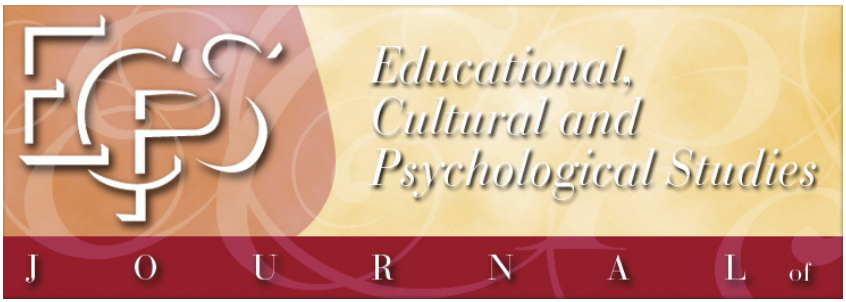

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The Integration of Artificial Intelligence in Communication Design

Case Studies from the Polytechnic of Milan: from Digital Culture to Sociology of Media

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L'INTEGRAZIONE DELL'INTELLIGENZA ARTIFICIALE NEL DESIGN DELLA COMUNICAZIONE. CASI DI STUDIO DEL POLITECNICO DI MILANO: DALLA CULTURA DIGITALE ALLA SOCIOLOGIA DEI MEDIA

Abstract

The advent of Artificial Intelligence (AI), particularly Generative AI (GenAI), has catalyzed a transformative shift in educational methodologies, bridging traditional pedagogy with advanced digital technologies. This article presents a comparative analysis of two case studies conducted within the Communication Design Program at Polytechnic of Milan, exploring the integration of GenAI as a collaborative tool in Digital Culture and Sociology of Media courses. By examining the implications, challenges, and outcomes of embedding GenAI within these educational frameworks, we aim to highlight the role of AI as a «co-pilot» in learning processes, offering innovative approaches to knowledge creation and problem-solving. The case studies underscore common themes, such as the democratization of creative tools through AI, the necessity for critical AI literacy, and the exploration of AI as a facilitator of innovative content generation. Simultaneously, the article delves into the differences between the two courses, including participant

numbers, course structures, and project aspects, providing a comprehensive understanding of GenAI's impact on educational experiences and students' problem-solving skills.

Keywords: AI literacy; Communication design; Educational methodologies; Generative AI.

1. Introduction

The rapid advancement of digital technologies has significantly influenced the evolution of educational methodologies (Ferri *et al.*, 2011; Rivoltella & Panciroli, 2021). The integration of Artificial Intelligence (AI), particularly Generative AI (GenAI), in higher educational contexts represents a frontier that connects traditional pedagogy with cutting-edge digital tools (Di Rosario & Ferri, 2023). In the field of media and communication design, GenAI has emerged as a transformative instrument, enabling a novel approach to creativity, critical thinking, and content generation (Smith & Jones, 2022; Johnson *et al.*, 2023).

This article presents an empirical investigation carried out within the Communication Design Master Program at Polytechnic of Milan, focusing on the application of GenAI as a collaborative tool across two distinct course environments: Digital Culture and Sociology of Media. By examining these case studies, we aim to analyse the implications, challenges, and outcomes of embedding GenAI within educational frameworks, emphasizing its role as a «co-pilot» in learning processes and its potential to facilitate innovative knowledge creation and problem-solving (Brown *et al.*, 2021; Davis & Wilson, 2022).

The research method employed in this article is a comparative case study analysis (Yin, 2018). The two courses, Digital Culture and Sociology of Media, served as the primary cases for investigating the integration of GenAI in communication design education. Both courses tasked students with designing unique artifacts – digital culture projects in one course and media education modules in the other – as empirical tests of GenAI's capabilities and students' understanding of the technology. There were also important differences between the two courses.

Before focusing on a specific analysis of the two case studies, we believe that it is essential to provide some contextual clarification. The two studies were conducted at different times: the first, focused on Digital Culture, took place during the initial rise of generative AI tools like ChatGPT into public awareness; the second occurred in the subsequent academic year. Additionally, the number of students involved differed significantly, with 55 participants in the Digital Culture course and 200 in the Sociology of

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Media course. These differences, coupled with the intrinsic characteristics of the respective assignments, informed distinct approaches in their design.

In this paper, we have opted to approach each case study with tailored emphases. For the Digital Culture case, the analysis focuses on the use of AI within a specific group, providing a step-by-step examination of how AI was integrated into the project. Conversely, the Sociology of Media case highlights the collective experience of using AI, offering a broader perspective on the collaborative application of generative AI tools across the larger group.

Data collection methods included, for both case studies, participant observation, semi-structured interviews with students and instructors, and analysis of student-generated artifacts. The collected data was subjected to thematic analysis (Braun & Clarke, 2006) to identify common themes and differences between the two courses, as well as to assess the impact of GenAI on educational experiences and students' problem-solving skills.

2. First case study: digital culture

This study was conducted from the end of February to end of May 2023, a period marked by significant interest in Generative Artificial Intelligence (GenAI) systems. Within the framework of the «Digital Culture» module in the Master's curriculum for Communication Design at Polytechnic of Milan, students were asked to use AI as a collaborative «co-designer» in a specified project.

The module included 55 students, almost half of whom were Italian, while the remaining international students represented a broad range of countries across Asia, the Americas, Europe, and the Middle East. This diversity brought a wide array of linguistic skills, cultural perspectives, and technical expertise, with access to various technological resources playing an influential role. The students formed 10 groups, each composed of 5 or 6 members; most groups were a mix of Italian and international students, although a few were formed solely by Italian participants. Importantly, the students themselves decided on the group composition.

Each group was assigned to create a «Digital Culture Artifact» by exploring how AI could be integrated into different media and digital formats, including Instagram, social media live streaming, digital publishing, and e-commerce. This project served as the second major evaluation component, reflecting 40% of the total course grade. The first assignment accounted for 20%, while the final oral presentation constituted the remaining 40%. The aim of this exercise was to enable students to investigate how

AI can support or redefine creative processes in digital media, encouraging critical thinking around AI's role in digital culture.

The assignment was designed to foster a critical approach to the use of AI in the realm of Design. Specifically, it aimed to discern (a) where the traditional production model diverges from a digital culture-assisted model, (b) the areas where the designer remains indispensable in shaping the structure and texture of content, and (c) instances where this paradigm collapses, leading to products of diminished value.

The topics for the projects were distributed to the groups in a stochastic manner (*Tab. 1*).

Table 1. – The pairing between the project groups and their assigned topics.

Group	Assignment	Goal
Group 1	Design an Instagram campaign to promote local crafts	Emphasizing the importance of preserving and celebrating traditional artisanal practices
Group 2	Design an illustrated album (informative text) for kids to explain the war in Ukraine	Aiming to provide age-appropriate information and foster empathy and understanding
Group 3	Design an illustrated album for kids to raise awareness of the water crisis	Highlighting the importance of water conservation and sustainable practices
Group 4	Design a Twitter stream on «silenced women»	Shedding light on the challenges faced by women whose voices are often marginalized or suppressed
Group 5	Design a(n) guide/illustrated album on ethnic food for elder people	Promoting cultural diversity and encouraging the appreciation of various culinary traditions
Group 6	Design an Instagram campaign to promote a sustainable smartphone	Emphasizing the importance of eco-friendly technology and responsible consumption
Group 7	Design a Twitter stream to raise awareness of marine pollution	Educating the public about the impact of human activities on ocean ecosystems
Group 8	Design a fanzine to talk about the marvel heroes from a different perspective (steampunk culture, feminism …)	Offering fresh interpretations of iconic characters (steampunk culture, feminism, …)
Group 9	Design a(n) guide/app for second hand street markets in Milan	Promoting sustainable consumption and supporting local communities
Group 10	Design a fb campaign for the protection of minority languages/dialects	Promoting and protecting minority languages/dialects

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This approach ensured that students did not have the opportunity to select a topic based on their personal preferences or expertise, fostering an environment of exploration and adaptability. The ten topics assigned to the students encompassed a diverse range of social, cultural, and environmental issues, each requiring a unique approach to content generation and media platform utilization. The students were given the autonomy to select from a wide array of AI tools, with the well-known ChatGPT and DALL·E 2 being popular choices based on their perceived utility for the assigned tasks. The diverse range of topics assigned to the project groups provided a rich canvas for exploring the potential of GenAI in communication design. By tackling these multifaceted issues, students were challenged to leverage AI tools in different ways, adapting their content generation strategies to suit the specific requirements of each topic and the corresponding media platform.

Specialized lectures and prompt construction guidance to support students with limited familiarity with AI were organized. These lectures aimed to provide a foundational understanding of AI concepts, tools, and their potential applications in communication design. Additionally, the expertise of two distinguished academics, Professor Mark Marino from the University of Southern California and Professor Michael Hurtado from the Universidad Peruana de Ciencias Aplicadas, was enlisted to guide students on the nuanced construction of prompts for their assignments.

The importance of crafting effective prompts became evident during initial discussions with the students. As highlighted by Mark Marino, mastering the art of prompt construction is crucial for the optimal utilization of AI tools like ChatGPT (Marino, 2023). Marino emphasized that «Most of the failures that people describe in ChatGPT interactions can be solved by better prompting». The professors stressed the significance of creating carefully articulated prompts, even though Marino (2023) acknowledged that «prompting may not always be a thing we need to do».

Throughout the academic term, two formal assessment sessions were conducted, allowing students to present the progress of their assigned projects, discuss conceptual approaches, and identify potential challenges. In addition to these scheduled assessments, supplementary reviews were provided after class, based on students' requests. During the final lecture, all groups presented their completed works to their peers. As part of their presentations, students were required to outline the entire design process, with a particular focus on the integration of AI. They were asked to explain: (a) the AI tools they utilized, (b) the reasoning behind their choices, (c) the anticipated outcomes, (d) and the actual results obtained. Furthermore, students were instructed to submit all the generated material, including the

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iterative writing and rewriting of prompts, which formed the basis for the analysis conducted in this research.

2.1. *Exploring AI integration: a focused analysis of group 6's project outcomes*

Due to the limited scope of this paper, we will deeply focus on the work produced by group 6. The rationale behind this selection lies in the potential of this group to showcase diverse modalities of AI integration and in the remarkable analytical ability to understand the limitations and potential of the different AI tools used. The analysis of the chosen project will present both the students' own descriptions and the professor's critical observations (Di Rosario & Ferri, 2023). After an initial account of the work carried out by the group, an in-depth analytical commentary on the outcome will be offered. Finally, in the last part, the data collected from the survey conducted among students will be briefly analysed.

Group 6 was tasked with Design an Instagram campaign to promote a sustainable smartphone emphasizing the importance of eco-friendly technology and responsible consumption. The primary objective was to create an Instagram profile for a sustainable smartphone brand while maximizing the use of GenAI tools throughout the development process. The project aimed to test both the limitations and capabilities of GenAI by employing AI tools to function as a company CEO, creative director, and designer. This approach enabled systematic testing of AI's constraints and advantages, while discovering potentially novel applications beyond the tools' intended purposes.

In executing this project, the group relied on a range of GenAI tools such as ChatGPT, CrAIyon, Looka, Brandmark, Stable Diffusion, Leonardo AI, and Lexica. While these tools provided various forms of assistance in branding and design, budget constraints limited access to some of their full functionalities, notably the premium versions that enable more extensive image generation

2.1.1. The group's initial research phase

The group began with a comprehensive state-of-the-art review of sustainable smartphones. This investigation revealed significant challenges in positioning smartphones – inherently high-tech products often designed with planned obsolescence and utilizing toxic materials – as sustainable. Only

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one brand, *Fairphone*, emerged as a genuine example, emphasizing component recycling, fair trade practices, and long-lasting design elements.

According to the group, the research identified two primary sustainability challenges in smartphone manufacturing: (1) planned obsolescence; (2) trend-driven consumer behaviour patterns. For context, Apple's release of twenty-one different models over the past decade, often with minor variations, exemplifies industry practices promoting overconsumption.

2.1.2. Concept and brand development process

Once the limitations of the sustainable smartphone concept were clear, ChatGPT was asked to generate some ideas on how to create a «sustainable smartphone». Though it presented slight variations depending on the user asking, the tool generated six different key points in which to base a new product on: modular design (designing smartphones made of different replaceable parts, which might facilitate the replacement of said components without having to dispose of the device), sustainable materials, energy efficiency, circular economy and responsible disposal.

The group did a quick search on Google which revealed that these ideas were fairly similar to those suggested in a *Forbes Leadership* article by Paul Lee and Ariane Buccaile, published in 2022, but in this case, the information provided by the authors (who work for Deloitte, currently one of the top consulting firms) was more complete than that provided by the AI tool. When asked to expand on a certain topic, ChatGPT remixes its past answers, which is not considered very useful when doing market research.

Nevertheless, after examining the possibilities that these ideas offered, generating a brand based on modularly designed smartphones (thus obtaining to a certain degree, a compromise with sustainability and the environment) was chosen as the main direction to follow for the project, thus starting with the branding phase.

ChatGPT was asked to design the components as well, but its answers were vague, based on hypotheticals more than in actual feasible software. Modular smartphones have been a common goal of smartphone design for years, but all the projects have failed due to lack of resources, insufficient technology and lack of public interest (Lacort, 2022).

The methodology followed in order to create the brand was constructed upon the previous knowledge of the designers, specially influenced by Alina Wheeler's book *Designing brand identity: An essential guide for the entire branding team* and *A designer's research manual, 2nd edition, updated*

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and expanded: Succeed in design by knowing your clients and understanding what they really need by Jen and Ken Visocky O'Grady. However, instead of conceiving the designer group as purely human, the group decided to think of AI as the main creative director.

ChatGPT was then again used to establish a general idea of the brand. This first approach had the purpose of testing the limitations of the tool, especially regarding innovation and its knowledge of graphic design terminology. For this, it was asked to create a sustainable smartphone brand with a clear name, a motto, a logotype (albeit only the description) and a small description of its products.

Summing up ChatGPT was employed to generate sustainable smartphone concepts, producing six key areas: modular design, sustainable materials, energy efficiency, circular economy, and responsible disposal.

The initial results did not fully align with the group's requirements, particularly regarding originality. Consequently, a more tailored approach was adopted, implementing incremental training of the tool as outlined in class. This step-by-step methodology allowed for a gradual refinement in name generation.

One foundational element of brand design is the naming process, as the name is typically among the most immediate aspects with which the public interacts. 102 names were generated through ChatGPT, producing options ranging from «EarthPhone» (its initial suggestion) to «Azurix». Achieving less conventional naming results required at least five iterations of tool training, including the prohibition of specific terms (such as «Phone», «Tech», or «Green») to enhance brand potential. Common suggestions included names ending with «-ex» or «-ix» and references to Earth or nature.

The ChatGPT's limitations in originality and creativity became increasingly apparent when it was tasked with selecting between its generated names. Its selection process appeared arbitrary, lacking a robust rationale; the justifications provided were overly simplistic and generalized. The GenAI failed to consider how the names might resonate across different languages or evoke emotional associations – key considerations typically emphasized in branding and design. Summing up this first phase, ChatGPT demonstrated limitations in name evaluation, lacking consideration for cross-linguistic implications, emotional associations, and cultural context (*Fig. 1*).

Ultimately, the team selected one of the names generated by ChatGPT: *Relevo*, derived from the Spanish term for «takeover» or «baton pass». This name offered a clear connection to modular components while retaining an element of sophistication. Additionally, *Relevo* effectively conveyed desired brand values, such as innovation, speed, dynamism, care, and technology, aligning well with the brand's vision.

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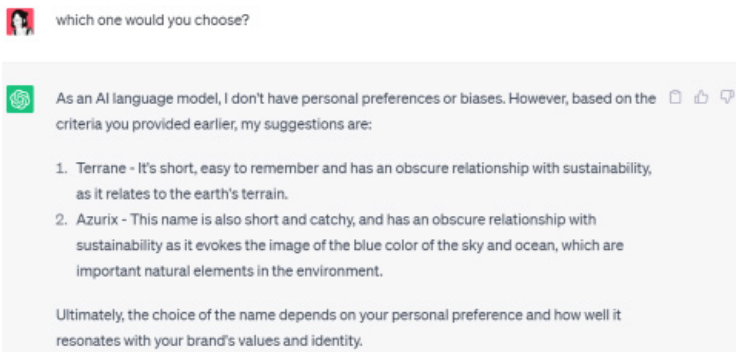

Figure 1. – ChatGPT's response to being asked to choose a brand name from the ones it had generated before.

ChatGPT was further employed to generate slogans and a brand manifesto. Some of these AI-generated slogans were incorporated into the final product, though they often required minor modifications for refinement. For instance, beginning with the slogan «Join the revolution with Relevo: The eco-friendly smartphone», a series of slogans emerged that tied the brand to a theme of revolution. Variations included creative adaptations like «Join the Relevotion» and «Viva la Relevotion!».

2.1.3. Visual identity development

Once the name was selected, creating a complementary logotype became the next step. The group opted to experiment with two AI logo design tools, Looka and Brandmark, both marketed for their ability to generate logos swiftly. Looka allows users to select from a range of keywords (in this case, «technological») and colours – blue and green were chosen, based on ChatGPT's prior suggestions and their association with sustainability. The tool generated a variety of logotypes; however, significant limitations emerged notably inconsistent visual outputs, potential copyright conflicts, inability to provide comprehensive brand guidelines.

Brandmark approached logotype generation by using the brand name along with keywords – such as «smartphone», «technology», «sustainability», «honesty», and «modernity» – and a chosen colour palette style (in this case, «vibrant»). However, while these AI tools produced basic logos, a complete brand image involves more than an icon and matching title lettering; it also includes consistent colour palettes, textures, typography sets, and image usage guidelines – elements not provided by these tools.

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Upon close examination of the AI-generated logos, the team found that, in some instances, the designs bore striking similarities to existing logotypes. Notably, these AI tools do not alert users to potential resemblances with pre-existing logos, a shortcoming that could have significant legal and branding implications if the logos were used commercially.

Recognizing these limitations and serious problems, the group decided to design the logo manually. Thet create creating: an isotype based on the letter «R», a complete logotype using PP Radio Grotesk, and a comprehensive brand element including typography, colour systems, and icon iterations (*Fig. 2*).

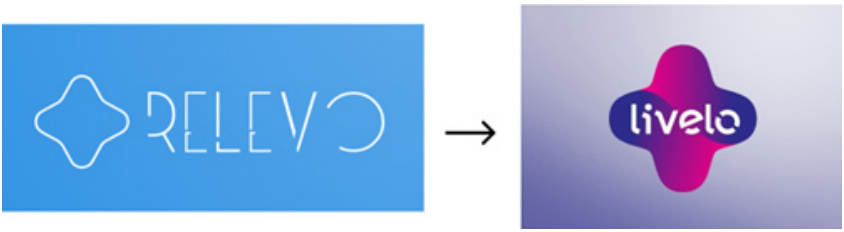

Figure 2. – On the right, logotype generated with Looka for the Relevo brand. On the left, the logotype for Brazilian point program Livelo.

2.1.4. Instagram content development

Content strategy was based on Lev Manovich's photography analysis framework, examining competitors' social media presence. The team focused on «designed» images (Manovich, 2016), attempting to generate various content types through AI. This choice was driven by a deliberate attempt to expand the boundaries of AI's capabilities, aiming to generate visuals for a wide array of subjects to enrich the project's final outcomes. The first attempt aimed to create imagery for the brand's flagship product – modular smartphones with interchangeable parts. However, the endeavour of depicting a «modular» smartphone quickly encountered significant challenges. The term «modular» inadvertently evoked associations misaligned with the brand's vision of realism and sophistication. Despite employing multiple software tools, the generated outputs often resembled retro gaming consoles or steampunk-inspired contraptions, lacking the feasibility and aesthetic alignment required for the brand's identity.

The captions for the Instagram posts were crafted using ChatGPT. Through multiple iterations, it became clear that integrating a detailed description of the image alongside insights about the brand significantly

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enriched the captions. This approach not only added depth but also ensured a more distinctive and engaging narrative for each post, effectively highlighting the brand's identity and values (*Fig. 3*).

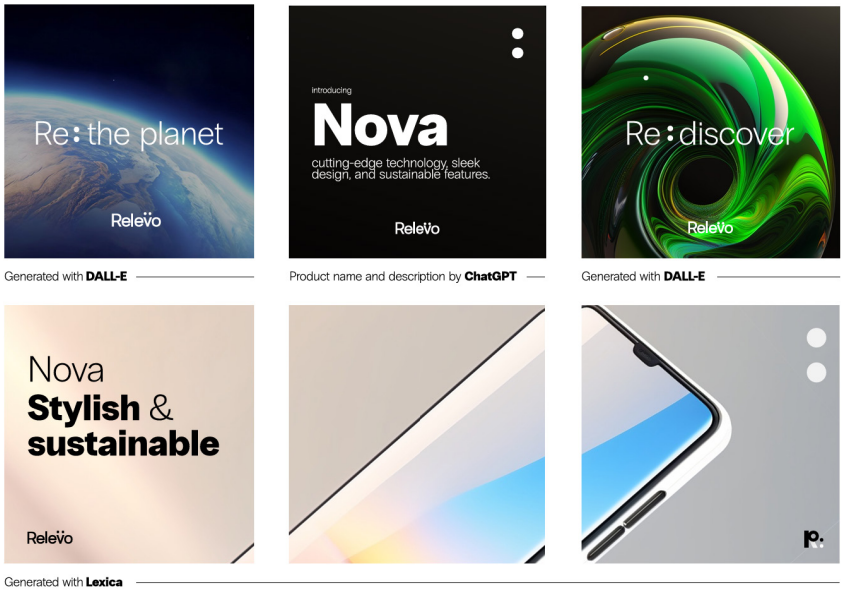

Figure 3. – Instagram profile Relevo phone.

In conclusion, the team highlighted that the project had underscored both the strengths and limitations of the Artificial Intelligence tools employed in generative design tasks. While these tools demonstrated remarkable efficiency, particularly in the rapid generation of text-based content, the outputs lacked the standalone quality required for professional application. Instead, they served as a foundational starting point, necessitating the intervention of human expertise to refine, adapt, and align the results with the specific demands of the creative process.

The team also focused on the issue of intellectual property that emerged as a critical consideration. AI-generated visuals occasionally exhibited a resemblance to established graphic styles or artworks, raising potential concerns regarding originality and plagiarism. To address this, the team intentionally drew upon widely disseminated styles that could not be attributed to a single creator or utilized existing materials with explicit permissions from their respective authors.

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Moreover, the project revealed a threshold in the AI tools' ability to deliver complexity and specificity. Beyond this point, human intervention was required to enhance the originality, flexibility, and completeness of the outputs. This often involved combining multiple AI tools to achieve the desired outcomes. These challenges and solutions provided a structured methodology for navigating the creative potential of AI while ensuring professional and ethical standards were maintained.

According to the students, the outcomes of this project proved the necessity of human oversight in AI-assisted road map, emphasizing that while AI tools can significantly enhance efficiency, their optimal utility lies in their integration into a broader, human-directed creative process.

2.2. *Evaluating student engagement with AI: insights from post-assignment survey analysis*

In this part, we shall succinctly focus on the survey disseminated to students after the delivery of their assignment. The survey was anonymous and optional, garnering 47 responses out of a possible 55. The survey cantered on the AI incorporation within their task executions. Nine questions adopted a Likert scale approach, while three were open-ended, seeking insights into the potential advantages and disadvantages of AI use. The results revealed a notable consistency in responses, with extreme ratings being almost invariably absent, except for a few rare instances.

The initial question inquired about which Artificial Intelligence tools the students employed. Predictably, ChatGPT emerged as the predominant choice, resonating with 76.9% of the participants. Other tools that garnered traction included DALL·E 2 at 68.5%, Text to Image AI registering 30.8%, and Stable Diffusion at 23.1%.

Subsequent questions focused on the application of AI in the execution of their assignments. For instance, in response to the query, «Did AI facilitate your research and acquisition process for obtaining information on specific topics related to your assignment?», the majority of students either agreed or remained neutral. Only 15.4% strongly agreed, while none disagreed.

Interesting insights also emerged from the open-ended questions. Many students noted it saved them a significant amount of time. However, another highlighted, «I generated images picturing people and AI wasn't really good in my opinion. It would have been much less time consuming to just use photoshop in some cases». From a pedagogical perspective, when students undergo thorough instruction, they demonstrate ability to

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harness the potentialities offered by AI, astutely weighing its merits and challenges.

As acknowledged by the students themselves, the employment of apt instructional prompts has often augmented their productivity. Nonetheless, in other cases, it became evident that the role of the designer was essential to achieve a high-quality and non-trivial product.

3. Second case study: sociology of media

This second case study aims to investigate the role of GenAI in enhancing the educational process within media studies and to examine the impact of AI as a «co-pilot» in learning on the quality and effectiveness of educational outcomes. Additionally, this research seeks to understand students' perceptions of AI integration in educational and professional contexts.

The study involved 200 students from the Sociology of Media course at Polytechnic of Milan, with 30% being international students. The participants were grouped into 22 teams, each consisting of 5 or 6 members. The primary objective was to develop a hypothetical Master's program titled «AI and Media Education Design Master», which explores the territories of AI-assisted learning. The students were tasked with designing 22 unique courses that integrate AI within the realm of Media Education Design.

The project utilized a mixed-methods approach, combining qualitative and quantitative research methodologies to provide a comprehensive understanding of the role of AI in education. The students were involved in an iterative process that included data collection, content creation, and critical analysis.

3.1. *Survey design and data collection*

To better understand the target audience and validate the project's hypotheses, the students developed an extensive survey to evaluate the current understanding and expectations surrounding AI in media education. The survey involved approximately 2,000 participants, primarily focusing on individuals between the ages of 18 and 30, a demographic that represents the near future of AI adoption and integration. The survey was structured into three distinct sections: demoscopic, AI-specific, and topic-specific.

The demoscopic section aimed to gather demographic data and general perceptions about AI. The AI-specific section delved into the participants'

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understanding of AI's potential in education, while the topic-specific section explored the participants' views on AI's role in their future professional lives.

3.2. *Course development and AI integration*

Building upon the survey results, the students proceeded to develop the hypothetical courses for the «AI and Media Education Design Master». Each group was assigned a specific topic, ranging from AI in journalism and social media to AI in film and television production. The students leveraged various AI tools, including GPT models from different companies and video and image generative models (such as DALL·E 2, Midjourney, and other GenAI applications), to generate content for their courses.

Each group created a comprehensive volume of support for their course, with lengths varying from 100 to 400 pages. These volumes integrated validated references and AI-generated content to support learning processes in specific educational paths. The development process involved meticulous research and validation of the generated content, with students curating the AI-generated material to ensure its accuracy, relevance, and alignment with the course objectives.

3.3. *Results and discussion*

The survey results provided valuable insights into the perceptions and expectations of the target audience regarding AI in media education. The demoscopic section revealed that while young people view AI as an opportunity, they still consider it far from being a daily tool for tasks, information gathering, or facilitating everyday life processes. This finding aligns with recent studies that highlight the growing awareness but limited practical adoption of AI among younger generations (Gunkel, 2020).

The AI-specific section showed that students perceive AI as a resource to be understood and developed for study purposes, but with a cautious approach to its correct application. This sentiment echoes the concerns raised by educators and researchers about the ethical implications and potential misuse of AI in educational settings.

The topic-specific section indicated that young people see AI as a formula to be understood, not to be excluded from future job positions, but rather to enhance their professional capital through correct and balanced use. This finding resonates with the growing recognition of AI as a transformative force in the workplace, requiring individuals to adapt and upskill to remain competitive.

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3.4. *AI-assisted course development*

The development of the hypothetical courses for the «AI and Media Education Design Master» showcased the potential for AI to support content creation while underscoring the necessity for educators to guide and supervise the process. The integration of AI-generated content with validated references highlighted the importance of human oversight and critical thinking in the application of AI in educational contexts. As Luckin *et al.* (2016) note, AI should be seen as a tool to augment and support human intelligence rather than replace it entirely.

However, the reflective analysis of the creation process revealed key challenges in using AI, such as biases in generative outputs and the difficulty in adapting AI-generated content to specific pedagogical goals. These challenges reaffirm the need for skilled educators who can critically engage with AI tools to harness their capabilities effectively while mitigating potential downsides.

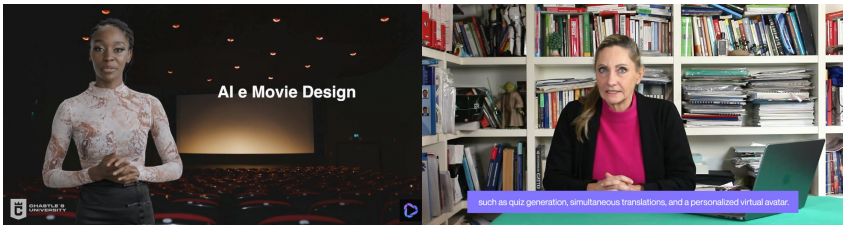

Figure 4. – 2 screenshots from the 22 videos produced.

The culmination of the project was marked by a 60-minute video presentation, showcasing the conceptualization and design of all 22 courses (*Fig. 4*). Students employed GenAI tools alongside innovative digital presentation formats, resulting in an engaging and informative synthesis of their work. The presentation underscored the creative potential of AI when synergized with human ingenuity and design thinking methodologies.

To further disseminate the project's findings and outcomes, an exhibition was organized at the Department of Design at the Polytechnic of Milan. The exhibition featured comprehensive course handbooks, spanning 100 to 400 pages each, which documented the diverse topics explored within the hypothetical Master's program. These handbooks served as tangible evidence of the rigor, depth, and interdisciplinary approach underpinning the students' research efforts.

The exhibition fostered a critical platform for dialogue on the future integration of AI in media education. It catalysed discussions surrounding ethical

considerations, pedagogical implications, and the broader societal impact of embedding AI tools within educational frameworks. These deliberations reflected growing academic and public discourse on the dualistic nature of AI as both a transformative educational tool and a potential ethical challenge.

Survey data gathered during the project provided further insights into students' perceptions and expectations regarding AI in education. Approximately 72% of participants expressed enthusiasm for integrating AI tools into their future academic and professional pursuits. However, 55% emphasized the critical need for training to mitigate risks such as algorithmic biases and privacy concerns. These findings align with emerging research and discussion emphasizing the necessity of fostering ethical AI literacy among both educators and students.

Moreover, the analysis highlighted the dual role of AI as both an enabler and a challenge within the educational design process. While AI tools facilitated the creation of diverse and dynamic content, students encountered challenges in aligning AI-generated outputs with pedagogical objectives. This underscores the imperative of equipping learners with advanced skills in prompt engineering, critical analysis, and contextual application to maximize AI's benefits while addressing its limitations.

This study offers a comprehensive examination of the integration of GenAI within the context of design and media education, reflecting on its potential to redefine instructional practices and resource creation

Pedagogically, the study reaffirms the indispensable role of the human designer in achieving meaningful and high-quality educational outputs. While AI serves as a powerful enabler, its outputs require critical oversight and contextual adaptation to align with educational objectives. The project underscores the value of experiential and iterative methodologies over purely theoretical approaches, particularly when integrating emerging technologies within pedagogical frameworks.

4. Some conclusions

As AI technologies continue to evolve and become more accessible, it seems to us to be crucial for educational institutions to deeply analyze the benefits, the implications, and the risks of AI integration. As the survey results from the Sociology of Media case study indicate, there is a growing recognition of the importance of AI skills and knowledge in future educational and professional contexts. Developing AI literacy curricula that encompass technical skills, critical thinking, and ethical considerations will

be crucial in preparing learners for the AI-driven future (Long & Magerko, 2020; Panciroli & Rivoltella, 2023).

The comparative analysis of our two case studies highlights both the potential and the challenges of integrating GenAI into higher education. These case studies try to shed light into the transformative potential of GenAI in education while emphasizing the indispensable role of human agency. Both studies reaffirm that AI, despite its capabilities, cannot function as a standalone solution. Instead, it thrives as a complementary tool within a human-cantered framework, where critical thinking, creativity, and ethical considerations guide its application.

From a pedagogical perspective, the role of the educator needs to be redefined once again. As AI technologies continue to change, the integration of GenAI in education requires ongoing refinement of teachers' and educators' role, too.

As mentioned, the two courses featured distinct characteristics. In the Digital Culture course, the emphasis was on producing tangible digital artifacts with GenAI serving as a «co-designer». This approach challenged students to explore the intersection of AI and creativity. The iterative design process exposed students to the complexities of AI prompt engineering, while also underscoring the need for critical oversight to ensure outputs aligned with ethical and aesthetic standards. Key challenges included limitations in the specificity of AI-generated outputs and concerns over intellectual property. In this case, the role of the educator was to accompany the students, ensuring they employed a critical approach and that ethical considerations were never overlooked. Additionally, the educator guided the students in the production and execution of their assignments.

The Sociology of Media course adopted a broader approach, tasking students with designing an entire hypothetical Master's program focused on AI in media education. Here, the integration of GenAI was evaluated through a methodological lens, examining its utility in content creation and instructional design. The course underscored the dual role of AI as both an enabler and a challenge. While AI tools streamlined the creation of educational materials, students tackled with aligning these outputs to pedagogical goals and addressing ethical concerns such as algorithmic bias and privacy risks.

In both case studies, the practical work remained in the hands of the students, and ethical, pedagogical, philosophical, and design considerations were learned in the process of «doing and making» – that is, through the real application of AI, which led to the creation of tangible products.

However, this study represents a preliminary investigation, and further iterations are planned for the 2024-2025 academic year to refine and expand upon these findings.

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Riassunto

L'avvento dell'Intelligenza Artificiale (AI), in particolare dell'AI Generativa (GenAI), ha catalizzato un cambiamento trasformativo nelle metodologie educative, collegando la pedagogia tradizionale con le tecnologie digitali avanzate. Questo articolo presenta un'analisi comparativa di due casi studio condotti all'interno del corso di laurea magistrale in Design della Comunicazione del Politecnico di Milano, esplorando l'integrazione della GenAI come strumento collaborativo nei corsi di Digital Culture e Sociology of Media. Esaminando le implicazioni, le sfide e i risultati dell'incorporazione della GenAI in questi contesti educativi, miriamo a mettere in luce il ruolo dell'AI come «co-pilota» nei processi di apprendimento, offrendo approcci innovativi alla creazione di conoscenza e alla risoluzione dei problemi. I casi studio evidenziano temi comuni, come la democratizzazione degli strumenti creativi tramite l'AI, la necessità di una alfabetizzazione critica sull'AI e l'esplorazione dell'AI come facilitatore di generazione di contenuti innovativi. Al contempo, l'articolo analizza le differenze tra i due corsi, inclusi il numero di partecipanti, le strutture dei corsi e gli aspetti progettuali, fornendo una comprensione complessiva dell'impatto della GenAI sulle esperienze educative e sulle capacità di problem-solving degli studenti.

Parole chiave: AI Generativa; Alfabetizzazione critica sull'AI; Design della comunicazione; Metodologie educative.

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