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REDESIGNING PRIMARY ENGLISH THROUGH GAMIFICATION AND ARTIFICIAL INTELLIGENCE

REDESENHAR O ENSINO DE INGLÊS NO 1.º CICLO ATRAVÉS DA PEDAGOGIA DA GAMIFICAÇÃO E INTELIGÊNCIA ARTIFICIAL

REDISEÑANDO LA ENSEÑANZA DEL INGLÉS EN PRIMARIA MEDIANTE LA GAMIFICACIÓN Y LA INTELIGENCIA ARTIFICIAL

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Abstract

Rapidly evolving pedagogical shifts in today's education settings require transformative practices focused on more personalised, meaningful and empowering didactics. By intertwining the Gamification Pedagogy and Artificial Intelligence (AI) it may become possible to overcome some of the biggest challenges in Portuguese education, allowing teachers to better address individual pupil needs and enhance classroom support via personalised learning experiences and real-time language practice. Primary English classrooms can become inclusive and engaging teaching and learning settings that go beyond the mere structural mastery of a foreign language, offering multiple means of engagement, representation, and action and expression to support the development of a Future Skills Profile. Our practice-based reflection follows a primarily qualitative and ethnographic methodology which explores Gamification and AI as transformative approaches in Primary English. The practices took place in a Portuguese public school with around 40 pupils from the 1st Cycle of Basic Education. Data collection tools include field notes, critical reflections on lesson plans, pupils' work analysis, focus group and audiovisual recordings. Findings suggest that although classes present greater productivity and commitment towards learning, some challenges emerged related to technological failures, limited digital skills and fear of using AI.

Keywords: transformative practices, gamification, artificial intelligence, Primary English.

Resumo

As rápidas mudanças pedagógicas atuais exigem práticas didáticas mais personalizadas, significativas e capacitadoras. A articulação entre a Pedagogia da Gamificação e a Inteligência Artificial (IA) pode contribuir para superar alguns dos principais desafios da educação em Portugal, permitindo uma resposta mais eficaz às necessidades individuais dos alunos através de experiências de aprendizagem personalizadas e de prática linguística em tempo real. No ensino de Inglês no 1.º Ciclo, estas abordagens possibilitam ambientes inclusivos e motivadores, que transcendem o domínio estrutural da língua, oferecendo múltiplos meios de envolvimento, representação e ação/expressão, alinhados com o desenvolvimento de um Perfil de Competências para o Futuro. Este estudo de reflexão baseada na prática, de natureza predominantemente qualitativa e etnográfica, explorou a Gamificação e a IA como abordagens transformadoras no ensino de Inglês no 1.º Ciclo, numa escola pública portuguesa com cerca de 40 alunos. A recolha de dados incluiu notas de campo, reflexões críticas sobre planos de aula, análise de trabalhos dos alunos, grupo focal e gravações audiovisuais. Os resultados apontam para um aumento da produtividade e do empenho na aprendizagem, embora tenham emergido desafios como falhas tecnológicas, competências digitais limitadas e receio na utilização da IA.

Palavras-chave: práticas transformadoras, gamificação, inteligência artificial, Inglês no 1.º Ciclo.

Resumen

Los rápidos cambios pedagógicos requieren prácticas transformadoras centradas en una didáctica más personalizada, significativa y empoderadora. La articulación entre la Pedagogía de la Gamificación y la Inteligencia Artificial (IA) puede contribuir a superar algunos de los principales retos de la educación en Portugal, permitiendo una respuesta más eficaz a las necesidades individuales del alumnado y potenciando el apoyo en el aula mediante experiencias de aprendizaje personalizadas y práctica lingüística en tiempo real. En la enseñanza de inglés en Primaria, estas estrategias favorecen entornos inclusivos y motivadores que trascienden el mero dominio estructural de la lengua, ofreciendo múltiples medios de implicación, representación y acción/expresión, alineados con el desarrollo de un Perfil de Competencias para el Futuro. Este estudio de reflexión basada en la práctica, de carácter predominantemente cualitativo y etnográfico, exploró la gamificación y la IA como enfoques transformadores en la enseñanza de inglés en Primaria, en una escuela pública portuguesa con unos 40 alumnos. La recogida de datos incluyó notas de campo, reflexiones críticas sobre planes de clase, análisis de trabajos del alumnado, grupo focal y grabaciones audiovisuales. Los resultados apuntan a un aumento de la productividad y el compromiso con el aprendizaje, aunque surgieron desafíos como fallos tecnológicos, competencias digitales limitadas y temor al uso de la IA.

Palabras-clave: praticas transformadoras, gamificación, inteligencia artificial, inglés en primaria.

INTRODUCTION

21st century society lives in a fully interconnected world which now begins to accommodate the new generation of people who will live until the 22nd century (Leitão, 2025) – Generation Beta.

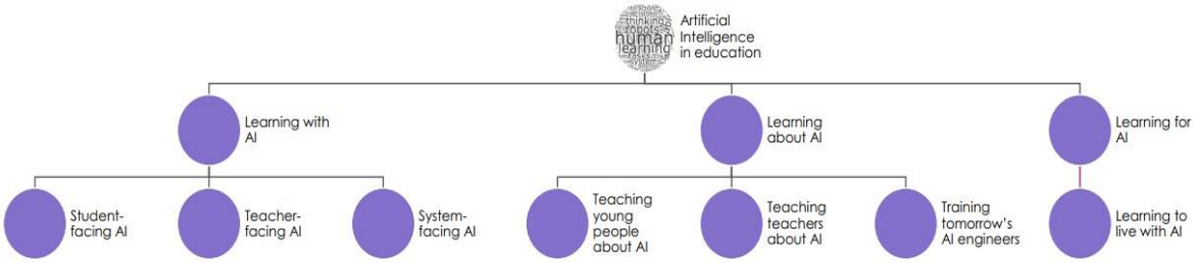
Although having instant access to smartphones, tablets, and virtual assistants, digital natives – or Generation Alpha – did not grow in an era with Artificial Intelligence (AI) fully incorporated into everyday life (Leitão, 2025). Nevertheless, considering that AI, specifically generative AI (i.e. ChatGPT or DALL-E), are flourishing at an outstanding rate in recent times (Meirinhos, 2022; Oliveira & Pinto, 2023), it is unquestionable that Generation Alpha will follow "the evolution of advanced technologies and Artificial Intelligence" (Leitão, 2025). As for Generation Beta, it is quite certain that they will live in contexts where the physical and digital worlds are seamlessly integrated (Pereira, 2025; Leitão, 2025).

In fact, as described by UNESCO, this swift upsurge of AI has created several opportunities worldwide (2025) by enabling the development of important services through the production of machines which mimic human intelligence, thus helping with tasks that implicate perception, problem-solving, linguistic interaction or creativity (UNESCO, 2025). AI also facilitates the accomplishment of the 2030 Agenda for Sustainable Development, particularly SDG 4, since it holds the potential to tackle some of the most pressing challenges in contemporary education and to transform teaching and learning practices (Miao et al, 2021). However, it is fundamental to maintain a "balanced reflection on how AI can, in fact, positively influence our current reality, without ignoring the challenges it brings (Osório, 2024), considering it, indeed, raises some concerns and ethical questions regarding education (Osório, 2024; Miao et al, 2021).

In spite of these latter apprehensions, AI is increasingly being used in education (Osório, 2024) and it addresses three main purposes: a) developing educational tools centered on students; b) creating support tools for teachers; and c) developing tools to assist educational administrators (Boulay, 2023). Moreover, as exemplified in figure 1, this involves "learning with AI, learning about AI and learning for AI" (Holmes et al., 2019 as cited in Meirinhos, 2022, p. 34).

Figure 1

The three main purposes of AI in Education



Note. Retrieved from Meirinhos (2022, p. 33).

Ultimately, AI helps to reshape current pedagogical practices through personalized learning, evaluation improvement, automation of administrative tasks, adaptive learning and data analysis, thus helping teachers to focus more on developing effective teaching strategies and providing high-quality education for all students (Oliveira & Pinto, 2023).

For these reasons, with the growth of AI in education, a "new paradigm of society has emerged that requires traditional schools to change and adapt in order to be able to respond to the challenges that this new era poses" (Meirinhos, 2022, p. 3). This is also the case of current Primary English teaching and learning settings, as we will discuss further on.

1 AI-POWERED CLASSROOMS: MOTIVATING YOUNG LEARNERS IN PRIMARY ENGLISH

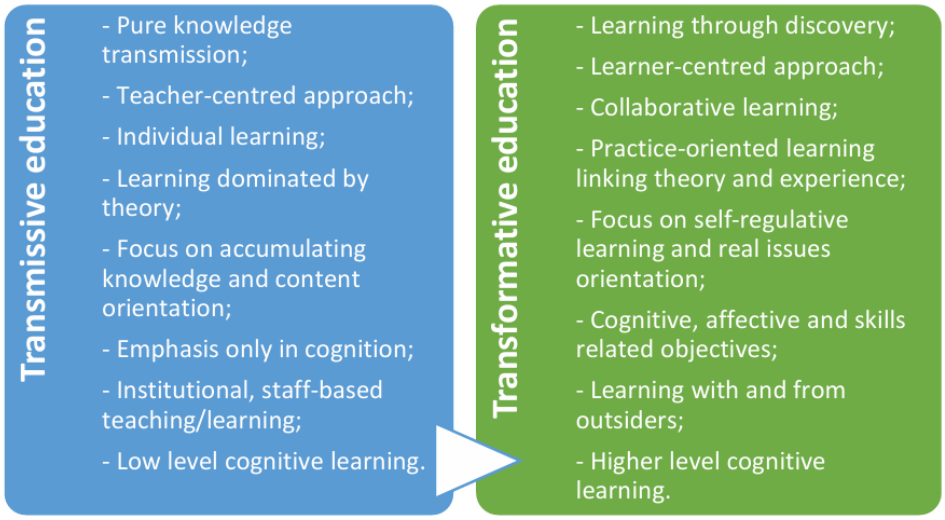
The English language is at the top of the most used languages for "jobs, markets, tourism, discourse and international connectivity" (Lan et al., 2020 as cited in Crompton et al., 2023, p. 2504). However, to master it, requires proficiency in speaking, listening, reading and writing skills (Ferreira, 2022; Crompton et al., 2023). These are not always easy to achieve, much due to limited connections to the language outside the classroom, insufficient content knowledge, irregularities related to spelling, fear of making mistakes in front of peers (peer-pressure) (Crompton et al., 2023) and lack of motivation to learn the foreign language (Santos et al., 2025).

Nonetheless, as "language teaching in particular presents multiple opportunities for the integration of AI-powered technologies" (Edmett et al., 2024, p. 9), we understand that AI may be used to overcome or ameliorate some of the aforementioned challenges (Crompton et al., 2023; Daud et al., 2025). In fact, our young learners may already have been using AI tools for learning purposes outside school grounds without even realizing it. For instance, Duolingo and Babbel are AI-powered learning tools which deliver personalized, interactive and gamified experiences whilst respecting the learners'/players' rhythm and learning style (Daud et al., 2025).

Therefore, perceveing that our young Primary English learners belong to the Generation Alpha, "the use of AI-powered technology is inevitable [as it] creates a dynamic and enjoyable learning process" (Zulkarnain & Yunus, 2023, p. 871) which motivates pupils on the long-term. This brings to light the vital need to redesing classrooms as transformative spaces rather than purely transmissive working places (figure 2). This notion eventually enables deep and purposeful learning (Cruz, 2019a), guided by pedagogical approaches that respect the individuality of each pupil (Santos et al., 2025).

Figure 2

The shift towards transformative education



Note. Adapted from Renigere (2014, p. 1208).

It is, then, our belief that by intertwining gamification (Chou, 2016) and AI into our teaching and learning environments, Primary English classrooms "guide students' learning by offering the possibility of involving [them] in the construction of their own knowledge" (Marmeleira, 2024, p. 25). Furthermore, it becomes possible to enhance the learning experience through pupil engagement, enjoyment, intrinsic motivation, and active participation (Herrero et al., 2020) while offering multiple means of engagement, representation, and action and expression (CAST, 2024). Accomplishing this supports the development of wider skills that reflect the broader purposes of education (Cruz, 2019a; Ehlers, 2020) through a paradigm rooted on a "lifelong transformative learning process [which] includes deep structural changes in the basic aspects of thinking, feeling and behaviour" (Renigere, 2014, p. 1208).

2 AI-BASED APPROACHES FOR GAMIFIED LEARNING EXPERIENCES IN PRIMARY ENGLISH

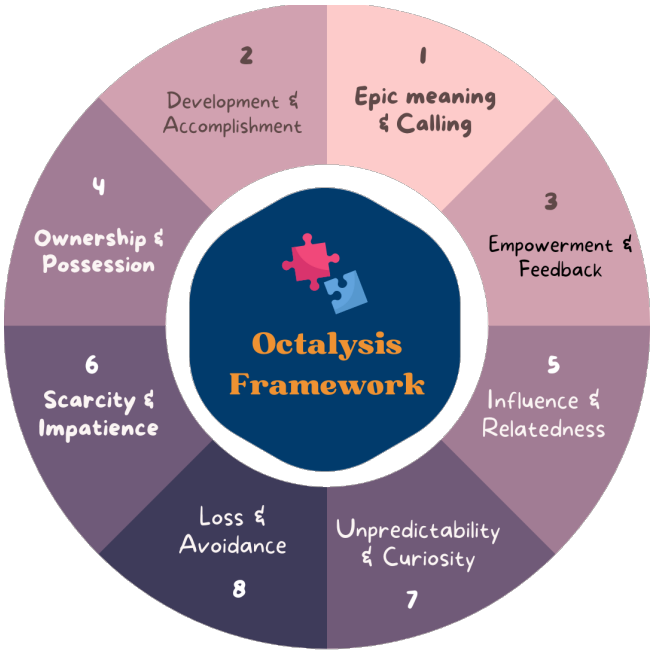
The gamification pedagogy arises as a transformative, valuable and fundamental way of teaching young 21st century English learners since it may optimise important skills in education as well as reinforce the four pillars of education (Delors, 1996) which involve skills such as problem-solving, collaboration, communication and creativity (Ferrer et al., 2020; Araújo, 2021). Moreover, it provides "opportunities for pupils' ownership and participation in their own language learning" (Oliveira, 2017, p. 13) whilst fostering these young learners' needs for fun, active and engaging environments (Garton & Copland, 2019).

Therefore, as described by Costa et al. (2024), connecting AI to gamification can uphold several benefits towards creating more engaging and compelling user experiences through machine learning, predictive analytics, and adaptive game mechanics (Costa et al., 2024). Indeed, if applied as transformative approaches to Primary English teaching, gamification alongside AI, may also foster more inclusive practices. This is due to the fact that AI algorithms have the capacity to analyse student data in order to provide personalized recommendations and resources based on their learning needs and preferences (Örpek et al., 2023) and gamification allows pupils to direct their own learning processes (Örpek et al., 2023). For these reasons, the combination of gamification and AI-based approaches attracts all types of pupils to reach a state flow (Csíkszentmihályi, 1990) where they feel engaged in activities which are suitable for their skills level, thus not leading to too much anxiety or boredom (Csíkszentmihályi, 1990) as the difficulty of the various challenges keeps up with the skill set of the user/pupil (Chou, 2016).

Taking these notions into account, it is then quite relevant to understand that if pupils do not feel interested and if their core motivational drives are not addressed throughout our lessons, then no substantive learning will actually occur (Chou, 2016). Hence, in order to regulate these concerns and manage meaningful gamified activities via AI tools, the Octalysis Framework (figure 3) offers teachers a structured and comprehensive model to achieve these goals.

Figure 3

The Octalysis Framework



Note. Retrieved from Ryanga (2023).

As Ryanga (2023) mentions, humans are naturally motivated by a range of core motivational drives, as those presented in figure 3. One of those core-drives is Epic Meaning and Calling which relates to the feeling of contributing to something larger than ourselves (i.e. creating meaningful impact in the world/society by mastering new skills). The other core-drive, Development and Accomplishment, concerns the motivation we get by achieving objectives and overcoming problems and being recognized for that (i.e. offering feedback, scaffolding activities). Empowerment & Feedback is another core-drive which provides learners with the opportunity to solve problems on their own and think outside the box whilst receiving immediate feedback (i.e. through quizzes, assignments, either digital or analogue). As for the core-drive, Ownership and Possession, it relates to the sense of responsibility and personal value pupils have over their own work (i.e. selecting a topic and developing a small project/work of their own). Influence & Relatedness is also a core-drive which relies upon social factors that can push us to try harder and stay engaged (i.e. peer recognition, classroom collaboration, behavioural nudges, etc.). With regard to Scarcity and Impatience, this core-drive is used to cause a sense of urgency and importance around learning activities, driving learners to want what is limited (i.e. a reward which is only available for a short period of time). Furthermore, on the one hand, the core-drive Unpredictability and Curiosity is used to draw mystery towards the unknown, thus maintaining curiosity and the desire to explore (i.e. provide surprises or unlockable achievements). On the other hand, Loss and Avoidence is the core-drive which taps into the desire of protecting what you already earn, thus preventing losing progress rather than gain new rewards (i.e. ClassDojo has the feature to grant points, but also to take them down) (Ryanga, 2023).

Bearing this in mind, it becomes of great importance to consider that "gamification can falter if mishandled. Push too hard—say, with aggressive quotas—and it feels coercive, alienating users [...]. AI-driven digital transformation demands the same finesse—complex interfaces or rigid prompts deter engagement" (The Octalysis Group, 2025). However, if implemented in "a balanced and ethical manner" (Örpek et al., 2023, p. 252) gamification, based on the

Octalysis Framework, can transform AI from a tool into an engaging, empowering and meaningful didactic approach for Primary English learning (Edmett et al., 2024; Örpek et al., 2023).

This is what we tried to accomplish in our practices, as further discussed.

3 FROM PLANNING TO PRACTICE: LEARNING ENGLISH THROUGH GAMIFIED-AI APPROACHES IN THE 1ST CYCLE OF BASIC EDUCATION

Our preliminary practice-based reflection study follows a mainly qualitative and ethnographic methodology with action research contours, considering that teachers engage in reflective exploration of their practice, "thus contributing not only to problem solving but also (and mainly) to the planning and introduction of changes to that same practice" (Coutinho, 2009, p. 360).

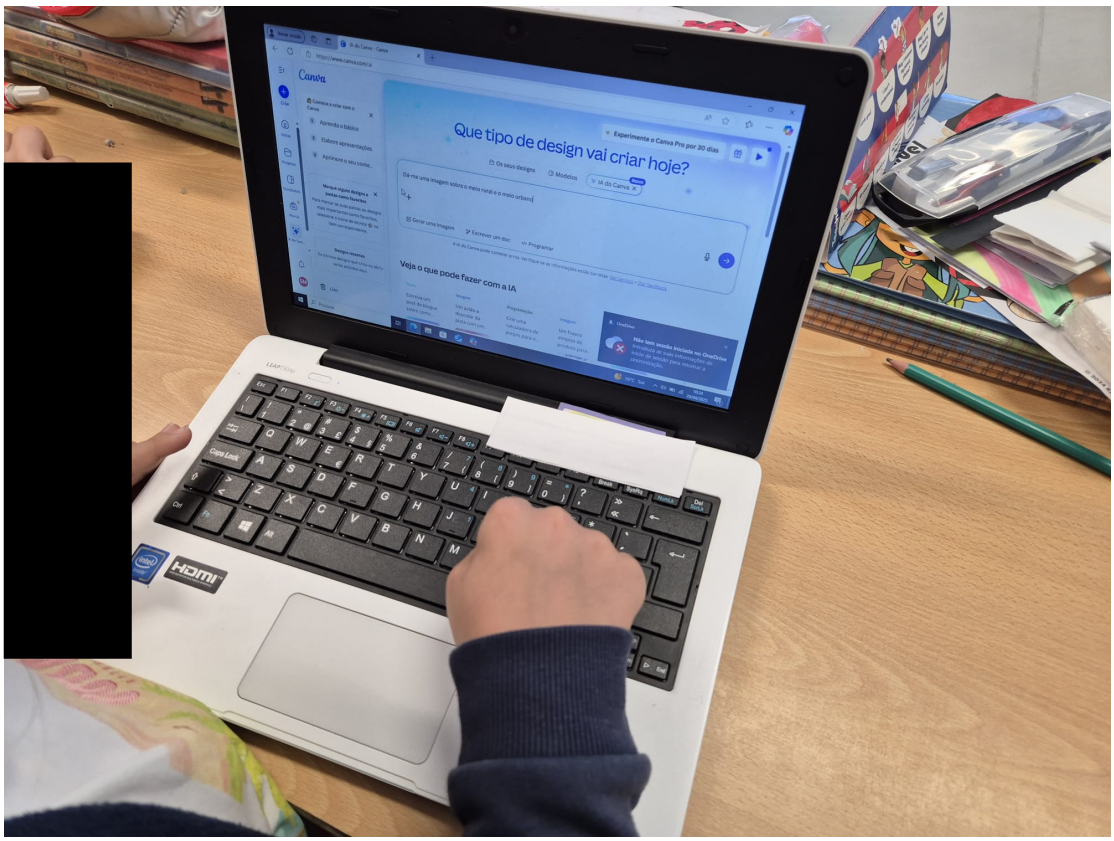
It explores gamification as a transformative approach in Primary English that, when applied alongside AI-based approaches, fosters innovative and inclusive teaching practices (Meirinhos, 2022) and entails classroom observation, behaviours and reactions which were interpretated since "raw data, in and of itself, is useless; it must be analyzed and interpreted to be valuable for research purposes" (Griffee, 2012, p. 129). Practices were conducted through a period of eight weeks in a Portuguese public school with around 40 children attending curricular English. Data collection tools include field notes, critical reflections on lesson plans, pupils' work analysis, focus group and audiovisual recordings of classroom interaction. The data was analysed through observation grids and post-activity assessments and self-assessments with a focus on indicators such as pupil engagement, language use, creative output, and inclusion. Therefore, our practices included gamified activities based on pupils' motivational core-drives, point-based quests and AI-assisted writing tasks.

Throughout our lesson plans we sought to work with different types of AI with the intent of encouraging pupils to use AI tools with responsibility and for serious purposes, as well as foster an understanding of how AI can help them develop language skills (Edmett et al., 2024) and future skills (Ehlers, 2020). We, therefore, planned to tackle two different units regarding the Primary English curriculum: Cities and Houses. These lesson plans were thought to reshape the curriculum by transforming the teaching and learning processes via gamification and AI-based approaches. It is also relevant to mention that during the implementation of these lessons, gamification was put into practice as the teacher used the ClassDojo digital platform, either on a mobile phone or on the class computer, to give group or individual points. These points could be positive or negative depending on behavioural issues or skills development. For each of these points, a competence was associated (i.e. helping others, teamwork, not giving up, etc.) and previously discussed with the pupils at the beginning of the school year, being, therefore, co-created. Moreover, the teacher also used ClassDojo to post what is being done during lessons so that families were able to view activities and works at any time and even comment on them.

With particular regard to AI-approahes within our gamified classroom, in one of our activites concerning the topic "Cities", we asked pupils to use Canva's DreamLab AI to help them think about the similarities and differences between urban and rural environments. By using this AI tool, pupils were able to create their own images through a prompt that they could either write in English or in their mother-tongue (figure 4). Then, they could move around the classroom to talk to their peers and observe the different images that were generated through the DreamLab AI. The teacher also guided the research in order to spark discussion and develop vocabulary that might emerge from the pupils' analysis and responses (writing some on the board using the English language whenever needed). Pupils then completed a Venn Digram based on the information given by the images and the class discussion, writing the vocabulary to complete the diagram.

Figure 4

Writing a prompt to create AI-generated images

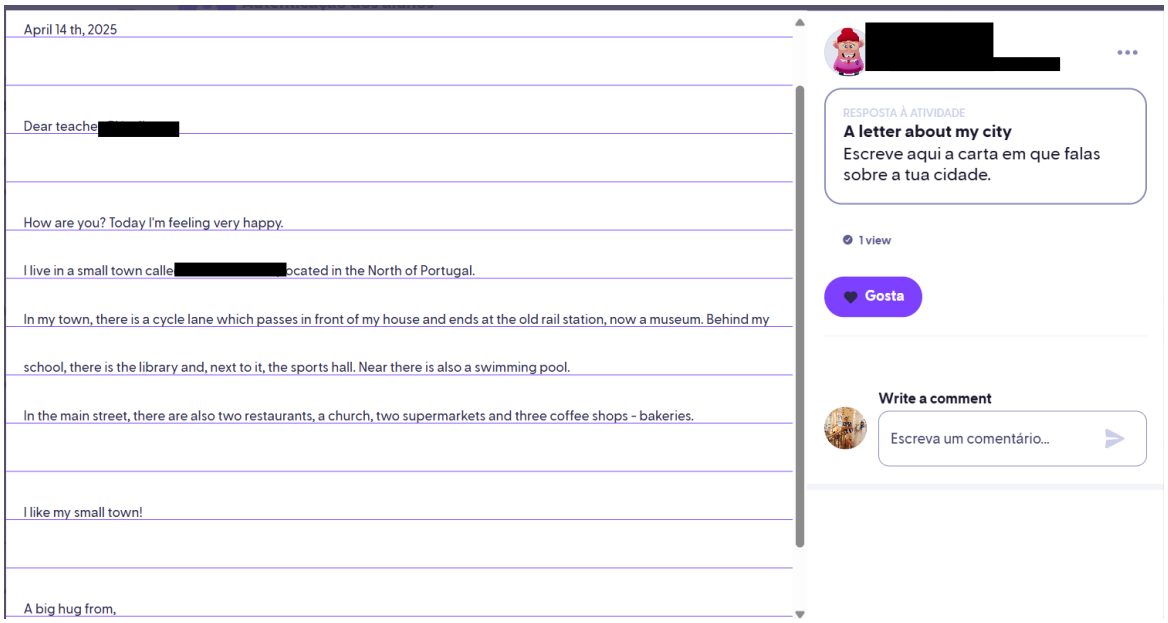


Notably, in this AI-based task, pupils' learning was enhanced by putting into practice the Octalysis Framework (Chou, 2016). Thus, it is perceptible: a) a sense of accomplishment through the creation of their own AI-generated images on Canva; b) a sense of empowerment by generating visual content which allowed them to engage in further tasks; c) a sense of ownership and possession through the creation of their own learning outputs; and d) a sense of influence and relatedness through their peer-to-peer feedback and sharing.

In another lesson, pupils were asked to use ChatGPT and write a letter to it, talking about the place they live. Beforehand, the teacher discussed with the class the structure of a letter, providing them with an already written example of one. After carefully analysing and understanding the letter, pupils should follow the example and write one of their own. They could choose to write directly on ChatGPT's AI chatbox or firstly on their notebooks. For pupils with specific learning needs (mainly concerning writing and reading skills), the teacher hands them a letter already partially written where they can fill in the blanks with given words. Nevertheless, the goal was to communicate with ChatGPT using the English language in a simple and basic way. The teacher monitored the activity and helped pupils along the way. Once the task was completed, pupils put their letters into their ClassDojo individual portfolios (figure 5). If necessary, pupils were given the opportunity to ask ChatGPT to translate its response into their mother-tongue to better understand the meaning. Moreover, they could also use Google Translator's or DeepL's AI to listen to the text given by ChatGPT and, therefore, practice their reading skills with the help of AI.

Figure 5

Final work posted on the pupil's ClassDojo portfolio



Equally to the first activity, this one also addresses multiple core-drives from the Octalysis Framework. For instance, by writing a letter to ChatGPT, pupils feel a sense of accomplishment considering it is a clear and achievable goal. Even those who usually struggle to accomplish tasks are able to succeed with the proper guidance and, thus, feel proud of their work. A sense of ownership is also present, since learners have the freedom to choose how they want to approach the task – writing directly on ChatGPT or in their notebooks – and, therefore, feel like they possess their learning process. Moreover, the fact that pupils are able to express themselves in a creative way and receive instant feedback from ChatGPT or from the teacher, gives them a feeling of empowerment which encourages them to explore and experiment more with the English language. Last, but not least, the unpredicabitlity of ChatGPT's answers rises curiosity and interest, fostering the willingness to fully engage with the activity.

With regard to the topic "Houses", another activity involved preparing a small work or project about their dream house to, afterwards, give an oral presentation to the class. Pupils were also challenged to use the Suno AI (an AI tool they already have benn working in their ICT project for another subject) to enrich their oral presentaiton by creating a soundtrack of their choosing and in accordance with their presentation. Moreover, they were given the freedom to present their work in any format they saw fit (i.e. Canva, PowerPoint, scale model, in scenery paper, etc.).

It was possible to observe that every pupil was fully engaged in completing the task and in using the Suno AI tool to create the soundtrack they deemed perfect. During the presentations, learners used their computers/tablets to access Suno AI and play their music while speaking (figure 6).

Figure 6

Giving an oral presentation with Suno AI

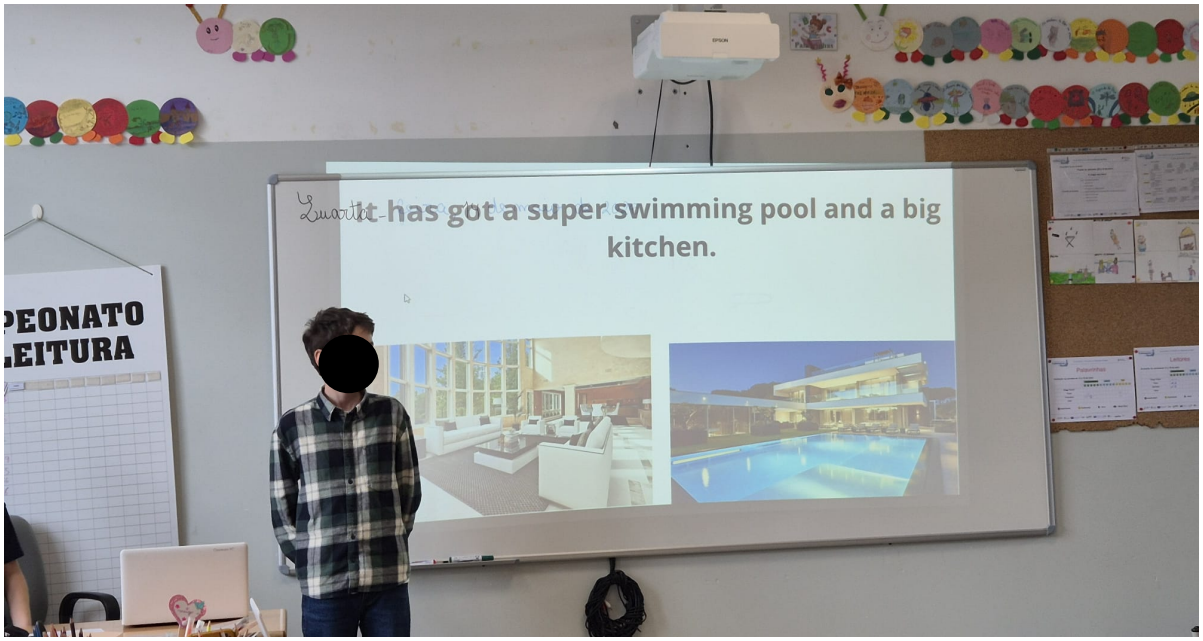


Table 1

Core-drives in action

Core-drive	How it is addressed in the activity
Development & Accomplishment	Pupils sense they are progressing (design, presentation, speaking) and receive feedback to meet their goals.
Empowerment & Feedback	Creative freedom (multiple ways of doing the task), use of AI for support and instant peer feedback.
Ownership & Possession	Projects are enhanced with AI and personalized by the pupils.
Influence & Relatedness	Feedback exchanges, peer presentations and collaborative reflection (in and out of the classroom space).
Unpredictability & Curiosity	Unexpected outputs by the AI tools maintain engagement and curiosity for what comes next.
Loss & Avoidance	Avoid poor feedback or missing out in doing a good presentation in relation to their peers (peer-pressure).
Epic Meaning & Calling	Pupils feel their work has value beyond the classroom when sharing it with peers and real-life tools such as AI.

Note: The bottom two core-drives, namely "Loss & Avoidance" and "Epic Meaning & Calling" are only slightly present, but still play a crucial role in the development of the activity and in addressing pupils desired actions and motivations. The core-drive "Scarcity & Impatience" is not identified as there are no urgency mechanisms.

It was also possible to observe, through our filed notes and post-analysis of pupils' works, that the vast majority of learners used digital tools to present their work, including Canva's DreamLab AI and ChatGPT (out of 40 students, 30 used followed this path). They not only used AI to generate images about their dream house, also used ChatGPT to organise their text for presentation and, likewise, to obtain AI-generated images of parts of their dream house. 25% of pupils also disclosed that they used DeepL to listen to the AI reading the text and then to be able to practice their speaking. However, almost all of them needed corrective feedback from the teacher in order to understand how to use some sentence structures corretly, as well as to understand some unexplored vocabulary. These moments were very important to not just consolidate knowldege and language skills, but also to learn new ones and reflect upon the work done and future changes that could be made. Moreover, classmates were invited to give feedback at the end of each presentation, giving one positive comment and one constructive criticism, which fostered future skills such as reflective competence, sensemaking, cooperation competence and ethical competence (Ehlers, 2020).

The activity also strongly engages several core-drives from the Octalysis Framework, promoting a meaningful and captivating learning experience, as portrayed in table 1, which not only allows pupils to develop their language skills, but also to construct a set of future skills that let them participate in "highly emergent contexts of action" (Ehlers, 2020, p. 53).

Finally, although it is not an activity in itself, it should be worth noting that the teacher also used AI tools to plan lessons and develop resources, such as worksheets, hand-outs with information and examples, create digital quizzes for evaluation, among others, namely through: "MagicSchool AI" and "Wayground AI".

FINAL CONSIDERATIONS

Gamification can, indeed, make learning fun, engaging, meaningful and empowering by going beyond the simple implementation of game elements into the classroom, thus reaching for pupils' desired actions and real motivations (Örpek et al., 2023; Chou, 2016). On the other hand, AI also holds an outstanding potential for personalized learning experiences by managing pupils' learning profiles (Örpek et al., 2023).

Current state of the art also refers to the rise of AI as one of the several indicators of future global technological trends which direct teachers to prepare for this reality in education (Meirinhos, 2022). Hence, the combination of AI-based approaches with the gamification pedagogy and vice-versa "provides a powerful set of tools for creating a more effective and engaging educational environment" (Örpek et al., 2023, p. 252) within which pupils can improve their weaknesses, either in terms of language or with regard to socioemotional skills (Boulay, 2023; Örpek et al., 2023).

Our practices, therefore, intended to reshape and transform the Primary English curriculum and classroom through these innovative approaches and significant activities. it was our intention to reflect on our practices and produce more research about the use of AI with young language learners in Portuguese schools, mainly concerning Primary English teaching (i.e. 1st Cycle of Basic Education). Moreover, in order to reduce subjectivity concerning data analysis, our observations were cross-checked with audiovisual data, and reflective/field notes were revisited post-implementation. Findings were also discussed with peers (mainly main class teachers) to validate interpretations.

The study suggests learning outcomes characterised by an increase in pupil motivation, engagement, willingness to learn a foreign language and language production, particularly when AI tools were used. These outcomes were analysed through observation grids with the help of ClassDojo's grids which quantify the number of pupils raising hands, speaking English, helping others, etc. Moreover, these were crosschecked with our field notes that captured qualitative observations such as pupil enthusiasm, collaboration, or difficulties with AI. In fact, it was also possible to observe higher autonomy in accomplishing writing tasks, as well as bigger independence towards oral communication (especially concerning reading and oral interaction skills), portrayed in the assessments made during lessons, as well as on post-activity assessments.

The focus group (where 8 learners participated) also proved that language use became an exercise of less boredom and of less anxiety for pupils, since they described that they could experience more personal interactions via AI and perceive their progress through the used gamification elements. Pupils with specific learning needs (6 out of 40) also showed improvement in spelling and in creativity when writing texts with the help of AI and by means of intrinsic and extrinsic dimensions provided by gamification (Örpek et al., 2023; Santos et al., 2025). This was particulary visible in

post-activity assessments (i.e. digital quiz), where 5 of those 6 pupils (12,5%) were capable of solving exercises correctly. Furthermore, the analysis to their works also showed better writing skills, despite still having trouble with planning skills (i.e. all 6 students needed help from and adult to plan and finish their work).

However, limitations were noted in terms of unequal access to devices, varying levels of digital competence, and some resistance towards AI. In other words, not every pupil had a functional computer or tablet (50%) to work with and the school was not always able to provide one. Those who had those digital devices (the other 50%) had some trouble with using them for research or even when using the keyboard, as they admitted to only using the devices to play games online. Additionally, although a major part of pupils had already been in contact with AI tools such as ChatGPT (90%), a small amount of them did not know how to access it (10%), maninly due to a fear built up at home around the use of AI and its risks. For this reason, it was also necessary to built confidence, understanding and know-how around AI and technologies, both to pupils and families. ClassDojo helped to tackle this problem, as it provided constant contact between teacher, pupil and family. Additional concerns emerged, specifically if AI might decrease students' creactical skills (Ohler, 2013; Cruz, 2019b; Almeida, 2020) through standardised mechanisms (Osório, 2024), however, we understand that it is yet too early in our research to be able to determine such consequences. Nevertheless, 100% of pupils who participated in the focus group mentioned that they prefer the teacher to guide them and to help them overcome difficulties, as well as to explain and give examples of specific topics instead of resorting to AI. As explained by the participants, "the teacher has expressions and real-life examples which make us understand better what is intended, and AI can not provide that".

Another major challenge throughout our practices was the fact that Primary English is only taught two times per week, an hour per lesson, at a curricular level in the 1st CBE in Portugal. This time constraint alongside the fact that our lessons were often called off due to the school's annual plan of activities, did not allow for all of our lesson plans to come to fruition. Therefore, units related to Animals and Food were planned based on gamified and AI learning experiences, but did not have a chance to be implemented. It is our belief that with those activities put into practice, our results and conclusions would be more prominent, particulary pertaining to the development of language skills, as AI tools such as Mizou would be put into practice.

Although this is still a very preliminary study, it becomes quite clear that gamification and AI may have a crucial role in the teaching and learning of English in the 1st CBE. The future requires a critical and well informed approach that takes into account the potentials and the perils involved when using AI in education (Osório, 2024; UNESCO, 2025). However, "reality is what we make of it – and our responsibility is to ensure that AI serves to expand, not limit, human possibilities" (Osório, 2024), and, surely, connecting the gamification pedagogy to this scenario will allow to transform practices into processes that consider the complexity, multiplicity and interconnectedness of modern world's educational needs (Santos et al., 2024).

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