10.16920/jeet/2026/v39is3/26095

The AI Co-Founder: Fostering Entrepreneurial and Design-Thinking Mindsets in Engineering and Management Education

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Abstract **- This paper addresses the failure of traditional engineering and management education to impart the real-world entrepreneurship and design thinking skills required by the Fourth Industrial Revolution. Its core contribution is the introduction of the AI-Augmented Venture Ideation (AAVI) model, a novel pedagogical framework that integrates specific AI tools across the entire venture creation lifecycle—from problem discovery to market validation. The paper details how this model transforms AI from a simple tool into a sophisticated teaching partner, shifting the focus of skill development from rote execution to higher-level strategic direction and critical evaluation. While also discussing the inherent risks of algorithmic bias and skill atrophy, the work concludes that a structured approach like the AAVI model is essential for fundamentally reshaping entrepreneurship education for a future built on human-AI collaboration.**

Keywords **- Artificial Intelligence, Entrepreneurship Education, Design Thinking, Higher Education, Pedagogy, Generative AI, Skill Development, Innovation, Engineering Education, Management Education**

I. INTRODUCTION

1.1 BACKGROUND AND RESEARCH CONTEXT

The world we are experiencing is the time of the unprecedented technological and economic revolution, also known as the Fourth Industrial Revolution, as the line between the physical, digital, and biological world is becoming thin within a few seconds (Schwab, 2016). This revolution is radically changing the nature of work, the organization of industries and the competencies in order to become professionally successful. To engineering and management students who will be the designers and rulers of this new world, it has immense consequences. The classic educational model which has continually been biased towards deep specialization in one field is not doing enough. The contemporary market place is not only in need of I-shaped professionals with a profound knowledge in one field, but T-shaped professionals who can integrate their primary knowledge with a cross-disciplinary, wide-ranging, understanding ability to work in teams.

The key to this T-shaped ideal is two intertwined, vital mindsets entrepreneurship and design thinking. In its most general form, entrepreneurship is the driver of

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economic value creation, which includes the capacity to see emerging opportunities, gamble in the face of uncertainty, use resources, and act on a vision. Design thinking offers the human-centric methodology needed to get this process going by offering a systematic approach to innovation based on empathizing with the users and allows taking the process through the different phases of ideation, prototyping and testing (Brown, 2008). The complementary aspect is evident; design thinking offers the framework that one needs to identify the right problems to solve and an entrepreneurial mindset offers the energy and plan of developing workable solutions.

Although the importance of these skills has been acknowledged, the development thereof within the framework of the instigations of higher education is a major issue. The best part of engineering curricula, although excellent in teaching analytical rigour and technical skill, is not always inclusive of the softer skills of user empathy and market validation. On the other hand, management education, which has long been based on the study of past case studies, may find it difficult to give students a real-life, practical experience of the sloppy, prospective process of creating something new out of nothing. The issue of scalability is common to both fields; effective entrepreneurship and design thinking education require high touch and mentorship, making it hard to apply to large groups of students.

It is here, at the exact junction point of necessity and difficulty, that the new, dramatic developments in Artificial Intelligence have come into view as potentially disruptive. The introduction of very potent and accessible AI-based systems, especially generative AI systems such as GPT-4 of OpenAI, Google Gemini, and image synthesis algorithms such as Midjourney, is a paradigm shift. These technologies are not limited anymore to the activities of data scientists and programmers to perform their duties of analysis and automation. They are now advanced collaborators in artistic and strategic ventures, and can produce new text, code, business models, and visual designs (Meskó et al., 2023). The paper addresses the thesis that, with purpose and design, these AI platforms can be an effective accelerant, breaking the historical constraints of innovation education and creating a new generation of entrepreneurial design thinkers.

1.3 Purpose and Research Gap

The primary purpose of this analytical paper is to develop a clear and structured understanding of how this new generation of AI-powered platforms can be systematically leveraged as a pedagogical tool to foster essential entrepreneurial and design-thinking skills among engineering and management students.

While the body of academic literature on AI in education is growing, a significant research gap persists. The existing research tends to fall into distinct, often disconnected streams. One stream focuses on the use of AI in STEM education, typically examining its role as a coding assistant or an intelligent tutor for technical subjects (Kumar & Sharma, 2024). Another stream explores AI's application in business schools, usually concentrating on its function as a tool for data analytics in fields like marketing or finance (Chen, Li, & Wang, 2023). What is conspicuously absent is a holistic framework that synthesizes these applications and addresses the interdisciplinary space of technology entrepreneurship—the very domain where engineering and management students are expected to collaborate. The literature has not yet provided educators with a comprehensive pedagogical model for integrating AI across the entire innovation lifecycle, from empathetic discovery to viable business proposition.

This paper aims to fill this critical gap by proposing and elaborating upon the AI-Augmented Venture Ideation (AAVI) model. This model is designed to serve as a practical, theoretically grounded framework for educators seeking to harness AI as a co-creative partner in their classrooms, thereby transforming the way innovation is taught and learned.

II. Literature Review

This review synthesizes the body of knowledge underpinning the role of AI in innovation education. It is structured in two parts. The first section revisits the foundational pedagogical and cognitive theories that have historically guided entrepreneurship and design thinking education, establishing the theoretical foundation for experiential and human-centered learning. The second section provides a comprehensive analysis of the recent empirical landscape, focusing specifically on studies conducted in recent past. This contemporary review charts the rapid evolution of research from an initial focus on analytical AI to the current paradigm dominated by generative AI's role in co-creation, prototyping, and pedagogical innovation.

2.1 Foundational Theories in Innovation Pedagogy

Long before the advent of artificial intelligence, the principles of effective innovation education were

shaped by influential theories of learning and cognition. One of the most critical is Experiential Learning Theory, as articulated by David Kolb (1984). Kolb proposed a four-stage cyclical model of learning: concrete experience, reflective observation, abstract conceptualization, and active experimentation. This theory provides the core rationale for project-based learning in entrepreneurship, arguing that students learn best not by passive listening but by doing—by attempting to launch a venture, reflecting on their failures and successes, conceptualizing new strategies, and actively testing them. The "Build-Measure-Learn" loop of the Lean Startup methodology (Ries, 2011) is a direct practical application of Kolb's cycle.

To supplement this is the Social Cognitive Theory by Albert Bandura whose main idea is self-efficacy (Bandura, 1997). Bandura had also put forth the argument that the way a person thinks that he/she is capable of doing something is a strong motivating factor of what that person is doing and how they are not giving up. Self-efficacy is the most important in the entrepreneurship education. The theory suggests the process of its accumulation based on the mastery experiences (the successful completion of difficult tasks such as creating a prototype), the vicarious experiences (the observation of the success of the peers, whom the person can relate to), and the social persuasion (the encouragement offered by mentors and faculty). The framework justifies the importance of practical, enabling learning contexts that help students to take risks that accompany entrepreneurship. Moreover, even the concept of design thinking is based on cognitive science, specifically on the contributions of Herbert Simon on the so-called sciences of the artificial (Simon, 1969). Simon made a distinction between the natural sciences which investigate what is and design which deals with creating things and actions to achieve something. This mode of thinking, subsequently popularized by other authors such as Tim Brown (2008) and Roger Martin (2009) is a non-linear, human-centered process of working out ill-structured or wicked problems. It also offers a thinking model that appreciates empathy, abduction (inference to the best possible explanation), and iteration prototyping as the main ways of negotiating ambiguity and developing new solutions. All these underlying theories combine to explain the rationale behind the reasons experiential, iterative, and human-centered approaches are the gold standard of the innovation pedagogy standard that can be now enhanced and scaled to a new level by AI.

2.2 AI AS AN EMPIRICAL LANDSCAPE IN ENTREPRENEURSHIP AND DESIGN EDUCATION.

The last five years have seen a paradigm shift in AI research in education, as it is no longer viewed as a niche tool, but as a key theme of change in pedagogy. Empirical research during this time can be media-widely divided into three overlapping waves: a first wave of analytical AI and its ethical consequences, a variation point of the boom of generative AI, and a period of present maturity by focusing pedagogical integration and multimodal capabilities. The initial section of this era (2020-2022) was marked by the studies into the potential of the analytical and predictive AI to contribute to the data-driven decision-making. To take an example, Choi and Patel (2020) have conducted a study focused on exploring the opportunities of using AI-powered services to provide students with personalized feedback on their business pitches. Their results showed that the AI was useful in enhancing delivery elements such as the tone of voice, pacing and articulation, but it did not succeed in giving in-depth, subtle feedback on the sustainability of the underlying business model, and this is where early AI provides a shallow understanding of the strategic environment. At the same time, the issue of ethics was brought to the fore.

Critical analysis Adebayo and Jones (2021) cautioned that AI-based incubators in universities, where the model has typically been trained on biased historical funding data, may discriminate against ventures targeting underrepresented market segments, enhancing existing inequalities. In a similar vein, a study by Ivanov and Schmidt (2022) established that, although students who accessed commercial AI market intelligence systems produced stronger and evidence-based business case, the high pricing of the products resulted in high equity differences inside the classroom. This led to a major turning point in the research direction when the powerful large language models were publicly released and quickly adopted in the end of 2022. The importance quickly shifted to the potential of the generative AI as a partner in creativity and collaboration. The historic experiment by Mollick and Nanda (2023) proved that ChatGPT as a brainstorming partner tripled the number of business ideas and their novelty in students. Their idea of a human-AI cyborg team that would perform better than even most creative people working independently became an extremely dominant one. This was added to by the study of Chen, Li, and Wang (2023), who determined that AI-oriented business simulation offered a more lively and efficient learning experience to teach market strategy than the standard case studies, which are static and held in the past. The latest generation of studies (2024-2025) is an expression of

an emerging sophistication with generative AI, now that the question is how to most effectively incorporate it into the curriculum and take advantage of its new multimodal capabilities.

Kumar and Sharma (2024) examined the concept of AI code-generation software, specifically GitHub Copilot, and discovered that it can do much to hasten the prototyping stage among engineering students but also has the danger of making students lose their skills without being properly used by teachers. A study by Gupta and Chen (2024) explored the effects of multimodal AI (text-to-image and text-to-UI), finding that these technologies did not only significantly enhance the interaction process between management students and engineers but also helped them to convey their ideas visually to the latter. Lastly, in terms of the human aspect of the integration, Rodriguez and Lee (2025) conducted qualitative research on the role of faculty that is evolving. They discovered that the role of educators is undergoing active transformation as they are moving away, as a sage on a stage, to becoming an architect of human-AI learning experiences, the principal challenge of which becomes the design of effective assessments and maintenance of academic integrity in the AI-saturated world.

TABLE I
RECENT STUDIES ON AI IN SKILL DEVELOPMENT

Author(s) & Year	Focus of Study	Key Findings	Limitations Noted
Rodriguez & Lee (2025)	A qualitative study on faculty experiences and pedagogical shifts when integrating generative AI into entrepreneurship capstone courses.	Educators are evolving from "knowledge transmitters" to "learning architects" who design human-AI collaborative projects. Success hinges on a focus on process and critical thinking over the final output. The primary challenges are assessment and academic integrity.	The study's sample was limited to business schools in North America, potentially missing global perspectives.
Gupta & Chen (2024)	The impact of multimodal AI (text-to-image, text-to-UI) on the speed and fidelity of prototyping by interdisciplinary student teams.	Teams using multimodal AI produced significantly more prototype variations and reported better communication between management (concept) and engineering (feasibility) students, as visual concepts were easier to share.	Did not measure the long-term impact on the final product's market success, focusing only on the early-stage design process.
Kumar & Sharma (2024)	Use of AI code-generation tools (e.g., GitHub Copilot) by engineering students.	Accelerates prototype development and lowers the barrier to entry for complex coding tasks, allowing students to focus more on system-level design and user experience.	Can lead to a superficial understanding of core programming concepts and debugging skills if not properly scaffolded by instructors. Potential for over-reliance.
Mollick & Nanda (2023)	Impact of ChatGPT on business idea generation and quality.	AI significantly increases both the volume and novelty of ideas. The human-AI "cyborg" team consistently outperforms even the most creative individuals working alone, effectively leveling the creative playing field.	The quality of AI output is highly dependent on the user's prompting skills. AI can also "hallucinate" facts, requiring rigorous human verification.

TABLE II
AI PLATFORMS IN THE ENTREPRENEURIAL & DESIGN-THINKING LIFECYCLE

This table serves as a practical mapping, illustrating how specific, currently available AI tools align with the distinct phases of the innovation lifecycle. It moves from abstract potential to concrete application, forming a foundational element of the AAVI model.

Phase	AI Platform Examples	Function	Skill Fostered
1. Empathize & Define (Problem Space)	Perplexity AI, ChatGPT (with browsing), Consensus, Dovetail AI	Synthesizing academic research, analyzing market trends, summarizing user interview	Analytical Thinking, Empathy, Problem Framing, Research Synthesis

		transcripts, identifying pain points from qualitative data. Brainstorming diverse solutions using creative frameworks (e.g., SCAMPER), visualizing abstract concepts, generating user personas, creating counter-arguments to challenge assumptions.	
2. Ideate (Solution Space)	ChatGPT, Gemini, Midjourney, Ideanote.io, Whimsical AI		Creativity, Divergent Thinking, Lateral Thinking, Critical Examination
3. Prototype (Build & Test)	Uizard.io (UI/UX), GitHub Copilot (Code), Galileo AI, Tome, Gamma	Generating interactive user interfaces from text prompts, writing boilerplate and functional code, creating compelling, professionally designed pitch decks and presentations.	Rapid Prototyping, Technical Agility, Communication, Visual Storytelling
4. Test & Validate (Market Fit)	SurveyMonkey AI, Wynter, UserTesting.com (AI analysis), ChatGPT	Analyzing and summarizing qualitative feedback from surveys, identifying patterns in user testing sessions, A/B testing marketing copy and value propositions, generating test scripts.	Data-Driven Decision Making, Critical Evaluation, User-Centricity, Analytical Rigor

III. ANALYTICAL FRAMEWORK:

The AI-Augmented Venture Ideation (AAVI) Model. The AI-Augmented Venture Ideation (AAVI) model is suggested as the key theoretical and practical contribution of this paper. This model does not just imply applying AI in the classroom but a systematic, cyclical model that will help to incorporate AI platforms as a distributed, purposeful alliance with the already established design-thinking cycle. It theorizes the student-AI interaction as a cybernetic loop, a synergistic system in which the student is the source of strategic intent, creative direction, and critical judgment and the AI is the source of immense processing power, rapid data synthesis, and strong generative power. The model reshapes the innovating process into the dynamic human-machine dialogue as compared to the series of manual and time-consuming laborious operations. The model of the AAVI uses four successive steps that are organized around the four iterative stages which are complementary and supplementary to the conventional design thinking model.

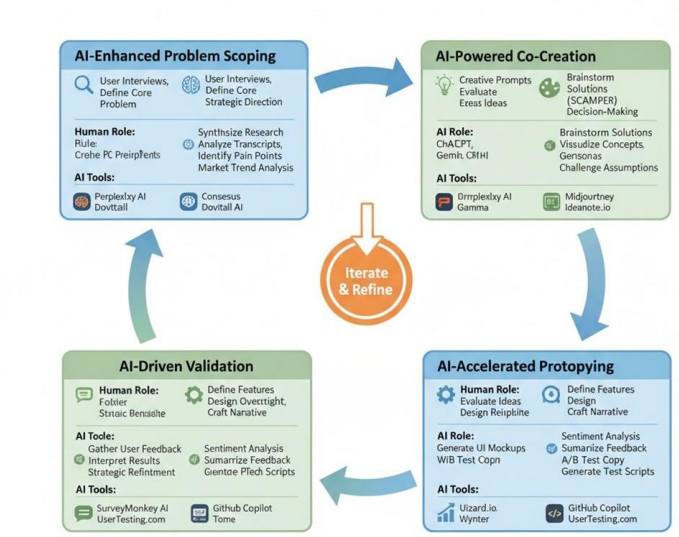

Fig. 1. The AI Augmented Venture Ideation Model (Showing the dynamic collaborative partnership between Students and AI Platforms (Source- authors' Own)

PHASE I: AI-INTENSIFIED PROBLEM SCOPING (EMPATHIZE & DEFINE).

A thorough and subtle comprehension of the problem to be addressed by the innovation is the basis of an innovation success. Conventionally, this stage is quite manual: interviews are conducted, transcribed, literature reviews are performed, and insights are manually clustered with the help of such tools as affinity diagramming. AAVI model applies AI to

speed up, and enrich this discovery process by an order of magnitude.

During this step, a group of engineering and management students, who have been given a task, say to improve mental wellness in university students, would start their research by using AI as a research amplifier. They would not have to spend days browsing academic databases but can apply a tool like Perplexity AI or Consensus with a prompt, e.g., Summarize the top 10 peer-reviewed papers on the last three years about the primary stressors affecting undergraduate students. It would take the AI a few seconds to provide a synthesized summary with references. This would be followed by user interviews by the team among their peers. This would then be fed into an audio transcription tool such as the AI in Dovetail which is capable of automatically transcribing the conversations and with additional prompting can additionally label and identify recurring themes, pain points, and direct quotes.

An example might be a student requiring them to analyze these 15 transcripts of interviews and name the most common barriers to receiving on-campus mental health services. Divide them into such themes as stigma, scheduling conflicts, and lack of awareness. It is an AI-powered synthesis which enables the team to transform raw data into actionable insights more rapidly and rigorously than ever before, to form a much sharper and more evidence-based problem statement (the 'Define' stage). This exercise is valuable to the practice of empathy at scale and problem framing, which students learn to base their intuition on a vibrant tapestry of qualitative and quantitative information.

PHASE 2: AI-POWERED CO-CREATION (IDEATE)

When a problem is well defined then the purpose changes to produce a wide set of possible solutions. It is a phase of ideation, and teams can become stuck whilst thinking of their initial idea or can be unable to think of anything other than the obvious solutions. The AAVI model puts the AI at the level of an uncritical brainstorming partner that is not exhaustible and can drive the limits of creativity. Still on the example of mental wellness, the team might involve an LLM such as Gemini to come up with a brainstorming session. They can begin by asking them to brainstorm 20 new ideas to enhance student mental well-being, including low-tech community-based programs and high-tech online services. The artificial intelligence can propose such concepts as peer-to-peer support application, game-based mindfulness challenges, or AI-powered chatbot companions. More elaborate prompting techniques can be employed by the team to intensify the creative process. They might request the AI to use a particular creative model: "Based on the SCAMPER framework, take the concept of a mental wellness application and come up with new variations of it. Moreover, the AI may be applied on convergent thinking to filter these ideas. The most potent incentive would be: Be a skeptical university administrator. Discuss these three possible solutions and note the most significant possible barriers to implementation, budget limitation and privacy considerations of each one of them. To get more visual ideas, a student might go to an image generator such as Midjourney to visualize an idea, asking: "create a concept art image of a quiet, biophilic 'wellness pod' designed to be located in a university library, style of restorative, minimalist aesthetic. Such co-creation fosters creative confidence, divergent thinking and critical analysis, conditioning learners to not just create ideas but also to critically analyze them in more than a single way.

PHASE 3: AI-GATED PROTOTYPING (PROTOTYPE)

The innovation process in most cases has the biggest bottleneck in the transition of a promising idea into a tangible artifact that can be interacted with by the users, particularly when the technical skills of the team are limited. The AAVI model uses AI to significantly reduce the resistance to prototyping, which is a principle of the Lean startup of having an MVP in the hands of users as soon as possible. At this stage, the group becomes determined to develop the concept of a customized mental wellness chatbot. No experience in coding, the management student would be able to use a tool, such as Uizard.io and just enter a description: Create a mobile app interface with a calming chatbot called 'Aura'. A chat window and a button saying daily check-in and a link to emergency resources should be on the main screen. The AI creates an interactive mockup that is clickable and can be created in minutes.

At the same time, the student of engineering will be able to speed up the creation of the backend logic with the help of GitHub Copilot. They may compose a comment in their code editor such as, create a Python function with the Flask framework, which receives an input of the mood of a user and returns a corresponding mindfulness activity to practice among a list of mindfulness activities and Copilot will produce the working code. To develop a powerful story on top of its prototype, the whole team can work with a presentation tool such as Tome.app, where it will ask to create a 10-slide pitch deck on our chatbot Aura, which is aimed at university deans. Add problem slides, our solution, user interface, our team and our pilot program request. It is an AI-based workflow that enables teams to develop high-fidelity prototypes (of

apps, websites, physical products, business presentations) in a fraction of the time it would take them before. This creates a spirit of quick iterations and learning-by-doing, which educates students that it is not about the ideal first plan but the speed of the learning process.

PHASE 4: AI-BASED VALIDATION (TEST)

The development of a prototype is not the end of the fight; the final objective would be to put the prototype to the test by introducing it to real clients to collect their feedback and confirm or disprove the main assumptions that the idea is based on. The AAVI model involves AI in order to ensure that such feedback analysis is more systematic and insightful. After developing their chatbot prototype, the team presents the prototype to 20 other students in the user testing process. They gather responses of the surveys and document user comments. It is subjective and time consuming to filter through this qualitative data manually. They instead feed the responses in the survey to an AI feature of SurveyMonkey or a general LLM and prompt: "Analyze this feedback when our chatbot is in testing. Give sentiment analysis (positive, negative, neutral) of every answer and describe the top five most requested features and the top three issues of user confusion. This gives real-time and objective information.

They can also use AI to refine their value proposition. Using a tool like Wynter, they can A/B test different messaging for their concept: "Which headline is more appealing to a stressed university student: 'Aura: Your Personal AI Mental Wellness Coach' or 'Aura: Find Calm and Focus During Your Studies'?" AI can provide data-backed answers based on a target audience panel. This final phase instills the crucial skills of data-driven decision-making and user-centricity, reinforcing the principle that successful ventures are built on a foundation of deep customer understanding and empirical evidence.

IV. COMPARISON: AAVI MODEL AND TRADITIONAL PEDAGOGY.

The differences between the workflow of the AAVI model and the conventional project-based learning approaches are overwhelming and dramatic. Speed wise, the traditional process is very linear and sluggish and in most cases prototyping is a multi-week or multi-month bottleneck. The AAVI model is able to squeeze this into a very compressed cycle which could reduce the idea-to-prototype cycle to just a few days, and enable many more cycles in just one academic term. In terms of scale, the traditional model is highly limited by the limited time and attention of the instructor that is only able to give detailed feedback to a small number of teams.

AVVI has an unlimited scale since all students 24/7 access an AI partner able to give immediate feedback, idea generation and execution assistance, which democratizes access to high-quality support. Conventional projects in data integration may be based on the static case data or a few survey findings that were collected manually. The AAVI model incorporates an active, real-time analysis of data on each phase of the process, beginning with initial market research through to final user feedback analysis, which develops a significantly stricter, evidence-based attitude.

Last but not the least is the effect on agency and skill focus of students. The conventional approach tends to direct the students through a pre already determined project brief and the huge focus is on manual undertaking of activities. The AAVI model allows the students to be freed of much of this executional nonsense, and encourages as well as permits them to pursue larger and broader concepts. As a result, the educational emphasis becomes less on learning low-level skills of execution but learning a range of higher-level metacognitive skills: the art of powerful questioning (prompt engineering), the critical judgment of assessing and refining AI products, and the strategic wisdom of integrating the component products generated by AI in a coherent, valuable whole.

V. DISCUSSION AND IMPLICATIONS.

The comparison of the AAVI model and its comparison with the traditional approaches can indicate that the introduction of AI into innovation education is not an addition to the existing solution; rather, it is an essential change in the paradigm of the educational process. AI platforms are becoming what may be called pedagogical engines, which are actively transforming the content of what is taught, the methods of teaching, and values of what skills are prized. AI helps free up cognitive resources, shifting them away from routine performance and into strategic, ethical-sensitive, creative, and critical thought by automating and augmenting most of the time-intensive activities involved in the venture creation process. This can have far-reaching consequences to all the stakeholders in the educational ecosystem.

VI. Implications for Students: From Executor to Director

The greatest implication to the students is the redefinition of their position in the process of learning. The student in the AAVI model is no longer merely a builder or a writer, he is a director, a strategist and a curator. Their main work is not to personally code every line of code and every line of a business plan, but to aptly prompt, coordinate and organize a team of strong AI agents to meet a strategic goal. It creates a new and crucial literacy of the 21 st century the capability to work with non-human intelligence in a collaborative way. The fundamental skills that are produced are metacognitive. Timely engineering, a methodology and science of developing queries that lead to accurate, creative, and beneficial answers of a AI, is a core skill. Another crucial skill is the ability to evaluate critically, i.e., be able to recognize whether the AI has produced a result that is accurate, insightful and when the result is biased, generic, or just biased by facts (hallucinating). The students are taught not to view the AI as an omnipotent oracle but as a brilliant and, at the same time, flawed junior partner whose work should never be deemed as unchecked or unrefined and always be placed into the context of human interpretation.

VII. Implications to Educators: From Sage to Architect.

The job of the educator also experiences a very dramatic change. The old-fashioned system of the sage standing on the stage and lecturing and imparting knowledge is also out of place in a world where AI could provide factual information on-demand. Rather, the teacher becomes an architect of learning activities and an ethical mediator. Their main task will be to create curricula, projects, and assignments that will make students work with AI in critical and sophisticated ways. They have to become specialists in instruction process as opposed to content. As a case in point, a task may ask students to provide their final pitch deck, as well as the full history of their chatting with an LLM, and a reflective essay explaining the reasons behind their choice to remain strategic or not. The task of the educator is to mentor this process of critical thinking, to engage students in conversations about the ethical aspects of AI, and to evaluate how much students will be able to prudently continue to manage and leverage their AI co-founder.

VIII. Implications for Institutions: A Mandate for Adaptation

To universities and colleges, the emergence of generative AI sounds an alarm so institutions need to adapt at various levels. First, there must be a general AI literacy training, both on faculty and students, so that all members of the academic community are aware of the opportunities and restrictions of these tools. Second, the institutions should consider the problem of equitable access, which requires all of the students to have access to the required AI platforms and computer resources to avoid the appearance of a new digital divide. Third and most importantly, the institutions will have to reconsider their assessment practices, as well as their academic integrity policies on a fundamental level.

Once an AI can compose an essay of C-quality or even a business plan that is passable in several seconds, traditional assessment methods no longer make sense as indicators of learning on the part of the students. Assessment needs to be directed toward the artifact identified at the end, whereas the process of inquiry, experimentation, and critical reflection that the student describes should be assessed. This necessitates the creation of new rubrics that measure the quality of prompts produced by the students, their critique and optimize the AI output and novelty of the final synthesis produced by humans.

IX. Future Research Suggestions

Although the AAVI model provides a strong conceptual framework, its effectiveness should be confirmed by means of the intensive empirical studies. The next needed step is a quasi-experimental study in order to prove the model. A control group of engineering and management students taking a venture creation project with conventional methods and an experimental group with the AAVI model would have been used in such a study. Some of the hypotheses that could be tested in the study are as follows: (H1) The venture concepts created by student using AAVI model will be rated as significantly higher on novelty and viability by a panel of independent experts; (H2) the students in the AAVI group will be found to have more cycles of iteration (pivots) of their projects, meaning that their learning process is more dynamic; and (H3).

In addition to this validation study, a number of research avenues are viable. The longitudinal studies might be able to trace the career paths of the students who were trained within the AAVI model to determine whether it is associated with the increase in entrepreneurial activities or jobs related to innovation after the graduation. Moreover, research in the cognitive science may explore the cognitive load and metacognitive activity difference between students with the traditional approach and those who participated in the human-AI collaborative working process of the AAVI model.

X. Limitations and Ethical Implications.

An objective perspective of this change in technology, must take into consideration its considerable risks and drawbacks. One of them is the possibility of over-dependence and skills loss. When AI is used as a mindless crutch by students, they are likely to end up lacking basic critical thinking, writing, and even basic coding skills. This should be actively addressed by pedagogical design through the construction of conditions of manual verification, reflection and justification of AI-aided decisions.

One more radical problem is algorithmic bias. The internet data that is used to train AI models is expansive and promotes the current biases existing within society. An AI may, to give one example, give a slight advantage to business concepts that serve wealthy customer groups or create user profiles based on harmful stereotypes. A vital component of education with AI built into it should thus be the knowledge of how to make students critical consumers of AI products, question and audit their AI allies and look at them as possible sources of prejudice.

It also has a subtle controversy of creativity. Although AI is an effective brainstorming tool, its propensity to produce combinations of its training data which are statistically likely can produce a homogenization of ideas. Indeed, outlier thinking can also be the source of true, breakthrough creativity. The task of the educator is to learn how to use AI as a launchpad to their own individual understanding, rather than to replace it.

Lastly, the question of the digital divide cannot be overruled. Even access to the most powerful AI models is starting to go paywalled. Educational establishments should invest in ensuring that disadvantaged individuals also get access to the important education materials so that only the fortunate ones can enjoy the fruits of AI.

Conclusion

There is no fad in the transformation of higher education by introducing AI-based platforms; it is the beginning of a new era in pedagogy. These tools provide engineering and management students, who will shape their careers in the future by being innovative, adaptive, and engaged in learning that is more dynamic, authentic, scalable, and data-driven than ever before. AI is changing the way it offers solutions and turns into a companion that can assist us in posing more useful questions. The artificial intelligence model of Venture Ideation proposed in this paper is called AI-Augmented Venture Ideation (AAVI) which represents a structured, directed, and critical direction. It gives an outline on how teachers can get beyond a reactive position of fear or mere adoption, but instead be forward-looking, and model learning experiences that will help students develop the distinctively human abilities of strategy, creativity, and moral judgment in symbiosis with artificial intelligence. The innovation in the future will not be a competition between machines and humans, rather it will be a partnership. Higher education has its most important part to play in equipping our students to become mindful and competent leaders in that partnership, capable of creating more innovative and justifiable world.

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