

Designing Entrepreneurship Education with ChatGPT: The Appeal of its Use, Cognitive Standardisation, and the Risk of Context Loss.

Ilia TAKTAK-KALLEL^{a1}

^a*École Supérieure de Commerce de Tunis (ESC Tunis), Manouba University, ThEMA Laboratory
Campus universitaire de La Manouba, Tunis, Tunisia.*

Article Info	Abstract
<p>Keywords: Entrepreneurship Education; Contextualisation; Higher Education Course Design; Large Language Models (LLMs); ChatGPT; Artificial Empathy; Tunisia</p> <p>JEL Classification : L26, N3, O18</p> <p>Received 21 January 2026 Accepted 12 March 2026 Published 14 March 2026</p>	<p>As large language models (LLMs) become increasingly widespread in higher education—including among instructors—their rapid diffusion coincides with a growing prioritisation of entrepreneurship education, which many countries promote as a response to youth unemployment. This convergence raises important questions for the design of pedagogical content in a field that is highly context-dependent and closely linked to local economic environments. This article examines the capacity of LLMs to support the design of context-sensitive pedagogical content at the university level, particularly in developing countries. The study is based on a discourse analysis—conducted both manually and using the Tropes and Hyperbase-Web software—of a teacher-machine interaction (ChatGPT) focused on designing an entrepreneurship course in a Tunisian business school. The analysis reveals a neutral and supportive “Advisor” rhetorical posture, a tendency to subtly orient responses towards recurring pedagogical options, and the predominance of relatively superficial forms of empathy. These findings suggest that the growing reliance on AI-based tools may contribute to the standardisation of pedagogical approaches in entrepreneurship education, potentially undermining the effectiveness of a highly context-dependent form of teaching and weakening the distinctive positioning of business schools.</p>

¹Corresponding author. E-mail address: Ilia.Taktak@esct.uma.tn

DOI : <https://doi.org/10.23882/ijdam.26289>

Peer-review under responsibility of the scientific committee of the IJ DAM Review

This is an open access article under the license Creative Commons Atribuição-NãoComercial 4.0.



Introduction

Artificial intelligence (AI) has increasingly permeated the tertiary education sector, reshaping learning methods, course design, and research practices. In doing so, it is transforming universities' operating models, internal functioning, and even their broader societal mission. In this context, higher education institutions are called upon to clarify and justify their uses of AI in order to safeguard academic legitimacy, institutional standing, public reputation, and the trust of their stakeholders. This requires striking a careful balance between modernity—associated with the adoption of emerging technologies—and academic integrity, rooted in the preservation of core scholarly values and standards.

At the same time, entrepreneurship has become a key lever for youth employability, socio-economic revitalisation, and innovation, positioning entrepreneurship education as a strategic component of university curricula. Yet entrepreneurship education is inherently situated: it must be adapted to learners' cultural specificities and to the economic, technological, and institutional conditions of its context. The generalisation of AI-augmented entrepreneurship education is therefore not self-evident and may even prove counterproductive when it weakens human interaction within the teacher–student relationship.

The design of education in general—and entrepreneurship education in particular—lends itself well to the design-thinking process, especially when students are placed at the centre of course design and creative pedagogical approaches are developed. Such approaches take into account learners' attitudes, values, and mindsets, as well as the educational, institutional, economic, and social environments in which learning occurs. This embedded and user-centred orientation is likely to enhance the social acceptability and relevance of entrepreneurship education.

Within the widely recognised Design Thinking model, the Empathise phase constitutes the first and most decisive step, as it conditions problem definition and the design of subsequent pedagogical responses. At this stage, designers seek to understand users' perspectives across bodily, emotional, cognitive, social, and cultural dimensions (Vial, 2010). In the design tradition, empathy is regarded both as a guarantor of process effectiveness and credibility (Thiel, 1977, as cited in Stephan, 2023), and as a driver of inclusiveness and broader sustainability concerns (Stephan, 2023).

Applied to entrepreneurship education, the use of AI tools—particularly large language models (LLMs)—thus presupposes a dual empathic process: first, the teacher's ability to empathise with students in order to adapt pedagogical content to their expectations; and second, the AI tool's capacity to grasp the teacher's intentions and, indirectly, students' needs. Despite advances in affective computing, AI's ability to demonstrate genuine empathy when shaping highly contextualised pedagogical content remains a significant challenge.

This study therefore focuses on LLMs' empathic capacity in the early stages of designing an entrepreneurship course. While the benefits of AI-enhanced Design Thinking in education have been widely documented—particularly in supporting brainstorming, creativity, and critical thinking (Kim, 2023; Saritepeci & Yildiz Durak, 2024; Rana *et al.*, 2025)—persistent challenges have also been identified, including limited sensitivity to nuance (Gau *et al.*, 2024) and risks of over-reliance on AI-generated outputs (Malik *et al.*, 2024).

In entrepreneurship education—an inherently contextualised and institutionally embedded domain—research on the use of LLMs remains relatively scarce. The few empirical studies available largely approach AI integration from a pedagogical effectiveness perspective. George-Reyes *et al.* (2024), for instance, report statistically significant improvements in students' perceived knowledge after using ChatGPT within a structured learning model. Likewise, Vecchiarini and Somià (2023) and Saur-Amaral *et al.* (2025) emphasise students' positive perceptions in terms of efficiency, ideation support, and engagement when refining business models or innovation projects with AI assistance.

However, two important gaps remain.

First, a knowledge gap: prior studies focus on perceived learning gains and usability, yet they do not examine whether LLMs can meaningfully engage with culturally embedded expectations, institutional constraints, or the socio-economic specificities that shape entrepreneurial education. Perceived student performance does not necessarily translate into the development of situated entrepreneurial competencies. Furthermore, the educator's epistemic responsibility—assessing whether AI-generated proposals genuinely align with contextual realities and pedagogical intentions—remains largely unexplored.

Second, a methodological gap: existing research predominantly relies on surveys, pre/post-tests, and perception-based measures. While these approaches capture satisfaction and short-term outcomes, they provide limited insight into the discursive mechanisms through which LLMs shape educators' course design reasoning. In particular, little attention has been paid to the interactional dynamics between teachers and AI tools during the Empathise phase of Design Thinking, where contextual understanding is central.

Addressing these gaps, this research investigates how, and to what extent, LLM-augmented design in the Empathise phase responds to teachers' expectations and students' needs in entrepreneurship education. More specifically, it assesses the capacity of LLMs—particularly ChatGPT—to meaningfully empathise with a human teacher and generate useful insights when designing a contextualised entrepreneurship course.

Accordingly, the study addresses the following research questions:

RQ1. What discursive patterns does ChatGPT employ when proposing courses of action presented as tailored to a user's stated needs within the context of designing a situated entrepreneurship course?

RQ2. What do these discursive patterns reveal about ChatGPT's empathic capacity and its potential to support the design of context-specific pedagogical content?

To answer these questions, we conduct an in-depth discourse analysis of ChatGPT's responses in a simulated co-design scenario focused on entrepreneurship education within a specific cultural and institutional context.

The remainder of the article is structured as follows. **Section 1** reviews the literature on contextualisation in entrepreneurship education and on the empathic capacities of LLMs in pedagogical design, and presents the analytical framework underpinning the study—the Theory of Enunciation. **Section 2** situates the interaction with ChatGPT contextually and methodologically and analyses the tool's responses using a combination of intuitive interpretation and software-assisted discourse analysis (Tropes and Hyperbase-Web). **Section 3** discusses the findings in relation to the research questions. The conclusion outlines the main theoretical and managerial implications and suggests directions for future research.

Primarily situated within the field of entrepreneurship education, this study also engages with debates in AI in Education—particularly regarding the role of ChatGPT in pedagogical design—and contributes to Critical Management Studies by interrogating the implications of algorithmic mediation in knowledge production and course design within higher education. It is therefore relevant to educators, researchers, and higher education decision-makers concerned with integrating AI tools while maintaining pedagogical rigor and contextual sensitivity.

1. Literature Review and Analytical Framework

1.1. Entrepreneurship education and the importance of contextualisation

As entrepreneurship plays an increasingly central economic and social role, entrepreneurship education has gained a prominent place in university curricula, while simultaneously challenging practitioners and researchers to refine it so that it effectively stimulates students' interest in entrepreneurial activity. Despite the fragmentation of entrepreneurship education and ongoing debates surrounding its definition, there is broad consensus regarding its objectives, namely educating *for*, *about*, or *in* entrepreneurship. These respectively involve fostering entrepreneurial intentions and preparation for business creation and management, transmitting knowledge about

entrepreneurship and business, and developing pro-entrepreneurial attitudes and values (Lackéus, 2015). Grounded in the view that entrepreneurship can address key economic challenges—particularly employment—entrepreneurship education seeks to influence attitudes, values, and collective culture in order to encourage business creation, self-employment, job generation, knowledge development, and skills acquisition. Many scholars therefore emphasize the need to innovate in the design of entrepreneurship training modules and to move beyond traditional teaching methods (Mwasalwiba, 2010).

Just as entrepreneurship is now widely understood as a contextualized phenomenon (Welter, 2011), embedded within social, ecological, and economic systems (Carayannis et al., 2012), entrepreneurship education must similarly be adapted to diverse economic environments and learner contexts (Mwasalwiba, 2010) to enhance students' identification, motivation, and learning effectiveness. This contextualisation includes sensitivity to cultural and institutional settings (Arasti et al., 2012; Nabi et al., 2017) across micro, meso, and macro levels (Roomi & Harrison, 2010), to cultural and gender dynamics (Hassan et al., 2020), as well as to students' backgrounds, values, and aspirations (Fayolle & Gailly, 2015), specific needs (Sirelkhatim & Gangi, 2015), self-efficacy beliefs (Piperopoulos & Dimov, 2015), and prior experiences (Hahn et al., 2017; Boldureanu et al., 2020).

A key dimension of contextualisation therefore lies in determining—often through innovative approaches (Browne et al., 2015)—appropriate curriculum content, pedagogical strategies, and teaching methods that resonate with diverse student profiles (Blenker et al., 2014), while aligning training with the competencies required in the relevant entrepreneurial context and reflecting real-world challenges (Wu & Wu, 2017).

In this regard, while many studies have highlighted the value of LLMs—and more specifically ChatGPT—in design-related courses, content development, and pedagogical innovation, notably in terms of productivity, learning outcomes, and inclusiveness (Malik et al., 2024; Santamaria-Velasco et al., 2025), they have rarely questioned LLMs' capacity to design effective entrepreneurship courses—particularly those intended to foster the appeal of venture creation.

1.2. Assessing the Human-Like Characteristics of LLMs and Their « Empathic » Capacities in design situations

Human empathy is a cornerstone of social connection. It has been framed as bodily attunement, imaginative transposition, and shared transformation, underscoring its embodied nature (Hollan & Throop, 2011). Empathy is also part of Theory of Mind (ToM), enabling individuals to infer others' beliefs, intentions, and desires (Savoie & Mendonça, 2018). Since the 1970s, it has become central in design practices, evolving into a methodological tool for understanding and typifying users' needs (Stephan, 2023).

The integration of AI into design processes and the rise of so-called “artificial empathy” mark a significant shift in how user needs are approached. The growing use of AI tools—such as data-driven analysis, sentiment detection (Smart, 2022; Kaplan, 2024), and natural language processing (NLP) (Masure, 2017)—signals a move toward “empathy at scale” (Kaplan, 2024). This evolution distances empathy from its passive, embodied, and experiential foundations (Stephan, 2023). Moreover, as intelligent agents' ability to fully grasp the evolving and potentially infinite meanings of future contexts remains questionable (Lassègue, 2019), the capacity of AI-based design practices to generate genuinely valuable insights into users' needs can be critically questioned.

Recent advances in AI nevertheless show increasing capacities for reasoning and forms of empathic and intuitive functioning, particularly through the rise of large language model (LLM) agents such as OpenAI's ChatGPT, which achieves near-human performance across many language tasks (Au Yeung et al., 2023) and, in some respects, exceeds human performance in knowledge breadth, plausibility, and speed (Brabant et al., 2023). Its release marked a turning point in the widespread adoption of LLMs (Moussaoui, 2023). While debates over machine

cognition persist, they are increasingly secondary to performance-based engagement (Kosinski, 2024). Recent versions of ChatGPT approximate human communication and ToM-like capacities, possibly as an unintended by-product of language modelling (Kosinski, 2024) or of intrinsic properties of human language (Harnad, 2024).

1.3. Analytical Framework: The Theory of enunciation

The growing anthropomorphization of intelligent agents and their increasing discursive autonomy may profoundly transform how we perceive and relate to reality (Tisseron, 2015), and lead us to entrust them with ever greater control over different aspects of our lives, thus gradually narrowing spaces for human judgment (Sadin, 2021).

In this respect, the Theory of enunciation offers a valuable analytical lens. The notion of utterance has occupied philosophers and linguists since Aristotle (Lepetiuk et al., 2022) and was most prominently formalized in modern linguistics by Émile Benveniste in *Problems of General Linguistics* (1966, 1974), where enunciation was established as a foundational concept in contemporary linguistics, semiotics, and discourse analysis. Benveniste defines enunciation as the “putting of language into operation by an individual act of use” (1974, p. 80), manifested in discourse. From this perspective, meaning arises from the specific conditions in which an utterance is produced, and analytical attention focuses on the act of enunciation as a situated expression of subjectivity embedded in social interaction and carrying potential influence and power.

Building on Benveniste, Kim (1997) operationalizes enunciation by identifying three additional structuring dimensions: intersubjectivity, as every utterance presupposes an addressee; reference, which links discourse to reality; and predication, through which meaning and temporality are constructed. These dimensions are made observable through enunciative markers such as personal pronouns, verb tense, and deictic expressions, in contrast with structural approaches that treat language as a closed system of signs governed by shared rules.

Unlike Aristotle’s universalist linguistics, which closely links language and logic, Benveniste’s approach better captures discursive influence in human–machine interaction. Aristotle’s conception aligns with rule-based expert systems and supervised machine learning (Jorion, 1996), but is less compatible with deep and reinforcement learning, which rely on adaptive training and exploratory interactions and underpin recent advances in LLMs.

The Theory of enunciation provides a central theoretical foundation for discourse analysis. In the context of this research, it is mobilized to examine human–machine interaction in the design of an entrepreneurship course through a discursive lens.

2. Exploring the “Empathic” Capabilities of ChatGPT in Designing Contextualized Entrepreneurship Teaching: Context, Methodology and Key Findings

2.1. Context

In Tunisia—where openness coexists with risk aversion and entrepreneurial traditions remain weak—studies indicate that entrepreneurship education, despite being a national strategic priority, has limited effectiveness in stimulating concrete entrepreneurial intentions and actions. More precisely, as entrepreneurship education normalizes the principles of market competition and self-entrepreneurship (Lessard, 2021), it may, in this specific context, be perceived as challenging the traditional protective model of achievement associated with the welfare state—one typically centred on stable, upwardly mobile, lifelong employment. This tendency also extends to the broader entrepreneurial ecosystem which, although rich and active, remains relatively ineffective in fostering new business creation among young people.

In this regard, several academic studies have highlighted the modest effectiveness of entrepreneurship education in the Tunisian context, directly or indirectly attributing this outcome to insufficient contextualisation of pedagogical approaches and course content. For instance, Zouari and Mabrouki (2023/2024) show that socio-cultural background and students' sociodemographic characteristics are more decisive than university entrepreneurship courses themselves in shaping entrepreneurial intentions. Similarly, Alaref et al. (2020) demonstrate that while entrepreneurship education may generate short-term positive effects on business ideas and nascent entrepreneurial activity, it does not produce sustained impacts on self-employment in the medium term. Premand et al. (2016) further underscore that entrepreneurship education does not significantly affect overall employment rates and yields mixed effects on entrepreneurial traits and personality.

In this context—characterised by specific institutional, curricular, and pedagogical dynamics and constraints—teachers are expected to regularly revisit and adapt their practices by critically questioning what students are actually learning and how. The insights gained through such reflective processes, combined with educators' prior training and teaching experience, are then reinvested into subsequent pedagogical practice (Balas Chanel, 2013).

At the same time, the appeal of using large language models (LLMs) for course and content design is rapidly increasing among educators. In the Tunisian context, this trend coincides with a growing tendency toward homogenised frameworks for entrepreneurship education promoted by the Ministry of Higher Education. The widespread use of LLMs in course design may therefore legitimately raise concerns about reinforcing additional layers of homogenisation and decontextualisation in entrepreneurship education. This makes it particularly important to assess the extent to which LLMs—especially ChatGPT—are able to capture teachers' specific concerns, both as course designers and as mediators of students' needs, and to generate insights that are genuinely relevant and context-sensitive.

2.2. Methodology

The approach adopted is exploratory and qualitative, aiming to analyse discourse produced by ChatGPT and to generate insights relevant to entrepreneurship education practice.

The empirical material consists of an extended co-design interaction with ChatGPT conducted during the design of a contextualised entrepreneurship course for students in a Tunisian business school. The exchange comprises sequences of prompts, responses, reformulations, argumentative moves, and strategic adjustments, and is treated as a discursive corpus analysed qualitatively in line with established traditions in discourse studies.

The study adopts a Single-Case Discourse Analysis approach. The focus on a single extended interaction is intentional: analytical depth allows the identification of recurring discursive structures, argumentative patterns, positioning strategies, and empathic framings. The selected interaction is theoretically relevant insofar as it unfolds within a culturally specific educational setting and involves explicit attempts to operationalise empathy in pedagogical design. In line with qualitative case study traditions that privilege analytical depth over statistical generalisation (Yin, 2018), single-case designs, when conducted rigorously and reflexively, are well established in discourse analysis and can reveal meaning-making mechanisms that may remain invisible in large-scale quantitative approaches. This approach enables detailed examination of how contextual elements are progressively interpreted and incorporated into the model's responses. Given the exploratory orientation of the research and the processual character of empathy in pedagogical design, sustained interaction permits close attention to the micro-dynamics of meaning

construction. Methodological rigour is ensured through explicit documentation of interactional conditions (prompt structure, objectives, sequencing), allowing transparency and analytical traceability.

The analysis does not attempt to infer internal states or intentions of the model. Consistent with critical discussions on the epistemic limits of large language models (Bender et al., 2021), the study refrains from attributing cognition or intentionality to the system and instead focuses on ChatGPT's discursive performance—the observable linguistic and rhetorical strategies through which the system enacts understanding, alignment, contextual sensitivity, and normative positioning. Drawing on Benveniste's theory of enunciation (1966/1974), the analysis examines how subject positioning and alignment are constructed within the interaction. It also considers reformulation, contextual framing, argumentative structuring, and the handling of socio-institutional constraints in investigating how empathy is discursively enacted in the pedagogical co-design process.

Although still developing and scattered across disciplines, recent studies have begun to treat human–LLM exchanges as legitimate objects of empirical inquiry. In computational linguistics and language sciences, AI-produced dialogues are analysed as corpora (Bender et al., 2021; Sandler et al., 2024; Tudino & Qin, 2024). In Human–Computer Interaction and Communication Studies, user–AI exchanges are conceptualised as sites of meaning negotiation and relational construction (Guzman & Lewis, 2020; Liao et al., 2023; Shneiderman, 2020). In critical discourse and sociolinguistic research, LLM-generated texts have been examined for their role in knowledge production, ideological framing, and power dynamics (Ahmed & Mahmood, 2024). In Critical Management Studies, the structuring effects of algorithmic systems on organisational reasoning and norm production are increasingly explored (Kellogg et al., 2020). Together, these strands indicate that methodological engagement with human–LLM interaction is gaining recognition across fields, even if not yet theoretically consolidated.

Within this perspective, the study seeks to identify recurrent discourse patterns through which AI-mediated interaction participates in educational meaning-making in entrepreneurship course design—particularly within the *Empathise* phase of Design Thinking.

A simulation of a course-design situation was conducted using ChatGPT-4 to explore potential improvements aligned with my objectives—namely, adapting entrepreneurship teaching to the Tunisian cultural and institutional context. The simulation did not involve additional human mediation, nor did it extend to later stages of formalising or testing pedagogical content. As a researcher, I therefore occupied a dual role as designer and analyst. Rather than constituting a bias to be eliminated, this positioning is recognised as part of the interactional conditions under examination, since empathic meaning emerges through contextual co-construction between interlocutors (Hancock & Ickes, 1996). Because empathic postures are ultimately perceived and interpreted by users, the study adopts an interpretivist epistemological stance foregrounding situated meaning-making.

Within this dual role, the researcher's posture is threefold: as a reflective practitioner of entrepreneurship education, as a disciplinary expert assessing contextual relevance, and as a potential end user of the insights generated. This positioning enables both the translation of students' receptivity into pedagogical adjustments and evaluation of the tool's responses in relation to their cultural and institutional setting.

The simulation was conducted on 17 November 2024 and lasted approximately 20 minutes. Despite its limited duration, the density of the exchange generated a substantial corpus of 34

pages. The interaction was archived in full and analysed through iterative close reading. At the outset, I expressed frustration regarding the limited effectiveness of my courses in stimulating students' interest in entrepreneurship. The analysis considers both the substantive content of ChatGPT's recommendations and the discursive mechanisms through which they are framed and aligned with the speaker's expectations.

Accordingly, the study addresses two research questions:

RQ1. What discourse patterns does ChatGPT employ when proposing courses of action presented as tailored to a user's stated needs?

RQ2. What do these discourse patterns reveal about the tool's capacity to demonstrate empathy?

Prompts emphasised frustration and highlighted the sociocultural particularities of teaching entrepreneurship in a Tunisian business school. The interaction generated dense responses forming the analysed corpus.

The corpus was analysed using discourse analysis centred on enunciative activity, relying on endogenous textual criteria to identify salient moments (Coulomb-Gully, 2002). Analysis was first conducted manually, then complemented by two tools. Tropes (v8.5) segments discourse into propositions and identifies narrative structure, recurring motifs, and figures of speech (Wolff & Visser, 2005). Hyperbase-Web (v1) enables lexicometric analysis, including co-occurrences and stylistic contrasts (Vanni, 2016; Polguère, 2003), while its Discovery module highlights salient lemmas and themes (Mayaffre, 2013). These tools support identification of enunciative shifts, thematic clustering, and rhetorical structuring within the corpus, articulating discourse structure with lexical organisation.

2.3. Key Findings

2.3.1. *Overview of the Interaction with ChatGPT and Early Impressions*

I introduced myself as a lecturer and researcher in entrepreneurship at a business school in Tunis, Tunisia, with over two decades of experience, and expressed frustration regarding the limited impact of my courses on students. ChatGPT acknowledged these concerns, attributing them to factors such as insufficient real-world application, excessive theorisation, or misalignment with student expectations, before proposing strategies aimed at improving pedagogical effectiveness. Emphasizing the importance of engaging and contextually relevant practices, it suggested methods broadly aligned with current trends in entrepreneurship education.

The interaction followed a repeated exchange structure: I reiterated my frustrations, referred to unsuccessful past initiatives, or oriented the exchange toward themes such as cultural and societal norms, institutional constraints, familial influences, and the characteristics of Tunisian youth. In response, ChatGPT reformulated my prompts in its own terms, expanded upon them, proposed actionable recommendations, and invited feedback. Its tone remained consistently measured, positive, and forward-looking, systematically validating my inputs while downplaying negative affect.

Over the course of the exchange, I identified nine distinct sequences of recommendations, the main elements of which are summarized in Table 1.

Table 1. Main sequences of recommendations provided by ChatGPT (manual processing)

1st sequence of recommendations	2 nd sequence of recommendations	3 rd sequence of recommendations	4th sequence of recommendations	5th sequence of recommendations	6th sequence of recommendations	Final sequence of recommendations *
<ol style="list-style-type: none"> 1. Put theory into practice. 2. Integrate innovation and creativity. 3. Embrace learning through failure. 4. Utilize digital tools and interactive learning platforms. 5. Encourage entrepreneurial spirit beyond the academic program. 6. Implement alternative evaluation methods. 7. Contextualize teaching to the local reality. 8. Support entrepreneurial spirit throughout the educational journey. 	<ol style="list-style-type: none"> 1. Cultivate a culture of constructive failure. 2. Provide personalised support and active mentoring. 3. Embody the entrepreneurial spirit within the institution. 4. Establish stronger connections with the local market. 5. Incorporate elements of introspection and personal development. + Acknowledgement of the central role of mindset and culture in student engagement. 	<ol style="list-style-type: none"> 1. Leverage social and solidarity-based entrepreneurship. 2. Create an entrepreneurial environment within the school. 3. Support the development of practical skills from the outset. 4. Foster resilience and the ability to navigate uncertainty. 5. Raise awareness of innovation in a local context (e.g., in tourism and culture, the green economy, digitalisation, and FinTech). 6. Reduce cultural and familial barriers. + Encourage a shift towards the role of facilitator in the necessary transformation of mindsets. 	<ol style="list-style-type: none"> 1. Learning through action. 2. Implementing local challenges and projects connected to real-life situations. 3. Creating a "virtual entrepreneurial ecosystem." 4. Utilizing gamification and immersive simulations. 5. Engaging students in hands-on entrepreneurship with local stakeholders. 6. Peer-to-peer student mentoring. 7. Developing an "incubated" project in collaboration with the school. + Emphasis on the importance of initiating mindset shifts and actionable steps. 	<ol style="list-style-type: none"> 1. Start small: implement projects with local and practical impact. 2. Integrate progressive approaches to gamification and simulations. 3. Incorporate gentler approaches to social entrepreneurship. 4. Collaborate with local businesses: adopt a field-based approach. 5. Provide gradual support and mentorship. 6. Ensure flexibility and implement progressive transformation in the pedagogical approach. 7. Take small steps and achieve incremental successes. + Conclusion on the necessity of a progressive transformation, contextualised and adapted to local expectations. 	<ol style="list-style-type: none"> 1. Rethink education to encourage creative thinking. 2. Strengthen problem-solving skills. 3. Create innovation spaces: incubators, hackathons, and makerspaces. 4. Encourage partnerships with industry and local entrepreneurs. 5. Use technology to stimulate innovation. 6. Develop a culture of social and sustainable entrepreneurship. 7. Change the mindset and perception of entrepreneurship. 8. Strengthen the role of media and social networks. + Recommendation for a multidimensional and contextualised approach to innovation. 	<ol style="list-style-type: none"> 1. Reform education to support entrepreneurship grounded in reality (integrating entrepreneurship into school and university curricula; continuing education and coaching). 2. Create localized and inclusive entrepreneurial ecosystems (accessible incubators and fab labs; regional entrepreneurial communities; intergenerational collaboration). 3. Facilitate access to funding (microcredit and crowdfunding; entrepreneurship grants and competitions; tax incentives and public-private partnerships). 4. Promote an entrepreneurial culture and a positive approach to risk management (changing perceptions of failure; valuing local entrepreneurs). 5. Leverage digital and innovation opportunities (development of digital entrepreneurship; socially responsible start-ups). + Conclusion: Emphasis on the need to take action on multiple fronts simultaneously.

***Note:** Two earlier sequences addressed Tunisian youth culture and barriers to entrepreneurship but are not reported in the table, as they did not involve the formulation of specific courses of action.

Despite the apparent richness of these proposals and the display of empathic engagement, the tool frequently recycled a limited set of core ideas, rephrased with rhetorical sophistication and slight contextual adjustments. My inputs were regularly reformulated in ways that conveyed attentive listening, yet the substantive recommendations largely converged around a small number of dominant themes. Although ChatGPT occasionally referenced academic or professional sources when prompted, the contextualisation I sought remained superficial, addressing cultural and institutional barriers in broad terms without yielding genuinely novel or finely tailored insights.

To move beyond this intuitive assessment, the following subsections present the results of the discourse and lexicometric analyses conducted using the Tropes and Hyperbase software tools.

2.3.2. Discursive Structure and Enunciative Configuration (Tropes Analysis)

General style of the text and type of narrative structure

The Tropes analysis indicates a predominantly argumentative discourse, structured around a narrator-led delivery and composed of 313 notable propositions distributed across 11 episodes. The overall narrative remains descriptive rather than prescriptive.

Verb usage is dominated by factive (56.5%) and stative forms (23.1%), with no performative verbs detected. This configuration reflects a non-directive discourse that discusses and reformulates rather than explicitly advising or encouraging action. Connective markers are largely additive (55.8%) and disjunctive (18.3%), while opposition and causality remain marginal. As a result, the discourse accumulates options and perspectives without strong argumentative tension or clear causal articulation.

Modalization is primarily driven by intensity markers (44.4%), signalling tentative and weakly asserted solutions. References to place and time (both 15.9%) frequently simulate contextual anchoring rather than providing concrete grounding. Strong affirmation or negation is rare, reinforcing a measured tone that suggests flexibility but also avoids commitment.

Lexically, adjectives are mainly objective, complemented by a substantial proportion of subjective qualifiers. Frequently recurring terms such as *entrepreneurial*, *local*, *social*, *real*, and *concrete* contribute to an appearance of situated relevance, yet their repetition also serves a rhetorical function, reinforcing plausibility without introducing operational specificity. Substantive usage concentrates on a limited core vocabulary (*entrepreneurship*, *student*, *project*, *young*, *Tunisian*), while pedagogical terms explicitly highlighted in the prompts (*teaching*, *methods*, *approaches*, *school*) do not appear among the most frequent nouns, pointing to a gap between discourse and pedagogical implementation.

Pronoun distribution is marked by the predominance of *it*, *you*, and *they*, while *I* remains less frequent. This pattern reflects the speaker's partial effacement and the construction of an advisory posture oriented toward the interlocutor and students. The frequent use of impersonal formulations ("it is common to," "it is interesting to") contributes to a distanced and depersonalized enunciative position, reinforcing neutrality while limiting dialogical engagement.

Taken together, these analyses suggest discourse patterns typical of an *Advisor* posture, characterized by a supportive, apparently neutral, and cautious tone. However, the tool subtly orients the interlocutor toward specific courses of action through the reiteration of certain ideas, particularly by emphasizing inclusivity, sustainability, and collective concerns, as reflected in recurrent references to social entrepreneurship.

Analysis of Core Propositions

Using the "remarkable propositions" and "text contraction" functions of Tropes, the 313 notable propositions were reduced to 11 core propositions, as presented in Table 2.

Table 2. The 11 core Key Propositions identified by Tropes

1) Collaboration and allow students to experience real entrepreneurial situations. 3 Learning through failure . Entrepreneurship.
2) In Tunisia , this could mean involving students in social and solidarity entrepreneurship projects.
3) As in many other countries , several factors can influence this dynamic. 1. The culture of safety and limited risk In many societies.
4) The absence of local figures who embody success can create a lack of inspiration. 2. A lack of self-confidence and confidence in the future Among many students.
5) Issues such as waste management , access to education, youth integration into the job market, or support for sustainable agriculture are sectors where entrepreneurship can have a major impact.
6) And to become aware of the direct impact of entrepreneurship on Tunisian society . 2. Creating an entrepreneurial environment in the school One of the major obstacles to entrepreneurship in Tunisia is the absence of a sufficiently developed entrepreneurial ecosystem in certain regions .
7) So that this teaching produces greater effects among business schoolstudents ?
8) Because the teachers themselves are not always entrepreneurship practitioners .
9) Or because the incubation structures are not aligned with the specific needs of the Tunisian market .
10) By having access to concrete resources to get started. 4. Changing the perception of entrepreneurship Entrepreneurship as a legitimate path .
11) The lack of a true mentorship network and public-private partnerships in the entrepreneurial sector is a major obstacle to the growth of projects led by young people without family or institutional support. 4. Access to a culture of failure .

Note:These propositions were generated using the ‘remarkable propositions’ and ‘text contraction’ functions of the Tropes software.

Except for Proposition 7—reflecting my reformulations and emphasis on context—the other propositions cluster around four themes: overcoming fear of failure, practical learning, social/solidarity entrepreneurship, and ecosystem development. Yet they remain broad, seldom engaging with institutional or pedagogical specifics. The repeated focus on solidarity entrepreneurship and sustainability suggests a rhetorical effort to steer the interlocutor toward a particular course of action rather than genuinely adapting to context.

Analysis of the Reference 'Teaching': Actants and Acted-upon Entities

In the “References Used” feature, the software identified 53 terms linked to Teaching—notably *programs*, *models*, and *support*. The resulting Aires Graph (see Figure 1) maps their relationships.

Table 3.Key phrases identified/ 1. "LEM:students can"

Left part	Pivot	Right part
Many programs integrate simulation tools where	students can	virtually manage a company, make strategic decisions, and
succeed. * Creation of a safe environment where	students can	take risks without fear of sanction. This allows them to
in-person teaching with digital resources where	students can	deepen subjects or access expert courses
entrepreneurs: Create or support extra-academic initiatives where	students can	test their ideas, organize events, and meet
set up or collaborate with incubators where	students can	transform their ideas into concrete projects and test their viability
an obstacle arises. * Peer assessments:	students can	evaluate their peers on aspects such as creativity,
failure: If failure is poorly perceived,	students can	be reluctant to take risks or to fail.
, business incubators, individualized support),	students can	feel that their ideas are 'taken seriously'
. o Set up practical workshops where	students can	launch small projects with constant support
renewable energy is a promising sector in which your	students can	play a pioneering role. * Digitalization and FinTech
digital within the business school where	students can	interact with entrepreneurs, investors, mentors, and
Virtual incubation platform: Create a platform where	students can	submit their project ideas, receive feedback,
Local: The 'Do it Yourself' spirit.	students can	be invited to actively engage in the economic reality
local or by collaborating with community organizations,	students can	feel that they are contributing to a greater cause,
helps establish a climate of trust, where	students can	ask questions without judgment. * Progressive support:
concentrated in certain regions and sectors of activity.	students can	thus perceive these options as unreliable or inadequate for
, entrepreneurship may seem even riskier.	students can	feel that it is difficult to find the
conferences, workshops, or mentoring.	students can	thus become aware of the real challenges faced by

Note: This table presents the first lemma identified intuitively by the Hyperbase-Web software along with its position in the sentences.

This construction positions students as potential actors while maintaining advisory distance from the teacher's direct agency. Suggested actions cluster around a few recurring themes: aligning education with real-world practice, fostering mentoring, and de-dramatizing risk and failure. The modal framing emphasises possibility rather than obligation.

Additionally, the Concordance Search shows that '*where*' (où) appears 70 times, co-occurring nine times with 'LEM:student can' and displaying the highest specificity index in the corpus (4.47; $p = 0.00000647$). This pattern suggests that '*where*' contributes to discursive contextual framing by simulating context (place), while it does not necessarily correspond to detailed modelling of concrete institutional settings.

Recurrent Pattern: “more ... in”

Table 4 shows how the recurrent lemma “more??? In” is utilized in key phrases.

Table 4. Key phrases identified/ 2. "LEM:more??? In"

Left part	Pivot	Right part
succeed in an entrepreneurial environment. This may be even	more pronounced in	a country like Tunisia, where students face
students to overcome cultural obstacles and to embark	more confidently on	the entrepreneurial adventure. Your role as a teacher
in the local culture. Social entrepreneurship is often	more accepted in	developing societies, as it responds to
traditional. The labor market is often perceived as	more secure in	the public and private sectors, limiting the willingness to
industries and services. This dynamic is all the	more prevalent in	a country where economic structures are still largely dominated

Note: This table presents the second lemma identified intuitively by the Hyperbase-Web software along with its position in the sentences.

This second recurring pattern relies on graded comparison rather than categorical assertion. The repeated use of “*more*” and “*in*” produces comparative contextualisation without corresponding elaboration of institutional mechanisms. The intensification of adjectives reinforces evaluative nuance, while maintaining a broadly framed discursive orientation.

Key Theme: Social Entrepreneurship

The following table (Table 5) summarises the occurrences of the theme of social entrepreneurship in the analysed discourse.

Table 5. Key theme identified/ "Social Entrepreneurship"

Column1	Column2	Column3
this could mean involving students in	social [or solidarity] entrepreneurship	projects, which address local issues.
local: o Involve students in	social entrepreneurship	projects or local initiatives, in connection with the challenges
students and the market: 1. Capitalize on	social [and solidarity] entrepreneurship	. In Tunisia, as in many countries
, as in many developing countries, Softer Approaches to Social Entrepreneurship The idea of	social [and solidarity] entrepreneurship	can offer concrete solutions to economic challenges
while remaining realistic and rooted in the local culture.	social entrepreneurship	can be an excellent compromise, as it emphasizes
can be a powerful way to stimulate their creativity.	Social entrepreneurship	is often more accepted in developing societies, , which emphasizes positive impact rather

innovation. * Theories of social capital and	social entrepreneurship	: The works of Seymour M. Lipset and Jean-Baptiste Say
the works of Seymour M. Lipset and Jean-Baptiste Say on	social entrepreneurship	guided my reflection on the importance of innovation
large scale. It can take various forms:	social entrepreneurship	, cooperative, or even solidarity-based. Teaching should
dedicated financing and through specific training programs in	social [and sustainable] entrepreneurship	. Conclusion: Turning dreams into actions

Note: This table presents the main theme identified intuitively by the Hyperbase-Web software along with its position in the sentences.

This finding confirms the consistent orientation of the responses toward social and solidarity-based entrepreneurship.

Across the Tropes and Hyperbase analyses, a consultative discursive configuration emerges that, while restrained in tone, channels the interaction toward a limited thematic repertoire. References to institutional and cultural settings are mobilised and reformulated at the discursive level, yet remain weakly embedded in pedagogical and organisational specification. Cultural, institutional, and pedagogical constraints are acknowledged, but they are not translated into differentiated curricular modelling.

3. Discussion

As a reminder, this research assesses the capacity of LLMs—specifically ChatGPT—to meaningfully empathise with a human teacher and to generate useful insights when designing a contextualised entrepreneurship course. The discussion is therefore structured around the findings related to the two dimensions explored: discourse structure and discourse content, the latter being intended to reflect the tool’s empathic capacities.

3.1. Discourse Structure

As previously indicated, the discourse structure resembles that of a neutral advisor subtly taking a position and guiding the interlocutor towards specific avenues—particularly those emphasising collective values such as inclusiveness and social or solidarity-based entrepreneurship.

These findings converge with those reported by Jiang and Hyland (2025), who show that, although ChatGPT produces structurally coherent and logically organised essays, its texts contain fewer interactional metadiscourse markers than human writing, resulting in a comparatively more impersonal tone. They suggest that this pattern reflects the model’s algorithmic orientation towards clarity and formal coherence, and conclude that AI and human writers therefore fulfil complementary roles in text production. Some authors further regard the discursive neutrality of LLMs as a stabilising factor in public debate. For instance, Fan and Xu (2025) identify two mechanisms through which LLMs appear to moderate discourse: first, they consistently exhibit emotional neutrality, displaying significantly less polarised sentiment than human users; second, they maintain lower levels of emotional intensity across contexts, thereby generating a stabilising effect in conversations. On this basis, the authors suggest that LLMs may possess inherent moderating capacities capable of improving the quality of public discourse on controversial issues.

While such findings highlight the stabilising and moderating potential of LLM-generated discourse, this configuration may also be interpreted differently when viewed through the lens of

recent pragmatic research. Garassino et al. (2024) show that ChatGPT-generated texts—particularly on controversial topics—display a high density of implicit communication and contain, on average, more questionable presuppositions than texts produced by human speakers. They further observe that these presuppositions exhibit different distributional patterns and discourse functions, which may partly derive from architectural characteristics of ChatGPT, notably its tendency to generate verbose and repetitive outputs in longer texts. From this perspective, LLM outputs may carry persuasive—and potentially manipulative—effects not through overt argumentative radicality, but through implicit discursive mechanisms embedded in their structural organisation. The combination of presuppositional density and recurrent framing patterns may reinforce particular interpretative orientations without explicitly asserting them.

Although the interaction analysed here does not involve polarising rhetoric, the Tropes and Hyperbase analyses reveal recurrent structural features: thematic stability, modal caution, repeated framing devices, and contextual simulation without detailed institutional modelling. These characteristics suggest that persuasive potential may operate less through the force of individual claims than through the reiteration of discursive configurations. Such recurrence does not imply intentional manipulation. However, through cumulative framing effects, it may contribute to the normalisation of a limited thematic repertoire. When users are repeatedly exposed to structurally similar argumentative scaffolds—emphasising empowerment, resilience, social entrepreneurship, and ecosystem narratives—these frames may progressively appear self-evident or naturalised. In this sense, the persuasive capacity of LLMs may lie less in ideological extremity than in the gradual stabilisation of interpretative patterns. The concern, therefore, is not radicalisation but convergence.

This interpretation resonates with recent critical discourse research suggesting that ChatGPT's responses can reflect dominant ideological discourses while marginalising alternative frames. Ahmed and Mahmood (2024), for example, show that, when responding to ideologically charged questions, ChatGPT tended to reproduce established discursive formations—privileging capitalist frameworks over alternative perspectives. Their analysis indicates that power relations may be embedded in generated knowledge and that LLM outputs can inadvertently reinforce existing structures of meaning and authority.

In the interaction analysed here, the recurrent orientation towards social and solidarity-based entrepreneurship does not sufficiently account for the concrete constraints affecting its implementation in a context characterised by limited cultural receptivity, scarce dedicated funding, narrow and low-margin markets, and weak prospects for collaboration with large firms—conditions often essential to its viability. Although the model could, in principle, mobilise and triangulate information from the vast textual resources on which it has been trained, its recommendations did not reflect such contextual differentiation. This pattern points to a simplified and homogenising representation of reality, which may progressively shape users' interpretative frameworks as reliance on ChatGPT increases. Irrespective of the normative value attached to these orientations, the tendency of LLMs to favour socially acceptable formulations—likely shaped by alignment and moderation objectives embedded in their training processes—may constrain their capacity to generate context-sensitive insights. By privileging modes of reasoning that align with broadly accepted discursive norms, LLM outputs may introduce additional constraints on creative exploration beyond those already internalised by individuals, potentially fostering a subtle form of self-limitation.

3.2. Interpretation of Discourse Content with Regard to Empathic Capabilities

Beyond discourse structure, the content of ChatGPT's responses offers further insight into the model's capacity to display empathic engagement and generate contextually relevant

recommendations. ChatGPT produces rich, detailed, and apparently comprehensive responses, systematically explaining the proposed courses of action. However, these responses frequently reiterate similar ideas through varied formulations, often invoking general principles such as “adapting to context” without translating them into concrete, actionable methods. The specific issue under discussion—namely, the design of an entrepreneurship course within a Tunisian business school—remains only marginally addressed. Consequently, the central challenge is insufficiently explored, and the discussion tends to gravitate towards generic considerations rather than genuinely context-sensitive solutions.

At the interactional level, the tool’s responses are characterised by politeness, correctness, and attentiveness. These features, combined with explicit validation of the interlocutor’s concerns, create a strong impression of empathic, human-like interaction. For example, when asked after a pause whether it had reflected further on the issue, the tool affirmed that it had done so and presented what appeared to be new insights, although much of the content largely repeated previously expressed ideas. Such responses reproduce recognisable conversational cues—empathy, reformulation, and reflective tone—commonly associated with human dialogue. This simulated empathy is particularly visible in statements such as: “I completely understand your scepticism, especially if you have already spent several years trying to implement these proposals without seeing concrete results. Frustration can be even greater when attempting to reform a system or introduce innovative practices, only to encounter persistent obstacles (...).”

More broadly, the tool frequently adopts a perspective-taking stance, often aligning itself with the interlocutor’s concerns and the directions steered in the conversation. It also displays pedagogical qualities by clearly explaining ideas and maintaining coherence with previously introduced concepts. In addition, the responses incorporate elements of the user’s own language and contextual cues, suggesting an awareness of the interlocutor’s academic background. Taken together, these features create a form of discursive plausibility that may encourage anthropomorphisation and lead users to over-attribute moral understanding or genuine empathy to the system.

A closer examination of the content, however, reveals a different underlying pattern: the apparent empathic engagement is largely sustained through the reiteration of similar ideas, with only minor variations, rather than through substantive contextual exploration. The system does not seek clarification regarding the specific institutional constraints, pedagogical practices, student profiles, or structural challenges of the business school in question. Consequently, the empathy displayed remains largely simulated, relying on broadly applicable formulations rather than on differentiated contextual understanding.

This observation aligns with the risks identified by Delikoura *et al.* (2025) regarding the use of LLMs in educational contexts, including the production of superficially plausible content, limited robustness of recommendations, and potential cognitive effects such as reduced intellectual effort or diminished learner autonomy. In such situations, models may encourage surface-level engagement rather than sustained analytical reflection. Similarly, Perret (2025) warns that the integration of AI tools into design processes may contribute to the standardisation of creative outputs, producing solutions that often lack originality or reproduce cultural biases embedded in training data.

Nevertheless, the reception of ChatGPT’s simulated empathy may vary depending on users’ backgrounds and expectations—for instance, between novice teachers and experienced educators with strong domain expertise. As shown by Suh *et al.* (2025), the empathy perceived in LLM interactions depends on contextual factors such as users’ expectations, emotional states, and profiles; it is therefore not an intrinsic property of the model itself. Less experienced users may

therefore be more susceptible to the persuasive appearance of empathic alignment. Despite this variability, the discourse analysis conducted here highlights the strong discursive power and persuasive potential of such systems. As these tools continue to spread and increasingly acquire the status of authoritative sources of “best practices,” they risk promoting oversimplification, uniformity, and standardisation in the design of pedagogical content.

In the Tunisian context, these dynamics raise particular concerns. Entrepreneurship courses already operate within a relatively homogeneous regulatory framework imposed by the Ministry of Higher Education. The widespread use of LLMs in pedagogical design may therefore introduce an additional layer of homogenisation, potentially weakening the distinctive pedagogical identities of business schools. Given that their approach to entrepreneurship education constitutes a key differentiating feature, excessive reliance on generative tools may gradually erode this specificity.

Consequently, two possible trajectories may emerge. On the one hand, reliance on LLMs could intensify, contributing to the homogenisation of educational practices and potentially reinforcing the limited effectiveness of entrepreneurship education, as Western-centred visions of entrepreneurship are implicitly reproduced in contexts where they may not fully resonate with local socio-economic realities. On the other hand, this trend may prompt a growing awareness of the need to more carefully contextualise pedagogical approaches and to design learning content that is more closely aligned with learners’ characteristics, values, and expectations. In this second perspective, academic research—particularly locally grounded qualitative research—has a critical role to play. By exploring the aspirations, mindsets, and value systems shaping Tunisian youth, such research could help capture the diversity of entrepreneurial representations and identify pedagogical levers better adapted to local realities.

Conclusion

Can the use of ChatGPT support entrepreneurship educators in designing pedagogical content that is genuinely creative and tailored to learners’ specific characteristics within particular cultural, institutional, and curricular contexts? This question encapsulates the core issue addressed in this study. Drawing on the linguistic Theory of Enunciation, we analysed ChatGPT’s responses in a simulated course-design situation and examined their rhetorical structure.

The analysis—both intuitive and software-assisted—reveals a dominant “Advisor” register, characterised by a supportive yet subtly directive discourse that orients the interlocutor toward specific value frameworks, notably social and solidarity-based entrepreneurship. While framed in empathetic language, the tool’s responses remain largely generic, relying on the reformulation of predefined solutions rather than producing contextually grounded insights. As a result, meaning does not genuinely evolve throughout the interaction. These findings echo prior work highlighting AI’s tendency to standardise thought and constrain creativity in educational design (Razouki *et al.*, 2025; Adinda *et al.*, 2025).

In terms of theoretical implications, the findings of this study contribute to the emerging debates on the cognitive and discursive effects of LLMs in educational environments. Within constructivist theories of learning, it is widely acknowledged that the production and structuring of knowledge rely on exposure to a form of cognitive tension or disequilibrium, which stimulates critical reflection and the reconfiguration of conceptual frameworks. This principle is central to constructivist approaches to learning, which emphasise that knowledge is progressively constructed through processes of cognitive adjustment and social interaction (Piaget, 1977; Vygotsky, 1978). Applied to the work of educators and curriculum designers, this principle

implies that the design of pedagogical frameworks often emerges from the confrontation with divergent perspectives, conceptual contradictions, or contextual constraints that stimulate pedagogical innovation. However, the discursive analyses conducted in this study suggest that responses generated by LLMs tend to produce stabilised formulations that may reduce this cognitive tension during the phases of pedagogical design. In the field of entrepreneurship education, this dynamic may contribute to the diffusion and normalisation of dominant entrepreneurial scripts, often inspired by standardised business creation models originating in Western contexts. LLMs may therefore encourage the reproduction of relatively homogeneous entrepreneurial frameworks, potentially limiting the exploration of more situated or contextually embedded forms of entrepreneurship.

Regarding the practical and managerial implications of this research, the findings suggest that the integration of LLMs into teaching practices should not lead to the delegation of the conceptual structuring of pedagogical content to such tools. Their pedagogical value may lie more in their capacity to support the logical and reflective reasoning processes of educators rather than in directly providing the content to be taught. In this perspective, LLMs could be used as exploratory tools that help structure questions, formulate hypotheses, or compare alternative pedagogical options, while leaving educators responsible for contextualising and selecting the most relevant conceptual frameworks. Moreover, relying extensively on content generated by these systems may encourage the design of programmes based primarily on causal entrepreneurial logics structured around predefined objectives, standardised business plans, and dominant venture creation models. Yet, as Sarasvathy (2001) has shown, entrepreneurship often follows effectual logics, in which opportunities gradually emerge from available resources, interactions with stakeholders, and the exploration of uncertain environments. Excessive reliance on frameworks generated by LLMs may therefore limit students' ability to identify or construct entrepreneurial opportunities grounded in their local environments.

From this perspective, it appears particularly relevant to prioritise pedagogical approaches grounded in experimentation and engagement with real-world situations. Entrepreneurship education could therefore rely more extensively on situated projects enabling students to develop initiatives connected to the needs of their socio-economic environment. Such projects may include low-capital micro-entrepreneurial initiatives addressing local problems, frugal entrepreneurship solutions based on resource-efficient innovation, initiatives supporting women's entrepreneurship, or intrapreneurial projects within existing organisations—career pathways that are often particularly relevant for young people in contexts such as Tunisia. Consequently, LLMs should be mobilised as a pedagogical complement that enriches the cognitive frameworks of educators and students by exposing them to diverse entrepreneurial situations across cultural contexts. Rather than replacing human intervention and pedagogical guidance, they may function as benchmarking or exploratory support tools that broaden perspectives and stimulate critical reflection on the plurality of entrepreneurial pathways. However, meaningful entrepreneurship education—particularly when the objective is to foster entrepreneurial mindsets—requires close engagement with learners, sustained dialogue, and forms of empathetic human interaction that allow educators to better understand what motivates and inspires students.

This study has several limitations, notably the limited generalisability of its findings—as is often the case in qualitative research, particularly single-case studies—and the difficulty of replicating discursive interactions. Nevertheless, it reaffirms that simulated “empathy” cannot substitute for situated human insight in design processes (Liu, 2024). Future research could adopt a comparative perspective to examine how entrepreneurship educators with different profiles interpret, appropriate, and use identical LLM-generated responses. In particular, studies could investigate whether factors such as teaching experience, disciplinary background (e.g., management, economics, engineering), age, or gender influence how instructors evaluate the

relevance and credibility of recommendations generated by such systems. Qualitative research could then analyse how these different interpretations translate into pedagogical choices in the design of entrepreneurship courses. Such an approach would make it possible to explore whether the professional profile and background of educators exert a stronger influence on their interaction with LLM outputs than concerns related to contextualisation and the practical effectiveness of the proposed recommendations.

Data Availability Statement:

This study is based on a simulated interaction with ChatGPT. All relevant data are presented within the article.

Funding:

This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

Conflict of interest:

The author declares no conflicts of interest.

Ethics statement:

Not applicable.

AI use disclosure:

AI tools (*ChatGPT*) were used to assist with the identification of relevant literature and to support translation and language refinement of the manuscript. All selections, analyses, interpretations, and substantive content remain the author's own.

Bibliographic references

Adinda, D., Blandin, B., Jeunesse, C., & Las Vergnas, O. (2025), Digital, IA et formation des adultes: synthèse de treize ans de recherche internationale. *Savoirs*, 68(2), 13–118. <https://doi.org/10.3917/savo.068.0013>

Ahmed, T., & Mahmood, K. (2024). A critical discourse analysis of ChatGPT's role in knowledge and power production. *Arab World English Journal*, 1, 184–196. <https://doi.org/10.24093/awej/ChatGPT.12>

Alaref, J., Brodmann, S., & Premand, P. (2020). The medium-term impact of entrepreneurship education on labor market outcomes: Experimental evidence from university graduates in Tunisia, *Labour Economics*, 62, 101787. <https://doi.org/10.1016/j.labeco.2019.101787>

Au Yeung, J., Kraljevic, Z., Luintel, A., Balston, A., Idowu, E., Dobson, R.J., & Teo, J.T. (2023), AI chatbots not yet ready for clinical use. *Frontiers in Digital Health*, 5. <https://doi.org/10.3389/fdgth.2023.1161098>

Arasti, Z., Falavarjani, M.K., & Imanipour, N. (2012), A Study of Teaching Methods in Entrepreneurship Education for Graduate Students, *Higher Education Studies*. 2(1), March. 2-10, 10.5539/hes.v2n1p2

Balas Chanel, A. (2013), *La pratique réflexive: Un outil de développement des compétences infirmières*. Elsevier Masson, Paris.

Bender, E. M., Gebru, T., McMillan-Major, A., & Shmitchell, S. (2021). On the dangers of stochastic parrots: Can language models be too big? *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency*, 610–623. <https://doi.org/10.1145/3442188.3445922>

Benveniste, E. (1966, 1974), *Problèmes de linguistique générale I et II*. Gallimard, Paris.

- Blenker, P., Elmholdt, S.T., Frederiksen, S.H., Korsgaard, S., & Wagner, K. (2014), Methods in entrepreneurship education research: a review and integrative framework, *Education + Training*, 56(8-9), 697–715, <https://doi.org/10.1108/ET-06-2014-0066>
- Boldureanu, G., Ionescu, A. M., Bercu, A.-M., Bedrule-Grigoruță, M. V., & Boldureanu, D. (2020). Entrepreneurship Education through Successful Entrepreneurial Models in Higher Education Institutions. *Sustainability*, 12(3), 1267, 1-33, <https://doi.org/10.3390/su12031267>
- Brabant, Q., Veyret, M., Le Meitour, S., Herledan, F., Vialat, M., Lecorvé, G., & Rojas-Barahona, L. (2023), ChatGPT est-il un agent conversationnel de type humain? *Orange Hello Future*, 20 April. Available at: <https://hellofuture.orange.com/fr/chatgpt-est-il-un-agent-conversationnel-de-type-humain/> (accessed 11 August 2025).
- Browne, A.J., Varcoe, C., Ford-Gilboe, M., & Wathen, C.N.; on behalf of the EQUIP Research Team (2015), EQUIP Healthcare: An overview of a multi-component intervention to enhance equity-oriented care in primary health care settings. *International Journal for Equity in Health*, Dec 14(152), 1-11, [10.1186/s12939-015-0271-y](https://doi.org/10.1186/s12939-015-0271-y)
- Carayannis, E.G., Barth, T.D., & Campbell, D.F. (2012). The Quintuple Helix innovation model: global warming as a challenge and driver for innovation. *Journal of Innovation and Entrepreneurship*, 1, <https://api.semanticscholar.org/CorpusID:7290846>
- Coulomb-Gully, M. (2002), Propositions pour une méthode d'analyse du discours télévisuel. *Mots. Les langages du politique*, 70, 103–113. <https://doi.org/10.4000/mots.9683>
- Delikoura, I., Fung, Y. R., & Hui, P. (2025), From superficial outputs to superficial learning: Risks of large language models in education. *arXiv preprint*. <https://arxiv.org/abs/2509.21972>
- Fan, W., & Xu, W. (2025). Artificial intelligence and civil discourse: How LLMs moderate climate change conversations (*arXiv:2506.12077*) [Preprint]. *arXiv*. <https://doi.org/10.48550/arXiv.2506.12077>
- Fayolle, A., & Gailly, B. (2015), The Impact of Entrepreneurship Education on Entrepreneurial Attitudes and Intention: Hysteresis and Persistence, *Journal of Small Business Management*, 53: 75-93, <https://doi.org/10.1111/jsbm.12065>
- Fu, Y., Bin, H., Zhou, T., & Wang, M. (2024), Creativity in the age of AI: Evaluating the impact of generative AI on design outputs and designers' creative thinking. *arXiv*, October. <https://doi.org/10.48550/arXiv.2411.00168>
- Garassino, D., Masia, V., Brocca, N., & Delorme Benites, A. (2024). Politicians vs ChatGPT: A study of presuppositions in French and Italian political communication. *AI-Linguistica. Linguistic Studies on AI-Generated Texts and Discourses*, 1(1). <https://doi.org/10.62408/ai-ling.v1i1.5>
- Gau, L.-S., Chu, H.-T., Pham, D.T., & Huang, C.-H. (2024), Innovative teaching of AI-based text mining and ChatGPT applications for trend recognition in tourism and hospitality. *Tourism and Hospitality*, 5(4), 1274–1291. <https://doi.org/10.3390/tourhosp5040071>
- George-Reyes, C. E., Vilhunen, E., Avello-Martínez, R., & López-Caudana, E. (2024), Developing scientific entrepreneurship and complex thinking skills: creating narrative scripts using ChatGPT, *Frontiers in Education*, 9:1378564, <https://doi.org/10.3389/educ.2024.1378564>
- Guzman, A. L., & Lewis, S. C. (2020). Artificial intelligence and communication: A Human–Machine Communication research agenda. *New Media & Society*, 22(1), 70–86. <https://doi.org/10.1177/1461444819858691>
- Hahn, D., Minola, T., Van Gils, A., & Huybrechts, J. (2017), Entrepreneurial education and learning at universities: exploring multilevel contingencies, *Entrepreneurship & Regional Development*, 29(9-10), 945–974, [10.1080/08985626.2017.1376542](https://doi.org/10.1080/08985626.2017.1376542)

- Hancock, M., & Ickes, W. (1996), Empathic accuracy: When does the perceiver-target relationship make a difference? *Journal of Social and Personal Relationships*, 13(2), 179–199.
- Harnad, S. (2024), Language writ large: LLMs, ChatGPT, meaning and understanding. *Frontiers in Artificial Intelligence*, 7, 1490698, 1–54. <https://doi.org/10.3389/frai.2024.1490698>
- Hassan A, Saleem I, Anwar I, Hussain SA (2020), "Entrepreneurial intention of Indian university students: the role of opportunity recognition and entrepreneurship education". *Education + Training*, 62(7-8), 843–861, <https://doi.org/10.1108/ET-02-2020-0033>
- Hollan, D., & Throop, C.J. (2011), *The Anthropology of Empathy: Experiencing the Lives of Others in Pacific Societies*. Berghahn Books, New York.
- Jiang, F. K., & Hyland, K. (2025). Rhetorical distinctions: Comparing metadiscourse in essays by ChatGPT and students. *English for Specific Purposes*, 79, 17–29. <https://doi.org/10.1016/j.esp.2025.03.001>
- Jorion, P. (1996), La linguistique d'Aristote. In Rialle, V. and Fiset, D. (eds), *Penser l'esprit: Des sciences de la cognition à une philosophie cognitive*. Presses Universitaires de Grenoble, Grenoble (pp. 261–287). Available at: <https://web.archive.southampton.ac.uk/cogprints.org/350/1/RIALLE2.html> (accessed 4 August 2025).
- Kellogg, K. C., Valentine, M. A., & Christin, A. (2020). Algorithms at work: The new contested terrain of control. *Academy of Management Annals*, 14(1), 366–410. <https://doi.org/10.5465/annals.2018.0174>
- Kim, J.H., Kim, K.H., & Choi, R.J. (2024), UX empathy strategy for introverted users through an AI interviewer: Exploring the needs and wants of introverted users. *Journal of Art & Design Research*, 27(2), 103–113. <https://doi.org/10.59386/jadr.2024.27.2.103>
- Kaplan, S. (2024), The future of design thinking: Integrating artificial intelligence for success. *SorenKaplan.com*. Available at: <https://www.sorenkaplan.com/artificial-intelligence-in-design-thinking/> (accessed 26 December 2024).
- Kim, S. (1997), Benveniste et le paradigme de l'énonciation. *Linx*, 9. <https://doi.org/10.4000/linx.1051>
- Kim, S. (2023), Utilizing Metaverse (Zepeto, Ifland) and ChatGPT in design thinking classes: Strategies and approaches. *The Korean Society of Culture and Convergence*, 45(11), 101–114. <https://doi.org/10.33645/cnc.2023.11.45.11.101>
- Kosinski, M. (2024), Evaluating large language models in theory of mind tasks. *Proceedings of the National Academy of Sciences*, 121(45), e2405460121. <https://doi.org/10.1073/pnas.2405460121>
- Lackéus, M. (2015), Entrepreneurship in education: What, why, when, how. *Entrepreneurship360 Background Paper*, OECD, Paris.
- Lassègue, J. (2019), L'intelligence artificielle, technologie de la vision numérique du monde. *Les Cahiers de la Justice*, 2(2), 205–219. <https://doi.org/10.3917/cdlj.1902.0205>
- Lepetiuk, I.G., Sytdykova, I.V., & Burmistenko, T.V. (2022), Theory of utterance as a unit of speech through the works of M. Bakhtin. *Science and Education: A New Dimension. Philology*, X(78), 28–32. <https://doi.org/10.31174/SEND-Ph2022-266X78-06>
- Lessard, C. (2021), L'OCDE et l'éducation: déclinaison d'un changement institutionnel et impératif d'adaptation d'un apprenant perpétuel. *Éthique en éducation et en formation*, 11, 101–124. <https://doi.org/10.7202/1084199ar>
- Liao, Q. V., Gruen, D., & Miller, S. (2023). Questioning the AI: Informing design practices for explainable AI user experiences. *Proceedings of the CHI Conference on Human Factors in Computing Systems*.

- Linteau, M.-A. (2019), Humanisation des robots: implanter l'empathie dans l'intelligence artificielle. *Psycause: Revue scientifique étudiante de l'École de psychologie de l'Université Laval*, 9(1), 56–63.
- Liu, J. (2024), ChatGPT: Perspectives from human-computer interaction and psychology. *Frontiers in Artificial Intelligence*, 7, 1418869. <https://doi.org/10.3389/frai.2024.1418869>
- Lubart, T.I., & Georgsdottir, A.S. (2004), Créativité, haut potentiel et talent. *Psychologie Française*, 49(3), 277–291. <https://doi.org/10.1016/j.psfr.2004.05.005>
- Malik, A., Khan, M.L., Hussain, K., Qadir, J., & Tarhini, A. (2024), AI in higher education: Unveiling academicians' perspectives on teaching, research, and ethics in the age of ChatGPT. *Interactive Learning Environments*, 33(3), 2390–2406. <https://doi.org/10.1080/10494820.2024.2409407>
- Masure, A. (2017), *Design et humanités numériques*. Éditions B42, coll. Esthétiques des données, Paris.
- Mayaffre, D. (2013), Quantitative approaches to political discourse: Corpus linguistics and text statistics. In Flottum, K. (ed.), *Speaking of Europe: Approaches to complexity in European political discourse*. John Benjamins, Amsterdam/Philadelphia (pp. 65–83).
- Moussaoui, H. (2023), ChatGPT: La technologie qui révolutionne la communication humaine et suscite des débats éthiques et juridiques majeurs. *Novencia.com*, 5 July. Available at: <https://www.novencia.com/blog/datamarketing/chatgpt/> (accessed 8 August 2025).
- Mwasalwiba E S. (2010), "Entrepreneurship education: a review of its objectives, teaching methods, and impact indicators". *Education + Training*, 52(1), 20–47, doi: <https://doi.org/10.1108/00400911011017663>
- Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017), The Impact of Entrepreneurship Education in Higher Education: A Systematic Review and Research Agenda, *Academy of Management Learning & Education*, 16(2), 277–299. <http://www.jstor.org/stable/26400192>
- Pavone, G., Meyer-Waarden, L., & Munzel, A. (2024), De l'analyse à l'empathie et à la créativité: La révolution de l'IA dans la pratique et l'enseignement du marketing. *Recherche et Applications en Marketing (French Edition)*, 40(1), 101–134. <https://doi.org/10.1177/07673701241270105>
- Perret, A. (2025), L'intelligence artificielle générative dans l'impasse informationnelle. Paper presented at *XXIV^e Congrès de la SFSIC*, 20 June. Available at: <https://hal.science/hal-05126355> (accessed 5 September 2025).
- Piaget, J. (1977). *The development of thought: Equilibration of cognitive structures*. Viking Press.
- Piperopoulos, P., & Dimov, D. (2015). Burst Bubbles or Build Steam? Entrepreneurship Education, Entrepreneurial Self-Efficacy, and Entrepreneurial Intentions. *Journal of Small Business Management*, 53(4), 970–985. <https://doi.org/10.1111/jsbm.12116>
- Polguère, A. (2003), *Lexicologie et sémantique lexicale: Notions fondamentales*. Les Presses de l'Université de Montréal, Montréal.
- Premand, P., Almeida, R., Barouni, M., & Brodmann, S. (2016), Entrepreneurship education and entry into self-employment among university graduates: Experimental evidence from Tunisia. *World Development*, 77, 311–327. <https://doi.org/10.1016/j.worlddev.2015.08.028>
- Rana, V., Verhoeven, B., & Sharma, M. (2025), Generative AI in design thinking pedagogy: Enhancing creativity, critical thinking, and ethical reasoning in higher education. *Journal of University Teaching and Learning Practice*, June. <https://doi.org/10.53761/tjse2f36>

- Razouki, H., Cherradi, B., Hair, A., & Razouki, A. (2025), L'impact de l'intelligence artificielle sur l'enseignement et l'apprentissage: Enjeux et perspectives. *SHS Web of Conferences*, 214, 01010. <https://doi.org/10.1051/shsconf/202521401010>
- Roomi, M.A., & Harrison, P. (2010), "Behind the veil: women-only entrepreneurship training in Pakistan". *International Journal of Gender and Entrepreneurship*, Vol. 2 No. 2 pp. 150–172, doi: <https://doi.org/10.1108/17566261011051017>
- Sadin, E. (2021), *L'intelligence artificielle ou l'enjeu du siècle. Anatomie d'un antihumanisme radical*. L'échappée poche, Paris.
- Sandler, M., Choung, H., Ross, A., & David, P. (2024). A linguistic comparison between human and ChatGPT-generated conversations. *Proceedings of the 4th International Conference on Pattern Recognition and Artificial Intelligence (ICPRAI)*. <https://doi.org/10.48550/arXiv.2401.16587>
- Santamaria-Velasco, J., Núñez-Naranjo, A., & Morales-Urrutia, X. (2025), Critical thinking and AI: Enhancing history teaching through ChatGPT simulations. *International Journal of Innovative Research and Scientific Studies*, 8(1), 564–575. <https://doi.org/10.53894/ijirss.v8i1.4403>
- Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26(2), 243–263. <https://doi.org/10.5465/amr.2001.4378020>
- Saritepeci, M., & Yildiz Durak, H. (2024), Effectiveness of artificial intelligence integration in design-based learning on design thinking mindset, creative and reflective thinking skills: An experimental study. *Education and Information Technologies*, 29, 25175–25209. <https://doi.org/10.1007/s10639-024-12829-2>
- Saur-Amaral, I., Aragonéz, T., & Lopes, J. M. (2025). ChatGPT as a learning support tool: Integrating generative AI in an innovation and entrepreneurship course, in *EDULEARN25 Proceedings* (pp. 2304–2309), IATED Academy, <https://doi.org/10.21125/edulearn.2025.0648>
- Savoie, A., & Mendonça, P. (2018), Empathie, théorie de l'esprit (ToM) et jugement esthétique. In *Actes du Colloque sur la recherche en enseignement des arts visuels*. Université de Sherbrooke, Sherbrooke.
- Shneiderman, B. (2020). Human-centered artificial intelligence: Reliable, safe & trustworthy. *International Journal of Human-Computer Interaction*, 36(6), 495–504. <https://doi.org/10.1080/10447318.2020.1741118>
- Sirelkhatim, F., & Gangi, Y. (2015). Entrepreneurship education: A systematic literature review of curricula contents and teaching methods. *Cogent Business & Management*, 2(1), 1-11, <https://doi.org/10.1080/23311975.2015.1052034>
- Smart, J. (2022), Intelligence artificielle et design: Amis pour la vie ou ennemis jurés? *99designs.fr*, 1 November. Available at: <https://99designs.fr/blog/art-et-illustration/intelligence-artificielle-et-design/> (accessed 1 November 2024).
- Stephan, C. (2023), The passive dimension of empathy and its relevance for design. *Design Studies*, 86, 101179. <https://doi.org/10.1016/j.destud.2023.101179>
- Suh, J., Le, L., Shayegani, E., Ramos, G., Amores, J., Czerwinski, M., & Hernandez, J. (2025). *SENSE-7: Taxonomy and dataset for measuring user perceptions of empathy in sustained human-AI conversations*. *arXiv preprint*. <https://doi.org/10.48550/arXiv.2509.16437>
- Thiel, P. (1977), Person-environment relations: Professional intentions and public results and what might be done to reduce the differences. *McGill Journal of Education*, 7(2), 193–210.
- Tisseron, S. (2015), *Le jour où mon robot m'aimera: Vers l'empathie artificielle*. Albin Michel, Paris.

- Tudino, G., & Qin, Y. (2024). A corpus-driven comparative analysis of AI in academic discourse: Investigating ChatGPT-generated academic texts in social sciences. *Lingua*, 312, 103838. <https://doi.org/10.1016/j.lingua.2024.103838>
- Vanni, L. (2016), Les outils du quanti en sciences humaines et sociales. Séance 3 du 15 décembre 2016 – Hyperbase Web. Analyse statistique de corpus en ligne. *Outilsquanti.hypotheses.org*, 15 December. <https://outiquanti.hypotheses.org/196>
- Vecchiarini, M., & Somià, T. (2023). Redefining entrepreneurship education in the age of artificial intelligence: An explorative analysis, *The International Journal of Management Education*, 21(3), Article 100879, <https://doi.org/10.1016/j.ijme.2023.100879>
- Vial, S. (2010), Le design comme ‘une chose qui pense’. *La Revue du Design*, 3 December. <https://www.larevuedudesign.com/2010/12/03/le-design-comme-une-chose-qui-pense-stephane-vial/>
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- Welter, F. (2011). Contextualizing Entrepreneurship—Conceptual Challenges and Ways Forward, *Entrepreneurship Theory and Practice*, 35(1), 165-184. <https://doi.org/10.1111/j.1540-6520.2010.00427.x>
- Wolff, M., & Visser, W. (2005), Méthodes et outils pour l'analyse des verbalisations: Une contribution à l'analyse du modèle de l'interlocuteur dans la description d'itinéraires. *Activités*, 2(1), April. <https://doi.org/10.4000/activites.1612>
- Wu, Y.J., & Wu, T. (2017), A decade of entrepreneurship education in the Asia Pacific for future directions in theory and practice, *Management Decision*, 55(7), 1333–1350, <https://doi.org/10.1108/MD-05-2017-0518>
- Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). Sage.
- Zouari, S., & Mabrouki, K. (2023/2024). Entrepreneurship study and its impact on students' intention to start up: A sample case study of students belonging to two universities of Tunisia, *International Journal of Business, Economics, and Social Development*, 5(1), 535–554. <https://doi.org/10.46336/ijbesd.v5i1.535>