and interview notes.

The first round of coding involved in vivo coding, using participants' own words to generate descriptive codes. These codes were later clustered into broader thematic categories. A second researcher independently reviewed the initial coding and helped validate the final themes. NVivo software was used to support data management and facilitate analysis. In the quantitative analysis, statistical comparisons were made between pre-test, post-test, and delayed post-test scores across the EG and the CG groups. This enabled a comprehensive evaluation of writing development over time and between different modes of writing support.

By analysing the evolution of students' writing, their reflective narratives, and dialogic interactions with AI, this study offers empirical insights into how generative AI tools such as ChatGPT shape academic writing practices. The findings contribute to ongoing discussions around AI integration in higher education and offer practical recommendations for designing AI-assisted writing instruction that is pedagogically sound.

Findings

Following the data collection process, numerical analysis of the respondents' aggregate responses as well as individual views were captured through more in-depth reflection that participants provided. Several themes emerged from the end-of-semester informal interviews as well, and the major themes are listed in Table 1:

Table 1 Themes and patterns of data analysis

Themes	Patterns
Advantages	Generating ideas and structures
	Providing relevant information
	Expanding vocabulary and idiomatic expressions
	Developing critical thinking skills
Limitations	Information overloaded
	Mechanical responses and lack cultural nuances
	Occasional inaccuracies
Perceptions & Suggestions	Positive Integration into curriculum Critical engagement

Finding 1: Improvement of academic writing:

Quantitative results show that both the EG and the CG improved their writing performance over the course of the semester. However, the EG—students who used ChatGPT—demonstrated slightly greater gains, particularly in higher-level writing courses.

Table 2 Pre-test comparison between EG and CG (Chinese Level 5 and 6)

Group	Test	Mean (Pre)	SD (Pre)	t	df	Sig. (2-tailed)	Effect Size (Cohen's d)
EG	Pre	61.00	3.03	0.45	11	0.66	0.25
CG	Pre	59.71	2.06				

Table 2 illustrates that there was no statistically significant difference in pre-test scores between EG and CG at Chinese Level 5 and 6, indicating comparable baseline performance.

Table 3 Independent Sample T-Test in Pre-test and Post-test of EG and CG for Chinese Level 5

Group	Mean (Pre)	Mean (Post)	t	df	Sig. (2-tailed)	Effect Size (Cohen's d)
EG	60.23	68.15	-5.23	11	0.0002	1.45
CG	59.85	66.92	-4.12	10	0.0015	1.20

Table 3 illustrates that for EG, there is a significant increase in scores from pre to post test, $p=0.0002$. The effect size is large, $d=1.45$, indicating an impact of the intervention. For CG, there is also a significant increase in scores from pre to post, $p=0.0015$. The effect size is large, $d=1.20$, but slightly smaller than the EG.

Table 4 Pre-test scores between EG and CG for Chinese Level 6

Group	Test	Mean (Pre)	Mean (Post)	t	df	Sig. (2-tailed)	Effect Size (Cohen's d)
EG	Pre	60.50	69.25	-7.89	11	< 0.001	1.85
CG	Pre	59.80	66.90	-5.45	10	< 0.001	1.50

It can be seen from the table above that for the EG, there is no significant difference between the two groups in the pre-test. For the EG, there is a significant increase in scores from pre-test to post-test, $t(11)=-7.89$, $p<0.001$, and the effective size is large $d=1.85$, indicating a strong impact of the intervention. There is also a significant increase in scores from pre-test to post-test, $t(10)=-5.45$, $p<0.001$, and the effect size is large $d=1.50$, but slightly smaller than the EG. Therefore, both EG and CG showed significant improvements from Pre-Test to Post-Test. The EG had a larger effect size, suggesting that the intervention may have had a stronger impact compared to the control condition. The differences among the EG mean scores for the pre-test, post-test, and post-test indicate the trajectory of improvement in students' writing skills.

Finding 1: Benefits of using ChatGPT:

Students reported several key benefits of using ChatGPT, including idea generation, access to relevant information, vocabulary and idiomatic expansion, and the

development of critical thinking skills. For instance, in response to the essay topic “*Beauty is Everywhere*,” one student reflected:

“Often with tasks like this, I find it hard to get started. I spent a long time wondering what would be best to write about because there were too many options. I asked ChatGPT, which provided me with an outline covering nature, humans, and the arts. I found the natural world the most beautiful and decided to write about that” (S1).

Generating ideas and structuring an essay are often the initial challenges students face in academic writing. When students struggle with where to begin, ChatGPT serves as a guide, helping them formulate and articulate ideas, thoughts, claims, and arguments. By offering multiple options, ChatGPT enables students to select a familiar area upon which to develop their ideas. This process helps them organize their thoughts and maintain focus on a single topic, ultimately increasing engagement, motivation, and ownership of their learning.

Once ideas are formed, students require supporting information. For example, one student asked ChatGPT for details on nature and received relevant information instantly:

“Several points were given about nature: the natural wonders of the world, biodiversity, and the changing seasons. These ideas stood out and inspired me to incorporate my own examples to illustrate the points” (S2).

Another student, writing about the topic of heroes, chose Mao Zedong, the founder of the People’s Republic of China, and asked ChatGPT for more information:

“Apart from the opening paragraph, ChatGPT provided details on his extraordinary courage and wisdom during challenging times, his strategies, philosophies, and impact. It would take me ages to find this information in the library, and ChatGPT provided it much faster and with broader knowledge than a Google search” (S3).

With the information needed in hand, students reported feeling more confident in their writing and continued to exemplify the ideas with their own experiences and understandings. As a student noted “*The way I obtained information from ChatGPT saved my time and sped up my writing process*” (S4). Students appreciated the way to get information from ChatGPT as a strong impetus. For students who typically spend hours in the library searching for materials, ChatGPT offered a valuable alternative. A student doing a joint degree in history and modern languages shared: “*Normally, I spend an entire morning or even a whole day in the library looking for sources. With ChatGPT, I can obtain the necessary information swiftly. Now, I don’t have to physically go to the library, searching from one bookshelf to another*” (S5). This student clarified that she did not use ChatGPT to generate entire essays but rather as a research tool, asking specific questions to quickly access relevant

information. Another student echoed this sentiment, *“Initially, my mind was blank. I knew Mao was a great historical figure, but I needed precise details about what he did and when. With ChatGPT’s information, I only need to double-check facts and identify areas that required further exploration”* (S6). With the necessary information obtained, students could focus on structuring their ideas, ensuring logical flow and coherence, and ultimately enhancing the quality of their essays.

Another benefit that students reported is expanding vocabulary and idiomatic expressions. Mastering vocabulary and idiomatic expressions is crucial for effective written communication. However, students often struggle with the semantic complexity, multiple meanings, and cultural references of idioms and phrasal verbs. One student reflected:

“I knew what I wanted to say, but I had limited vocabulary to express myself. I asked ChatGPT about the topic of beauty, and it immediately provided 25 idioms related to different aspects of beauty in life. It was so helpful. The tool also suggested advanced sentence structures and vocabulary I might not have thought of, enhancing the overall richness of my essay” (S7).

Similarly, another student noted:

“ChatGPT boosted the quality of my essay by listing several idioms relevant to my topic” (S8).

Choosing the right words and idioms can be particularly daunting for language learners due to their arbitrary nature and the lack of direct translations in other languages. Students appreciated ChatGPT’s ability to suggest customized vocabulary and idioms that suited their specific writing needs.

Beyond generating ideas and providing content, ChatGPT also played a role in fostering critical thinking skills. With abundant information at their disposal, students need to critically select, refine, and develop their arguments. While ChatGPT alleviated anxiety by providing relevant material, students still needed to evaluate its usefulness to craft a compelling essay. As one student reflected:

“ChatGPT acted as a supportive guide, enhancing my confidence and efficiency in crafting a thoughtful, engaging essay” (S1).

The process of selecting information, vocabulary, and idioms required students to make deliberate decisions about what to include, how to explain key points, and which evidence to use for support. One student explained, *“ChatGPT not only provided information I didn’t know before, but it also encouraged me to analyse the topic from multiple perspectives”* (S4). Another student observed that while ChatGPT’s responses were somewhat generic, they motivated her to conduct further research and refine her writing strategies: *“Although the information ChatGPT provided was broad, it pushed me to explore my topic in more depth and learn additional writing techniques”* (S5). By selecting and adapting ChatGPT’s

suggestions, students explored creative angles they might not have considered otherwise, further strengthening their critical thinking skills.

Finding 2: Limitations of using ChatGPT:

While students appreciate the benefits of ChatGPT, they also encounter several limitations, including information overload, mechanical responses and lack of cultural nuances, and occasional inaccuracies. Some students admitted that the information provided was *"too much to digest,"* responses were too broad, the tone felt mechanical, and at times, the content was inaccurate.

Over-loaded information: The most obvious limitation that students reported was information overload. Although ChatGPT provides valuable information, students often find it overwhelming, with excessive detail, sophisticated language, and poetic expressions. As one student reflected:

"I know beauty is everywhere, but which aspects should I comment on, so I asked ChatGPT (screenshot 1)"

ChatGPT 4o ▾

Share

美无处不在

美，是一种感受，也是一种发现。有人认为美存在于壮丽的山川、耀眼的花朵或精致的艺术品中，而实际上，美不仅限于这些显而易见的地方，它隐藏在生活的每一个角落，只要我们用心观察，美无处不在。

自然界是美的最佳体现。当清晨的第一缕阳光洒在湖面上，波光粼粼，那是一种宁静的美；当秋风吹拂，金黄色的落叶在空中盘旋，那是季节变换的美；即使是暴风雨中，闪电划破夜空，雷声震撼心灵，也是一种壮丽的美。大自然以它独特的方式，向我们展示了无穷无尽的美。

Figure 1 Screenshot 1

"This is too poetic. More than half of the words are new to me. I cannot understand it, let alone use it. So, I refined my prompt".

plz use HSK4 vocabulary, not too poetic



美无处不在

美，是生活中常见的现象，只要用心去看，就会发现美无处不在。它可以出现在大自然中，也可以出现在人和人之间，还可以在平凡的小事里找到。

Figure 2 Screenshot 2

"This is much better. It tells me to find beauty in nature, in people and in everyday life. From here, I can develop my essay based on my own understanding and examples".

To navigate this challenge, students must refine their prompts or ask follow-up questions. ChatGPT can assist by restructuring texts to enhance readability and coherence, but students must actively shape the responses to suit their needs.

Another limitation students noted was that ChatGPT-generated responses were mechanical and lack of cultural nuances. For example, a student found that the suggestions provided by ChatGPT on the topic of *The Person I Respect Most* were overly broad, failing to capture the depth of the student's intended expression:



我最尊敬的人

我最尊敬的人是我的母亲。她是一个非常勤劳、有责任心的人，总是为了家庭努力工作。无论遇到什么困难，她都会保持乐观，用自己的行动鼓励我们。

Figure 3 Screenshot 3

"The adjectives used to describe Mom are 'hardworking 勤劳', 'responsible 有责任心', 'optimistic 乐观', 'encouraging 鼓励', are too generic. They could apply to anyone, so I must add specific examples to illustrate my points".

To address the mechanical responses, students need to provide more precise instructions and integrate their own examples to support their arguments. As one student explained,

"ChatGPT gave me a long list including natural beauty, inner beauty, and physical beauty. However, all were too mechanical, and I couldn't relate them to my everyday life. I used my own knowledge and experiences to focus on inner beauty, allowing for a more nuanced and personal approach in my essay." (S7)

Moreover, ChatGPT sometimes generates superficial responses that lack supporting evidence, which can discourage students from deeper exploration. As one student pointed out, *"ChatGPT tells me to find beauty everywhere, but its responses are just abstract ideas. Nothing is concrete or tied to real-life experiences. It doesn't provide moving or touching stories like the ones in my real life"* (S9). Students noted that ChatGPT lacks the cultural sensitivity and nuances necessary for effective language learning. Its responses often feel formulaic or robotic, missing the depth of cultural expressions.

Another challenge students faced was the occasional inaccuracy in ChatGPT's responses. These inaccuracies can be misleading. For instance, when one student asked ChatGPT about where to find beauty, the response included: *"... a good sentence in a book, a sunset on your way home ... are the beauty of (小确幸-- a little joy in life)"*.

美还可以出现在日常的小事情中。早餐桌上的一碗热粥，书本里的一段好句子，或者下班路上一片金色的夕阳，都是生活中的小确幸。只要我们保持一颗善于发现的心，就能在每一天找到这些简单的快乐。

Figure 4 Screenshot 4

“小确幸 is not a standard expression in Mandarin Chinese. I need to distinguish between 小确幸 (a small happiness) and 小庆幸 (a small sense of relief), to use the correct term” (S13).

“ChatGPT helped me find several quotes to support my arguments. However, some were slightly inaccurate or paraphrased, so I had to verify them before including them in my essay” (S8).

These examples emphasize the importance of critical thinking and cross-referencing AI-generated content with reliable sources. While ChatGPT can assist in academic writing, it cannot replace thorough fact-checking and independent analysis.

Despite its many advantages, ChatGPT has several limitations that students must navigate. To overcome these limitations, students need to actively refine their prompts, supplement AI-generated content with personal insights, and critically evaluate the accuracy of its outputs.

Finding 3: Student perceptions of using or not using ChatGPT

Students from both the EG and the CG expressed generally positive attitudes towards the use of ChatGPT. While EG students actively used the tool for both practice and assessment, CG students reported using it more cautiously—primarily for practice or brainstorming—due to concerns about plagiarism, overreliance, or a desire to maintain independent thought.

Students who used ChatGPT described the experience as enriching, particularly in improving writing efficiency. *“AI tools helped me structure my ideas and organise my thoughts, ensuring clarity and coherence throughout the writing process” (S1).*

“ChatGPT provides me with additional perspectives to consider and gives me insights into what points I need to strengthen. With more angles around the topic, I can choose which to use to expand and add my own experience to illustrate the point. However, AI did have its limitations, and it certainly did not replace the skills necessary to create effective communication. I very much enjoyed using AI and will continue to use it selectively in my studies” (S10).

The partnership with ChatGPT can be rewarding, as it offers perspectives that students might never thought of or considered. When asked about their views on the

speed, brainstorming and corrections offered by ChatGPT, students responded, *“When I asked it help me generate ideas, ChatGPT immediately told me to write it from three perspectives, as if a lecturer is available next to you who knows all the answers”* (S12). *“It is actually better than a native speaker language partner in terms of the amount of information it provided”* (S13). Most students seemed to be happy about how the information that ChatGPT provided that focused information on the given topic, *“When you ask for information, you can get it, or more than what you need. This saved my searching time to get ideas and information”* (S14). *“This was my first time using it and I think it is a useful tool. With ChatGPT, I can immediately have several points to start with. I enjoy using it”*. (S15).

When asked students in the CG who avoided using ChatGPT or used it just a little bit were concerned mainly to avoid plagiarism, not to be controlled by it or not to limit their own thoughts. *“I wrote my essay plan without the help of ChatGPT as I believed it would have limited me or influenced me to write without thinking independently. I tried to limit my use of AI as I did not want to run a risk of plagiarism”* (S16). *“ChatGPT does not understand my commands, for example, I asked it to reduce my work to within the word count and instead it made too many modifications to my writing, so I did this independently”* (S17).

Finding 4: Students’ suggestions

Integrate ChatGPT into the curriculum

Considering both the advantages and limitations of ChatGPT, students strongly advocated its inclusion in the language learning curriculum. They proposed structured training and clear guidelines to help students develop the digital literacy skills necessary for responsible and effective use. *“I would recommend all language students utilize AI for assistance in generating ideas and checking linguistic aspects, because it helps to improve the richness of essays and learn more new words and idiomatic expressions”* (S13).

Students also suggested that the boundaries of AI use should be explicitly defined by instructors—for instance, specifying what proportion of an assignment may involve AI-generated content, *“If lecturers tell us the percentage, e.g., no more than 30% produced by ChatGPT, we can figure out where to use ChatGPT and where not to prevent us from its overuse”* (S14).

There was also a shared belief that students can use AI ethically when provided with the right support: *“Some of the lecturers do not encourage us to use ChatGPT, and I heard some universities even ban it to avoid plagiarism. I do not think it is necessary. Students are learners. We want to learn. We know what to do and what not to do. It is a tool after all (S17)”*. *“Part of the assignments can be using ChatGPT, with clear instructions about what can be done with it and what not. It is the fourth revolution which will come into our everyday life, anyway, we can’t avoid it”* (S18).

Students suggested that universities should offer digital literacy training, helping learners to better navigate AI tools while developing their writing and critical thinking abilities.

Using it selectively and critically

Students emphasized that while ChatGPT can be extremely helpful, it should be used selectively and with critical thinking. They recommended a step-by-step approach to maximize its usefulness and minimize dependency, *“Jotting down your own ideas first, then give them to ChatGPT, it will refine your work in a structured way.”* *“The key lies in providing precise instructions. The clearer your instructions are, the better results you will get”.*

Students likened the interaction with ChatGPT to a conversation that requires active engagement, *“It is just like you are having a conversation with a friend. It is the interaction that improves the results. The interactive approach can transform a challenging task into a manageable one”.* Students also advised starting with context and goal-setting, *“Start your conversation with background information and tell ChatGPT your language level and what you need”.*

Students cautioned that AI-generated vocabulary and idioms should be understood and verified before being used and supported by further study to guarantee that the meaning is not compromised, and learning is not hindered. Another student suggested *“Starting by having a plan for the overall content, then write a first draft based on your ideas. After completing this draft, you can begin using AI to enhance the content”* (S10).

Students were clear that ChatGPT should not replace their own thinking or creativity. Relying too heavily on AI can hinder students' learning process. Writing is a skill that develops through practice, and using AI without engaging students' own ideas may prevent growth in this area.

Discussion

This intervention-based, mixed-methods study explored the impact of ChatGPT on students' academic writing, drawing on both performance data and learner perceptions. The findings affirm existing research and contribute original insights into the pedagogical affordances and challenges of generative AI in higher education writing contexts.

In answer to the first research question, *“What are the benefits and limitations for students to co-write with ChatGPT in their essay writing?”*, this research confirms that students benefitted from ChatGPT in multiple ways, including generating ideas, obtaining relevant information, expanding vocabulary and idioms, and developing critical thinking skills.

Consistent with previous studies (Guo et al., 2023; Lingard, 2023), students in this study found ChatGPT helpful in brainstorming ideas and establishing initial essay frameworks. Contrary to the findings of Tlili, et al (2023), who reported negative perceptions regarding organization, students here appreciated ChatGPT's ability to simplify complex concepts and connect fragmented thoughts into coherent structures. This aligns with Su et al. (2023), who emphasize ChatGPT's potential to offer context-sensitive structural assistance.

Students also valued ChatGPT as a resource for immediate and broad-ranging information, which helped them deepen topic understanding while saving research time. However, this finding also echoes the concerns of Kasneci et al. (2023), who warned that the sheer volume and availability of AI-generated content could challenge students' ability to critically evaluate sources. Thus, ChatGPT should be positioned as a starting point, not an endpoint. Students must be trained to evaluate the relevance, accuracy, and depth of AI-provided content—an opportunity to explicitly foster critical literacy skills.

Findings further support the work of Wang and Guo (2023) and Yan (2023), who found that ChatGPT helps language learners diversify their vocabulary and refine coherence through appropriate transitions and idiomatic usage. In this study, students reported increased writing fluency, confidence, and enjoyment because of having access to more advanced and idiomatic expressions.

This study also supports Guo and Lee (2023) and Deng and Yu (2023), who found that AI-facilitated writing encourages critical engagement. Students in the present study refined prompts, selected relevant information, and restructured ideas—practices that stimulated analytical and reflective thinking. ChatGPT, when used interactively, allowed students to apply and develop problem-solving, synthesizing, and evaluating skills across writing stages.

Students also encountered information overload, mechanical language, lack of cultural nuance, and inaccuracies, confirming concerns raised in the literature. Excessive detail and poetic language in initial outputs made some responses difficult to interpret or use effectively. Students recognized that prompt specificity plays a key role in refining results. Training students in iterative prompting strategies could significantly improve their ability to filter and personalize AI output.

Some students noted that ChatGPT lacked emotional depth and cultural sensitivity. Responses often followed generic templates, particularly in evaluative or personal writing, where rhetorical nuance and cultural context are crucial. Martínez and Pérez (2021) suggest pairing AI tools with supplementary materials, such as cultural anecdotes or multimedia, to deepen learners' understanding of idioms and figurative language.

Barrot (2023b) similarly observed that ChatGPT-generated texts often lack voice, rhetorical flexibility, and experiential grounding—elements essential for authentic

human expression. Instructors can respond to these limitations by affirming students' unique perspectives, helping them to recognize the value of their own knowledge, voice, and lived experiences. ChatGPT, still requires extensive oversight and prompting to ensure the posts are focused, effective, and responsibly representative of the organization. Also, vocabulary and idioms often carry cultural connotations that are challenging for language learners to grasp. Perhaps AI tools need to use supplementary materials, such as video clips or cultural anecdotes, to help learners understand the origins and proper usage of these expressions. This contextual enrichment fosters a deeper appreciation for the language (Martínez & Pérez, 2021).

OpenAI acknowledges the tendency for tools to respond with answers that sound reasonable but are wrong, including explaining a topic inaccurately, a problem that has been deemed difficult to fix. AI can produce models of language not experiential knowledge. They are not designed to be scholarly – to check academic references and ensure that evidence is grounded in fact. In human terms, they are essentially inexperienced, unthinking and amoral. They have no ability to reflect on what they have written, to judge whether it is accurate and decent (Sharples, 2022). The finding of inaccuracy appears to contradict Alafnan et al.'s (2023) study which claimed that ChatGPT could provide accurate and reliable instructional contents and support their application of the target knowledge in communication and writing. In this study, students reported numerous cases that responses that ChatGPT provided were not accurate. Furthermore, students also encountered fabricated information, and such issue can be problematic for students who rely on ChatGPT to inform their learning.

Future researchers may delve into the exact effectiveness of these strategies to apply these strategies to ChatGPT-assisted learning. A possible solution to inaccuracy could be to double check with another AI tool, as a student suggested, *“I used Pleco along with ChatGPT, as it allowed me to make the writing more personal, as well as consolidate knowledge of new vocabulary and grammar points”* (S8). Considering the importance of using the right information to support students' academic essays, the limitations of ChatGPT at current stage deserved particular attention. Language instructors and students could be mindful of these limitations when implementing ChatGPT-based language learning, and this echoes Zhang, Zou and Cheng (2023) with application to their teaching strategies.

In response to the second research question—*“How do students perceive the AI-assisted learning experience, and what improvements do they suggest?”*—findings indicate overwhelmingly positive perceptions, with nuanced understandings of how and when to use ChatGPT. Both EG and CG students viewed ChatGPT as a supportive writing companion, though CG students tended to use it for brainstorming or practice only, to avoid potential plagiarism. These findings align with previous research on student attitudes toward AI-assisted writing (Yan, 2023). Students' positive perception was evident in students' achievements in terms of generation of focused ideas, better connection among ideas and sentences, enlarged vocabulary

and idioms, which were also claimed by previous researchers (Su et al., 2023; Wang & Guo, 2023).

Conclusion and future directions

This study has investigated the function of ChatGPT in students' academic writing. The study results illustrate that ChatGPT positively influences how students seek relevant information, how they revise their prompts, how they further explore with other AI tools, and how they make improvements in their academic writing. It enables students to broaden their vision on academic writing, develops their critical judgements, and facilitates their integrating skills of combining their imagination and the available resources. Methodologically, using students' reflective accounts is a highlight of the research design for conducting educational experiments, as students can offer detailed description of their thoughts during the writing process. This method can be a significant addition to the application of ChatGPT in academic writing literature. Language instructors and students can put efforts together to explore and research how AI can be better used in teaching and learning of language in general and in essay writing in particular. Student-AI co-writing could be helpful for language instructors to develop pedagogy and for students to develop AI skills which will be useful for their future careers. Further research can work on what kind of prompts can integrate human insights, experience and expertise to create supportive, inclusive, and effective learning environments.

References

- Alafnan, M., Dishari, D., and Jovic, M., and Lomidze, K. (2023). ChatGPT as an educational tool: opportunities, challenges, and recommendations for communication, business writing, and composition courses. *Journal of Artificial Intelligence and Technology*, 3(2), 60-68. DOI: 10.37965/jait.2023.0184
- Alharbi, W. (2023). AI in the foreign language classroom: A pedagogical overview of automated writing assistance tools. *Education Research International*. <https://doi.org/10.1155/2023/4253331>, 2023.
- Baskara, R., Mukarto, M. (2023). Exploring the Implications of ChatGPT for Language Learning in Higher Education. *Indonesian Journal of English Language Teaching and Applied Linguistics*, 7(2), 343358.
- Baidoo-Anu, D., & Ansah, L. O. (2023). Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning. *Journal of AI*, 7(1), 52–62. <https://dergipark.org.tr/en/pub/jai/issue/77844/1337500>.
- Barrot, J. S. (2023a). ChatGPT as a Language Learning Tool: An Emerging Technology Report, *Technology, Knowledge and Learning*, <https://doi.org/10.1007/s10758-023-09711-4>.

- Barrot, J. S. (2023b). Using ChatGPT for second language writing: Pitfalls and potentials. *Assessing Writing*, 57, 100745. <https://doi.org/10.1016/j.asw.2023.100745>
- Bonner, E., Lege, R., & Frazier, E. (2023). Large language model-based artificial intelligence in the language classroom: Practical ideas for teaching. *Teaching English with Technology*, 23(1), 23–41. <https://doi.org/10.56297/BKAM1691/WIEO1749>.
- Bedington, A., Halcomb, E. F., McKee, H. A., Sargent, T., & Smith, A. (2024). Writing with generative AI and human-machine teaming: Insights and recommendations from faculty and students. *Computers and Composition*, 71, 102833. <https://doi.org/10.1016/j.compcom.2024.102833>
- Deng, X., & Yu, Z. (2023). A meta-analysis and systematic review of the effect of chatbot technology use in sustainable education. *Sustainability*, 15(4), 2940. <https://doi.org/10.3390/su15042940>.
- Fitria, T. N. (2023). Augmented Reality (AR) and Virtual Reality (VR) Technology in Education: Media of Teaching and Learning: A Review. *International Journal of Computer and Information System (IJCIS)*, 4(1), 14–25. <https://doi.org/10.29040/ijcis.v4i1.102>
- George, A. S., & George, A. H. (2023). A Review of ChatGPT AI's Impact on Several Business Sectors. *Partners Universal International Innovation Journal*, 1(1), 9–23.
- Guo, Y., & Lee, D. (2023). Leveraging ChatGPT for enhancing critical thinking skills. *Journal of Chemical Education*, 12, 4876–4883. <https://doi.org/10.1021/acs.jchemed.3c00505>.
- Guo, K., Wang, J., & Chu, S. K. W. (2022). Using chatbots to scaffold EFL students' argumentative writing. *Assessing Writing*, 54, 100666. <https://doi.org/10.1016/j.asw.2022.100666>.
- Halaweh, M. (2023). ChatGPT in education: Strategies for responsible implementation. *Contemporary Educational Technology*, 15(2), p421. <https://doi.org/10.30935/cedtech/1303>
- Han, J., Yoo, H., Kim, Y., Myung, J., Kim, M., Lim, H., Kim, J., Lee, T., Hong, H., Ahn, S., & Oh, A. (2023). RECIPE: How to Integrate ChatGPT into EFL writing education. arXiv:2305.11583. <https://doi.org/10.48550/arXiv.2305.11583>.
- Hsiao, J. C., & Chang, J. S. (2023). Enhancing EFL reading and writing through AI-powered tools: Design, implementation, and evaluation of an online course. *Interactive Learning Environments*, 1–16. <https://doi.org/10.1080/10494820.2023.2207187>.
- Huang, W., Hew, K., & Fryer, L. (2022). Chatbots for language learning—Are they really useful? A systematic review of chatbot-supported language learning. *Journal of Computer Assisted Learning*, 38(1), 237–257.

- Imran, M., & Almusharraf, N. (2023). Analysing the role of ChatGPT as a writing assistant at higher education level: A systematic review of the literature. *Contemporary Educational Technology, 15*(4), ep464. <https://doi.org/10.30935/cedtech/13605> .
- Kasneci, E., Seßler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., ... Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences, 103*, Article 102274. <https://doi.org/10.1016/j.lindif.2023.102274>
- Kohnke, L., Moorhouse, B. L., & Zou, D. (2023). ChatGPT for language learning and teaching. *RELC Journal*. <https://doi.org/10.1177/003368822311628>.
- Lee, D., Kim, H.-H. & Sung, S.-H. (2023). Development research on an AI English learning support system to facilitate learner-generated-context-based learning. *Educational Technology Research and Development, 71*, 629–666. <https://doi.org/10.1007/s11423-022-10172-2>.
- Lingard, L. (2023). Writing with ChatGPT: An illustration of its capacity, limitations & implications for academic writers. *Perspectives on Medical Education, 12*(1), 261–270. <https://doi.org/10.5334/pme.1072>
- Lo, S. (2023). Neural machine translation in EFL classrooms: Learners' vocabulary improvement, immediate vocabulary retention and delayed vocabulary retention. *Computer Assisted Language Learning*, <https://doi.org/10.1080/09588221.2023.2207603>.
- Martínez, R., & García, P. (2021). The role of culture in teaching English idioms. *Journal of Applied Linguistics, 29*(1), 22–39.
- McDonagh, L., and Sanders, E. C. (2024). 'You almost feel like you've got a friend, somebody who's backing you up': exploring the building blocks of trust within a relational pedagogy approach to academic development. *International Journal for Academic Development, 1-13*. <http://orcid.org/0009-0008-6494-4795>.
- Mills, N., Hok, H., Dressen, A., and Veillas, Q. (2024). The design and evaluation of an interactiveAI companion for foreign language writing. *ACTFL, 1-30*. DOI: 10.1111/flan.12790.
- Mollick, E.R., & Mollick, L. (2023). Assigning AI: Seven approaches for students with prompts. *The WhartonSchool Research Paper*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4475995
- Ohio University. (2023). ChatGPT and teaching and learning. <https://www.ohio.edu/center-teaching-learning/resources/chatgpt>.
- Sharples, M. (2022). Automated essay writing: an AIED opinion. *International Journal of Artificial Intelligence in Education, 32*:1119–1126. <https://doi.org/10.1007/s40593-022-00300-7>.

Steiss, J., Tate, T. P., Graham, S., Cruz, J., Hebert, M., Wang, J., Moon, Y., Tseng, W., Warschauer, M., & Olson, C. (2024). Comparing the quality of human and ChatGPT feedback on students' writing. *Learning and Instruction*.

<https://doi.org/10.1016/j.learninstruc.2024.101894>

Su, Y., Lin, Y., & Lai, C. (2023). Collaborating with ChatGPT in argumentative writing classrooms. *Assessing Writing*, 57, 100752.

<https://doi.org/10.1016/j.asw.2023.100752>.

Tai, A. M. Y., Meyer, M., Varidel, M., Prodan, A., Vogel, M., Iorfno, F., & Krausz, R. M. (2023). Exploring the potential and limitations of ChatGPT for academic peer-reviewed writing: Addressing linguistic injustice and ethical concerns. *Journal of Academic Language and Learning*, 17(1), T16–T30.

Tlili, A., Shehata, B., Adarkwah, M. A., Bozkurt, A., Hickey, D. T., Huang, R., & Agyemang, B. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart Learning Environments*, 10(1), 101186.

<https://doi.org/10.1186/s40561-023-00237-x>

Wang, M., & Guo, W. (2023). The potential impact of ChatGPT on education: Using history as a rearview mirror. *ECNU Review Education*.

<https://doi.org/10.1177/20965311231189826>.

Yan, D. (2023). Impact of ChatGPT on learners in a L2 writing practicum: An exploratory investigation. *Education and Information Technologies*, 28, 1–25.

<https://doi.org/10.1007/s10639-023-11742-4>.

Zhang, R., Zou, D., and Cheng, G. (2025). ChatGPT affordance for logic learning strategies and its usefulness for developing knowledge and quality of logic in English argumentative writing, *System*, 128, 1-29.

KEYNOTE ARTICLE 4

TECHNOLOGY AND 21ST CENTURY SKILLS IN THE EFL

CLASSROOM:

THE NEXUS

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Technology in the English as a Foreign Language (EFL) classroom has limitless potential, yet it can also limit. Over the past few decades, a variety of educational technologies (EdTs) have been both celebrated and criticized. The integration of Information Communication Technologies (ICTs) has played a significant role in the shift towards infusing 21st century skills in language teaching. However, the connections between EdTech and 21st century skills in the EFL classroom, whether synchronous or asynchronous, have not been fully explored. This theoretical research paper aims to examine this intersection in-depth, defining the underlying constructs that unite technology and digital age competencies in teaching English as a foreign language. The paper sheds light on the overlapping interactions between communication, collaboration, creative thinking, problem-solving, metacognition, digital literacy, and the incorporation of ICTs in EFL instruction. By analyzing previous literature, the paper takes a step toward addressing the latent challenges of blending these skills and technology in the classroom and presents teaching methods for exploiting it in the classroom.

Introduction

Technology has much to offer to learners and educators in the EFL classroom. Against the backdrop, this treasure trove, fueled by the fourth wave of the industrial revolution, has altered the approach to English language teaching. ICTs, which are exploratory in nature, have gone above and beyond in warding off what is now an obsolete model of EFL teaching by infusing transferable skills. These 21st century competencies underlie the call for pedagogical change towards student-centeredness and further

implementation of tech resources across subjects. However, the scope of this paper doesn't go beyond the EFL landscape. Shoffner, De Oliveira and Angus (2010) hold that today's English classroom requires an extended understanding and enactment of literacies in the face of rising technologies. This mirrors the awareness that 21st century EFL teaching has been moving away from the emphasis on reading and writing. Literacies and ICTs are equally significant in the EFL classroom and the liaison between both components makes up the bulk of this paper. Specifically, this article addresses the following questions:

- What are the latest trends relating to ICT dynamics in the EFL instruction?
- What are the main 21st century skills covered in the EFL classroom?
- How do ICTs and 21st century competencies interplay in the EFL classroom?
- What classroom activities use ICTs to improve student's abilities in English language learning?

1. The incorporation of ICT in the EFL classroom

Virtual reality, gamification, podcasts, learning analytics, cloud computing, artificial intelligence and multi-modal big data are being embraced and continue to permeate today's teaching and learning of EFL, though to varying extents. Veletsianos (2010) describes these technologies as "tools, concepts, innovations, and advancements utilized in diverse educational settings to serve varied education-related purposes" (p.3). In the light of this definition, educational technologies may come in handy in different circumstances especially when teachers face the onerous task of lesson planning. Much ink has been spilled on the embedding of these technologies in the EFL classroom to optimize learners' ability to learn (Alkamel & Chouthaiwale, 2018; Chahal, 2021; Chien-Yuan & Cheng-Huan, 2022; Sudibyo, 2022). Smart learning environments, new learning approaches and instructional paradigms are, to a great extent, the byproduct of the emerging educational technologies. These environments are called smart, if and only if, they meet a set of characteristics. Unless they are "*effective, efficient, scalable, autonomous, engaging, flexible, adaptive, personalized, conversational, reflective, innovative and self-organizing*" (Kaimara et al., 2021, p.1) these environments can fall into disrepute and fail to account for successful learning. Such smartness is the bedrock wherein the current learning of EFL takes place. It is a constant driving force to competitiveness among the teaching communities. A smart

teacher is one who is able to create a smart environment whereby learners are encouraged to immerse themselves with innovative learning scenarios i.e. a seamless learning experience. Simply stated, the omnipresent teaching resources in a smart learning environment give students a leeway to be in control of any learning tasks and to learn at their own pace and choice (Hwang, 2014). A large body of research has also argued at length that a smart learning environment can foster learning motivation, ward off passive learning, ameliorate academic performance and promote higher-order thinking skills (Jena, 2013; Lu et al., 2021). Aspects of applying technology to the EFL setting reside with flipped learning, blended learning, gamification, digital storytelling, chatbots, mobile-assisted language learning (MALL) and all the other various applications and affordances of CALL, to mention a few.

2. Materials and Methods

2.1 Key Concepts

It is challenging to navigate the 21st century skills due to continuous advances in educational technology. They mean different things to different educators depending on the learning-teaching context. A common ground for these skills is that they are in tune with the requirements of our times and the needs of this digital epoch's learners. As a response to the mounting technology tidal wave, these competencies shape the new learning experiences and put strains on the traditional approaches to language teaching in a foreign context. The main categories that fall into the scope of this paper are: learning skills and digital literacy skills.

2.2 The four Cs

The four learning skills are creativity, collaboration, communication and critical thinking otherwise referred to as problem-solving and metacognition skills. To better frame a definition of creativity, it is fundamental to consider different perspectives. It has to do with the qualities that the teacher has to bring to the class or what Richards (2013) refers to as *“the ability to bring a creative disposition to teaching”* (p.1). Creativity means the multiple ways, tools, materials and practices that engage learners with their learning. Creative teaching puts to the test the learners' motivation and self-esteem and provides them with the appropriate skills. In other terms, increased creativity in the EFL classroom has its impact on the overall achievement level. Fisher (2004) maintains that apart from the improved performance, creative activity can renew the interests of students when they were emotionally detached by allowing them to solve

problems in original ways and to make connections between things. This activity can also hearten teachers, who may be disengaged, feeling limited and controlled, by giving them a leeway to think outside the box.

Furthermore, it is incumbent on the EFL teacher to keep up with the pace and demands of 21st century skills. Collaboration is one such skill that adds a totally different meaning to the peer-to-peer or student-teacher interactions. Garris et al (2018) suggest that there are various forms whereby Collaborative Learning (CL) can be implemented in the ELT class. CL models and techniques include but are not limited to jigsaw classroom activities, role-playing, roundtable discussion and think-pair-share. Only through an appropriate instructional design can the collaboration skill be put into practice. Collaboration and collaborative learning are two terms that have long permeated the literature on ELT and EFL (Smith & MacGregor, 1992; Vali, 2023). It has taken many shapes to the point of receiving a pedestal position in the EFL classroom. This is a justified place given the amount of support it brings to the teaching and learning process. To borrow from Smith & MacGregor (1992), collaborative learning encompasses bringing together a focal blend of intellectual capacities to deal with a problem. Apart from displaying the hidden recesses of these thinking minds, collaborating means “*mutual engagement in a common endeavor*” (p.12). Not only a better understanding happens but also new explorations, meaning-makings and ways around come into play. By placing the learners in collaborative situations, the teachers become facilitators rather than dominators, moderators rather than sole owners of knowledge. This is not to undermine the role of the teacher but to tap into diverse classroom interactions that are equally decisive in the success of the learning cycle. What is worth highlighting is that the discussion of collaboration in education draws on constructivism. Its major tenets hail from the ideas of Dewey (1938), Piaget (1964) and Vygotsky (1978) putting the learner at the center of meaning construction and knowledge acquisition process. It is only through experiences and interactions that the learners come to build an understanding of the world around them. This resonates well with Vygotsky (1978)' s Zone of proximal development (ZPD) which holds considerable importance in collaborative learning. It is defined as “*the distance between the actual developmental level (of the learner) as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers*” (Vygotsky,

1978, p. 86). Two main notions stand out in ZPD: the potential development of the learner and the contribution of collaboration to the learning process.

Communication skills are of no less value in the EFL class. This communicative ability is an indispensable and propelling force to language proficiency. Communicating accounts for the back and forth, the exchange of meaning and error correction either directly or indirectly through received feedback. Engaging in real communication with their teachers and their peers, students can go above and beyond in expressing themselves and bringing new perspectives to the classroom narrative. As a skill, communication in all its forms linguistic, verbal and non-verbal provides a playground for the EFL teachers to motivate the learners and the learners to interact positively in a way to enhance their language intake. Project-based tasks and activities are blueprints that display the frame perfectly for learners of English in a foreign context where they are offered space to speak their minds and share their perspectives while learning about new topics or tapping into prior knowledge. Turning to Swain's view (Swain, 1995), tasks in the projects are equal to the authentic use of language taught to learners. Language acquisition relies heavily on this exposure to authenticity. By being exposed to the authentic use of English, the learners embark on a new journey of learning about their metacognitive skills and, in turn, take their critical thinking abilities to another level. Critical thinking goes beyond the mere recall and retrieval of information to target analysis, evaluation, inference, explanation, and self-regulation.

2.3 digital literacy skills

This category includes Information literacy, media literacy, information and communication technologies (ICT) literacy. To separate the wheat from the chaff may be difficult, yet, it is of paramount importance in this digital era's ceaseless barrage of information. Nevertheless, adequate digital literacy skills can assist instructors and students in overcoming this overwhelming and daunting task.

2.4 21st century skills movement

This movement came to the fore as a way to rethink pedagogy for the twenty-first century. It emerged as an answer to the demands for the school of the future that takes into account the renewal and advocacy of more pronounced competences and pedagogies in education as a societal need. The call for a change brought together educators in general and EFL teachers in particular in joining the movement through an overhaul of their practices and dynamics. They, to borrow from Rotherham &

Willingham (2009), *“must ensure that content is not shortchanged for an ephemeral pursuit of skills”* (p.3). This is due to the fact that skills like creativity, critical thinking, collaboration and communication are not novel. They have been there as long as pedagogy existed. The novelty lies in the approach and tools that are available to infuse the necessary skills. Scott (2015) outlines an overall vision of the twenty-first century pedagogy that is characterised by a renewed focus on quality, prioritisation of interactivity and collaboration, personalised learning, emphasis on problem-based learning, motivation and creativity. As for the tools, strategic questioning, ICTs, social media and authentic materials are focal in teaching metacognitive skills, minimising the digital divide, placing the learner at the centre and redefining the teacher’s roles and functions. It is safe to assume that the role of teachers is to tame these tools that provide streams of information to serve the building of the 21st century, hence the interface of ICT tools and competencies in the EFL classroom.

3. The Intersection of Technology and 21st Century Skills in the EFL Classroom

Technology, since its inception in the classroom decades ago, has kept the EFL teachers standing on their toes for fear of lagging behind and not keeping up with the pace of change. It has become incumbent on the instructors and stakeholders in the EFL arena to take the hint and cater for the needs of 21st century learners. ICTs, as a catalyst for transforming the learning -teaching practice, have propelled the need for equipping the learners with new skills and meeting the requirements of the digital age. In other words, the new changes will carry on making demands on the EFL classroom as time goes by. Ramaila & Molwele (2022) highlight the significance of technology integration in facilitating and promoting the acquisition of 21st century skills. ICTs hold the prospect of tailored and scalable learning and up-for-grabs meta-teaching strategies. On this point, Wong & Li (2011) states that *“ICT was able to act as a lever to bring about changes in student learning in the context of establishing collegiality in fostering pedagogical innovations in schools”* (p.375). In this view, ICT can be harnessed across the curriculum mainly in all areas of English language learning i.e., both productive and receptive skills.

3.1 Technology enhances creativity

In helping their learners improve and promote their creativity, teachers in the EFL classroom turn to diverse educational technologies. In their systematic review of studies on creativity in the technology-enhanced classroom, Kim & Palkar (2022) contend that technology-rich environments are a fountainhead of creativity as they target both general creativity and its sub-constructs. Integrating technologies in designing language learning activities positively affect the learner's creative thinking. Different tools beget different outcomes leading eventually to improved creativity. By way of illustration, web-based tools back up creativity by cultivating students' curiosity and offering them a different lens (Paraskeva et al., 2015; Stolaki & Economides, 2018). Multimedia production software, another educational technology that offers flexible designing tools, sparks the learners' imagination and allows them to take their ideas a step further (Han, 2011; Saorin et al., 2017). Numerous other experimental and quasi-experimental studies reported similar findings (Alkhawalda & Abdulaziz, 2012; Shamri, 2012; Abdelhamid, 2014; Sriwongchalet al., 2015; Alawalmaet al., 2016; Sandro, 2016). Since creativity can only be learnt "*by doing*", divergent learning activities can open up new perspectives through the interaction between the distinguishing attributes of ICT including dynamism, speed, electronic communication and the subconstructs of creativity like inventiveness, originality, imagining, solving problems, effectiveness and inquisitiveness. The interplay of ICT and the subconstructs of creativity is conducive to informed choices viz. the use of a peculiar tool might necessarily lead to the development of a specific feature of ingenuity or creativity (Zeynalova, 2021). Briefly, being creative has promising outcomes in the complex smart environments and digital settings. The Individual Dimension of creativity adds a sense of persistence and belief in one's capacity. The learners feel empowered and ready to exert control over their learning.

3.2 ICTs boost collaboration

Raffore & Monti (2019) explore the potential of interactive Digital Story Telling (DST) in building 21st century skills mainly peer-to-peer collaboration, cooperative learning and creativity. By crafting their own stories and designing characters and settings by dint of a particular software, the learners take part in the learning process and display the ability to fit in with a digital environment. Further, switching the focus from the teacher to the learner means that room is left for engagement, motivation and peer-

to-peer interaction. In short, embedding DST in the EFL classroom foregrounds the interplay between technology and the development of 21st century skills. Based on new technological tools and semiotic forms, DST offers opportunities for the development of language proficiency, creativity and digital literacy skills.

Through a mixed method approach, Vali (2023) measures the effects of technology particularly digital synchronous and asynchronous resources on collaborative learning. In the pursuit of a fine-grained understanding of the interactions amongst the collaborating informants and the technological tool, the researcher digs deeper into their perceptions and observes their patterns of behavior and degree of involvement during the intervention. Based on the independent variable i.e. employing digital resources during collaborative learning, the pedagogical experiment included the use of group blogging, group discussions on the Google Classroom platform and group pages on WhatsApp. These technological tools are peculiar to an online environment and help create a context for collaboration. Conversely, the participants in the control group did not work collaboratively. The teacher's lectures were delivered in synchronous online format, and the students had to solve various tasks independently. In terms of the collaborative activity online, the experimental group outperformed the control group as their scores increased significantly. The use of technology resulted in higher degrees of interaction and engagement. The results were further corroborated by the positive attitudes of the technology group. Notwithstanding these findings, other variables can mediate. It therefore stands to reason that the efficacy of collaborative learning mediated by technology hinges on the comprehension of collective digital experiences that distinguish a specific learning community. Another point worth mentioning is that the premise of educational technologies ties in not only to the shift in paradigm but also to diversity targeting unity. In other words, multiple affordances of technology might beget varied effects. This is also true in the case of measuring other 21st century skills. Communication is a case in point.

3.3 ICT-enhanced Communication

Computer-mediated language learning (CALL) has carved out the traditional aspect of the EFL classroom. It touched on the different skills ranging from basic reading to advanced writing. Communication is no exception. A cornucopia of educational technologies is out there to upgrade communicative skills, which play a pivotal role in mastering a foreign language. Communication is regarded as an umbrella-term that

encapsulates multiple sub-categories such as multimodal communicative competence. Herbele (2010) defines this skill as the knowledge and use of language with regard to the spatial, audio, gestural and visual facets of communication, such as computer mediated-communication (CMC). Not only do multimodal texts and semiotic meanings help learners expand their skills in learning English but also refine the instructional and pedagogical practices of the teachers.

The correlation between computer applications and communicative competence has inspired a line of research within the field of CALL for language acquisition. For instance, Joshi & Modi (2021) explore the reasons why communicative competence lends itself to a special position in language learning and the potential of CALL in stepping up this skill. They contend that for a CALL design to meet the requirements of language learners, it has to encompass functional tasks that directly target communicative purposes. Authenticity of the tasks provides ample opportunities to effectively use the language. To gauge the effects of a researcher-developed CALL material on the ability to communicate clearly, the researchers bring to bear a pre-test and post-test design. The data comprises the scores of thirty (N=30) undergraduate students prior and post the intervention phase. The outcome of the descriptive analysis and t-tests entails that the integration of the CALL tool pushes the boundaries of traditional language teaching by enhancing interactive learning and a more learner-centered approach. Even though the end result seems to endorse the correlation, a number of limitations and challenges might hinder the encounter of CALL and communication. To address these issues, other questions are thrown into the mix including the multiple ways whereby CALL interacts with faculties like the complex thinking skills. The following portion of this paper thrives to give insights into how implementing computer software pieces, AI-powered tools or any of the available affordances of educational technology can trigger cognitive skills and fuel critical thinking.

4 ICT tools trigger HOTS

Higher order thinking skills (HOTS), at the top end of Bloom's cognitive taxonomy, are of overriding importance in designing learning materials for the EFL classroom to ensure that the learners can analyse, evaluate, and play a prominent role in creating knowledge. To maximise the learning of HOTS, teachers use the numerous ICT resources. In this line of thought, Ali (2012) argues that harnessing ICT tools to instruct

the constructs of HOTS, otherwise called critical thinking, yields promising learning outcomes.

A more recent body of research has allocated further attention to the interplay between technology tools and critical thinking skills. Orhan (2024) compares the efficacy of online and face-to-face problem-based learning with critical thinking skills, dispositions, reading comprehension abilities, and perceptions of EFL students. The study harnesses a quasi-experimental design with two experimental groups and one control group. 45 participants were assigned to one control group and two experimental groups. While the informants in the intervention groups received online and face-to-face problem-based learning, the control group maintains the regular instructor-guided reading activities. Among other research instruments, the Watson-Glaser Critical Thinking Test and Sosu Critical Thinking Dispositions Scale were used to measure the effects of the tech-led intervention on the research informants. Paired-samples t-test and ANCOVA with pretest scores as the covariate variable were computed. The findings shed light on the importance of online problem-based instruction in sharpening EFL learners' complex thinking skills. The study foregrounded the outperformance of the first experimental group taught via cutting edge technology not only with regards to the performance of traditionally-instructed participants but also the face-to-face problem-based learning group. This situates online learning as an alternative to conventional approaches or a missing piece in the EFL teaching puzzle. In this sense, CALL tools can serve as '*A knight in shining armor*' to overcome the limitations and bridge the gap between what is time-tested and innovative in the EFL landscape. The olden times of instructing EFL cannot be overlooked as they hold the bedrock whereon new approaches start moving. Transitioning is only possible through enhanced digital literacy that empowers both teachers and learners to thrive.

5 Interplay between ICT and digital literacy

To reiterate, infusing the EFL classroom with 21st century skills is not possible without the assistance of technology. Acquiring digital literacy is a must for both teachers and learners of EFL. In Widona's words this "*digital literacy is the ability to use and create technology-based content, including finding and sharing information, answering questions, and interacting with others and computer programming*" (Widona, 2020 p. 2). This comprehensive definition paints a picture of what goes on inside today's EFL

classroom where teachers, students and technology work in perfect harmony towards achieving the intended learning outcomes. Bruce and Casey (2011) argue that incorporating digital technology in the classroom paves the way for the active participation in society where *“new media practices and technologies are deeply embedded in the processes and structures”* (p.77). In this regard, EFL teaching practice, mediated by technology, should not lag behind and should keep abreast of the recent developments and practices that equip the language learners with the necessary digital skills to face the mounting spread of technology and be wary of any threats.

6. Conclusion

Using technology to build 21st century skills in the EFL classroom is nothing like waving a magic wand. It is all about taming the educational technologies to fit the lesson plan and to bring to light the learning objectives. It is misleading to assume that the skills we discussed are unique to the 21st century since much of the same has been covered at length by philosophers and educators from ancient history. The renewal aspect cannot be stressed enough. It is safer to mention that these abilities have been in high demand one way or another for successful learning in different historical periods. Other competencies including life skills i.e., flexibility and adaptability, initiative and self-direction, social and intercultural interaction, productivity and accountability and leadership and responsibility did not find room in this paper. However, they can open up avenues for further research into the pivotal role of social skills in the transition from classroom language learner to an active language user in society.

References

- Abdelhamid, A., (2014). Effectiveness of teaching models in improving achievement, creative problem-solving skills and attitude towards physics among secondary school students. Ph.D. Dissertation. Institute of Educational Studies, Cairo University.
- Alawalma, E., Hamdy, N., & Asrour, N., (2016). Impact of Right Intelligent System of Knowledge “RISK” program on the development of creative and critical thinking skills among high basic school students in Jordan. *Studies into Educational Sciences*, 43(1): 743-759.

- Alhareshy, S., (2018). Impact of applying gamification of self-learning on achievement and motivation for English among the third intermediate grade students in Riyadh. (MA. Thesis). College of Education, King Saud University, KSA.
- Ali, S. N. (2012). Malaysian Polytechnic lecturers' teaching practices with ICT utilization to promote higher order thinking skills. Graduate theses and dissertations, Paper 12623. Iowa State University
- Alkamel, M.A.A.; Chouthaiwale, S.S. The Use of ICT Tools in English Language Teaching and Learning: A Literature Review. *Veda's J. Engl. Lang. Lit. - JOELL* 2018, 5, 29–33
- Bruce, B. C., & Casey, L. (2011). The practice profile of inquiry: Connecting a digital literacy and pedagogy. *E-learning and digital Media*, 8(1).
<http://dx.doi.org/10.2304/elea.2011.8.1.76>
- Chahal, K. & Patel, M. (2021). Features of learning management systems (LMS) for improving teaching and learning. *Journal of Interdisciplinary Cycle Research*, 13 (11), 192- 206. ISSN NO: 0022-1945.
- Chien-Yuan, S. & Cheng-Huan, C. (2022) Investigating university students' attitude and intention to use a learning management system from a self-determination perspective. *Innovations in Education and Teaching International*, 59(3), 306-315, <https://doi: 10.1080/14703297.2020.183568>
- Dewey, J. (1938) *Experience and Education*. New York: Collier Books.
- Fisher, R. (2004). What is creativity? In R. Fisher & M. Williams (Eds.), *Unlocking creativity: Teaching across the curriculum* (pp. 6-20). New York: Routledge.
- Garris, W. R., Lester, L., Doran, E., Lowery, A., & Weber, A. (2018). iCollaborate or not: Does technology impede collaborative learning among primary grade students? *International Journal of Learning, Teaching and Educational Research*, 17(5), 64–81. <https://doi.org/10.26803/ijlter.17.5.5>
- Han, L. (2011). Design and creativity in the digitized world. *International Journal of Learning*, 17(10). <https://doi.org/10.18848/1447-9494/CGP/v17i10/47306>
- Herbele, V. (2010). Multimodal literacy for teenage EFL students. *Cadernos de Letras*, 27, 101-116. Retrieved from http://www.lettras.ufrj.br/anglo_germanicas/cadernos/numeros/122010/textos/cl30122010viviane.pdf

- Hwang, G. J. (2014). Definition, framework and research issues of smart learning environments—a context-aware ubiquitous learning perspective. *Smart Learning Environments*, 1, 4. <https://doi.org/10.1186/s40561-014-0004-5>
- Jena, P. C. (2013). Effect of smart classroom learning environment on academic achievement of rural high achievers and low achievers in science. *International Letters of Social and Humanistic Sciences*, 3, 1–9.
- Joshi, J., & Modi, V. M. (2021). Evaluating Framework of a CALL Material to Improve Communicative Competence in English. *Towards Excellence*, 97–101. <https://doi.org/10.37867/te130411>
- Kaimara P, Deliyannis I, Oikonomou A, Fokides E. (2021) Waking Up in the Morning (WUIM): A Smart Learning Environment for Students with Learning Difficulties. *Technologies* 9(3),50. <https://doi.org/10.3390/technologies9030050>
- Li, Y.; Kim, M.; Palkar, J. (2022) Using emerging technologies to promote creativity in education: A systematic review. *International Journal of Educational Research* ,3,100177.
- Lu, K., Yang, H. H., Shi, Y., & Wang, X. (2021). Examining the key influencing factors on college students' higher-order thinking skills in the smart classroom environment. *International Journal of Educational Technology in Higher Education*, 18, 1. <https://doi.org/10.1186/s41239-020-00238-7>
- Orhan, A. (2024). Online or in-class problem-based learning: Which one is more effective in enhancing learning outcomes and critical thinking in higher education EFL classroom? *Journal of Computer Assisted Learning*, 40(5), 2351–2368. <https://doi.org/10.1111/jcal.13033>
- Paraskeva, F., Alexiou, A., Koroneou, L., Mysirlaki, S., Geomelou, A., Souki, A., & Chatziiliou, A. (2015). The development of creative thinking through six thinking hats and web 2.0 technologies. *The International Journal of Technologies in Learning*, 22(2), 15–28.
- Piaget, J. (1964). Part I: Cognitive development in children: Piaget development and learning. *Journal Research in Science Teaching*, 2(3), 176–186. doi:10.1002/tea.3660020306
- Raffone, A., & Monti, J. (2019). Becoming storytellers: Improving ESL students' academic engagement and 21st century skills through interactive digital storytelling. 159–166. https://doi.org/10.33965/celda2019_201911I020

- Ramaila,S., & Molwele ,A.J.(2022) The Role of Technology Integration in the Development of 21st Century Skills and Competencies in Life Sciences Teaching and Learning. *International Journal of Higher Education*, 11 (5) 9-17.
<https://doi.org/10.5430/ijhe.v11n5p9>
- Rotherham, A. J., & Willingham, D. (2009) 21st century skills: The challenges ahead. *Educational Leadership*, 67(1), 16-21.
- Saorín, J. L., Melian-Díaz, D., Bonnet, A., Carrera, C. C., Meier, C., & De La TorreCantero, J. (2017). Makerspace teaching-learning environment to enhance creative competence in engineering students. *Thinking Skills and Creativity*, 23, 188–198. <https://doi.org/10.1016/j.tsc.2017.01.004>
- Sandro, S., 2016. The effect of English language learning on creative thinking skills. *Canadian Center of Science and Education*, 10(3): 82-94
- Scott, C. L. (2015). The Futures of Learning 3: What Kind of Pedagogies for the 21st Century. Education Research and Foresight Working Papers, UNESDOC Digital Library
- Shamri, Z. (2012). The effectiveness of conceptual maps strategy in the formation of the technical picture written and the development of creative thinking in the material expression skills of third grade students in Saudi Arabia. *The Islamic University of Educational and Psychological Studies Journal*, 2(20): 275-329.
- Smith, B. L., & MacGregor, J. T. (1992). What is Collaborative learning? In A. S. Goodsell, M. R. Maher, V. Tinto, B. Leigh Smith, & J. MacGregor (Eds.), *Collaborative Learning: A Sourcebook for Higher Education*. <https://files.eric.ed.gov/fulltext/ED357705.pdf>
- Stolaki, A., & Economides, A. A. (2018). The creativity challenge game: An educational intervention for creativity enhancement with the integration of information and communication technologies (ICTs). *Computers & Education*, 123, 195–211. <https://doi.org/10.1016/j.compedu.2018.05.009>
- Sudiby, AG. (2022). The influence of the use of communication technology in long distance learning on student achievement motivation in a pandemic period. *Journal of Positive School Psychology*, 6(6), 5206-5215.
- Swain, M. (1995). Three functions of output in second language learning. In G. Cook and B. Seidlhofer (Eds.), *Principles and Practice in Applied Linguistics* (pp. 125-144). Cambridge: Cambridge University Press.
- Torrance, E.P. (1977). *Creativity in the classroom; What research says to the teacher*.

- Vali, I. (2023). The impact of technology on collaborative learning. *European Proceedings of Educational Sciences*, 5, 126–141. <https://doi.org/10.15405/epes.23045.13>
- Veletsianos, G. (2010). *Emerging Technologies in Distance Education. Theory and Practice*. Edmonton: AU Press. Retrieved May 15, 2013 from http://www.aupress.ca/books/120177/ebook/99Z_Veletsianos_2010-Emerging_Technologies_in_Distance_Education.pdf
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Widana, I. (2020). *The effect of digital literacy on the ability of teachers to develop HOTS-based assessment*. *Journal of Physics: Conference Series*. 1503. 012045. 10.1088/1742-6596/1503/1/012045.
- Wong, E. M. L., & Li, S. C. (2011). Framing ICT implementation in a context of educational change: a structural equation modelling analysis. *Australasian Journal of Educational Technology*, 27(2), 361–379 <https://ajet.org.au/index.php/AJET/article/download/975/249>.
- Zeynalova, N. (2021, October 15-17). *Exploring the Impact of ICT in Student Creativity* [Paper presentation]. World Conference on Education and Teaching, Budapest, Hungary. <https://www.dpublication.com/wp-content/uploads/2021/10/T-707.pdf>

TEACHING TIPS

by Nick Michelioudakis

Teaching Tip 1 HOW MUCH PRAISE IS ENOUGH?

[Psychology for Educators]

What is the right ratio of praise to reprimand? According to Adam Alter (2023 – p. 111), the received wisdom is '*praise students three times more often than you reprimand them*'. The implication is that if you overdo it, you may spoil children. But is this really the case?

Researchers decided to look into this. Over a period of three years, they followed the progress of students in 19 elementary schools in the US. Some teachers were instructed to praise the students as much as they could, while others teachers acted as the control group. As the experiment progressed, it gradually became evident that the whole idea of the 3:1 ratio was completely misguided. In actual fact, students thrived on praise. In some classrooms the ratio was as high as 9:1 and it was those students who did best of all (Caldarella et al, 2020).

But what about the opposite approach? It is well known that in high-stakes sports for instance, certain coaches routinely yell at the players. Could it be that this too might yield positive results? Other researchers looked into that too (Carleton et al., 2016). They looked at the performance of hundreds of players and the styles of 57 coaches over a period of 6 years. Not only did players unlucky enough to have abusive coaches perform worse, these negative effects lingered on – even a decade after they had escaped said coaches.

So, what is the moral for us educators? The takeaway for us is simple: praise – praise – praise. There is no risk you might overdo it. Why is praise so good? In the words of Alter again '*[Praise] licences them [students or athletes] to fail, and to take risks [...] both of which are critical for breakthroughs which follow periods of learning and development*' (Alter 2013 – p. 112).

In actual fact, this is a part of a broader pattern. Other studies have shown that paying people compliments is almost invariably good, that saying nice things about others behind their backs can increase your popularity, that adding smiley emojis on written communication improves its impact, and

that adopting a ‘Polyanna’ attitude of seeing the silver lining in everything that happens can make you happier. So – set your ‘positivity’ remote on max. Then throw it away. 😊

References

[Read: Adam Alter ‘Anatomy of a Breakthrough’ – pp. 111-112]

[Read: Caldarella, P., Larsen, R., Williams, L., Downs, K., Wills, H., Wehby, J. (2020). *Effects of teachers’ praise-to-reprimand ratios on elementary students’ on-task behaviour*. Educational Psychology. 40. 1-17.]

[Read: Carleton, E. L., Barling, J., Christie, A. M., Trivisonno, M., Tulloch, K., & Beauchamp, M. R. (2016). *Scarred for the rest of my career? Career-long effects of abusive leadership on professional athlete aggression and task performance*. Journal of Sport & Exercise Psychology, 38(4), 409–422.]

Teaching Tip 2 THE COACH EFFECT

[Psychology for Educators]

In an elegant study, high-school students were instructed to give tips to younger learners about how to keep themselves motivated and avoid putting things off. Compared to a control group, the students who had acted as coaches got better marks in their report cards on a whole range of subjects (Eskreis-Winkler et al., 2019).

In another study, students were divided into two groups. As was the case with the previous study, one of the groups were told that their task was to coach younger learners in how to stay motivated. The other group instead were themselves given advice by expert teachers. The result was that the former spent more time than the latter on their homework tasks (Eskreis-Winkler et al., 2018).

Why does this happen? As I see it, this can be because of one of the following reasons, or a combination of all of them:

- i) **'Social' learning:** when we instruct others, we absorb the message that we convey even better ourselves, because we activate different parts of the brain (see Matthew Lieberman: 'Social').
- ii) **Self-persuasion:** when others tell us something, we often 'block' the message due to psychological reactance. But there are no such defence mechanisms against something we espouse ourselves.
- iii) **Identity:** humans love consistency; if we tell others to be disciplined and to work hard, we have to act in a similar way ourselves in order to avoid cognitive dissonance.

So, what is the take-away for educators here? Well, we know it is a good idea to get learners to teach each other. Now we can take things a step further: we can encourage learners to coach each other. Notice that this holds even greater potential. When instructing people we simply transmit information or demonstrate to them how to do something. Coaching is more interactive; we have to listen to them and tailor our advice to their particular needs, fostering our own personal growth in the process.

And this is the coach effect in a nutshell. In the words of Adam Grant '*We are more confident in our ability to surmount struggles after guiding others through them.*' (Grant 2023, p. 137).

REFERENCES

[Read: Adam Grant 'Hidden Potential' – pp. 137-138]

Eskreis-Winkler, L., Milkman, K. L., Gromet, D. M., & Duckworth, A. L. (2019). *A large-scale field experiment shows giving advice improves academic outcomes for the advisor*. PNAS Proceedings of the National Academy of Sciences of the United States of America, 116(30), 14808–14810.

Eskreis-Winkler, L., Fishbach, A., & Duckworth, A. L. (2018). *Dear Abby: Should I give advice or receive it?* Psychological Science, 29(11), 1797–1806.



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