ARAŞTIRMA MAKALESİ / RESEARCH ARTICLE

A QUALITATIVE STUDY ON ATTITUDES AND BEHAVIORS OF ART AND DESIGN UNDERGRADUATE STUDENTS TOWARDS THE PREDICTED EFFECTS OF ARTIFICIAL INTELLIGENCE TECHNOLOGY IN VISUAL COMMUNICATION DESIGN

GÖRSEL İLETİŞİM TASARIMI ALANINDA YAPAY ZEKÂ TEKNOLOJİSİNİN ÖNGÖRÜLEN ETKİLERİ KARŞISINDA SANAT VE TASARIM LİSANS ÖĞRENCİLERİNİN TUTUM VE DAVRANIŞLARI ÜZERİNE NİTEL BİR ARAŞTIRMA

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Öz

Bu nitel araştırma, görsel iletişim tasarımı ve film tasarımı alanlarında lisans öğrencilerinin yapay zekânın potansiyel etkilerine yönelik tutum ve davranışlarını incelemektedir. Sekiz öğrenciyle yapılan derinlemesine görüşmeler, yapay zekâya yönelik karmaşık bir ilişki ortaya koymuştur. Öğrenciler yapay zekânın görevleri

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kolaylaştırma ve fikir üretmedeki avantajlarını kabul etse de, yaratıcılık üzerindeki etkisi, etik sonuçları ve potansiyel iş kayıpları konusunda endişelerini dile getirmişlerdir.

Araştırma, öğrenciler ile yapılan derinlemesine görüşmeler sonucunda öğrencilerin yapay zekâyı aktif olarak yaratıcı süreçlerine entegre ettiğini, araştırma, ilham alma ve görsel geliştirmede bir araç olarak kullandığını ortaya koymuştur. Bununla birlikte, dengeli bir yaklaşımın gerekliliğini vurgulayarak, kendi benzersiz sanatsal seslerini korumanın ve yapay zekâya yönelik etik hususları ele almanın önem taşıdığını düşünmüşlerdir.

Öğrenciler, yapay zekâ araçları, etik çerçeveler ve telif hakkı konularının dahil olduğu yapay zekâ entegrasyonunu içeren kapsamlı eğitim programları için önerilerde bulunurken, yapay zekâ uzmanlığının yaratıcı endüstride kritik önem taşıyacağını öngörmüşler ve kariyer planlarını buna göre uyarlamaya başlamışlardır. Bu araştırma, gelecekteki yaratıcıları yapay zekânın dönüştürücü potansiyelini benimsemeleri ve aynı zamanda ortaya çıkan zorlukları ele almaları için hazırlamaktaki kritik ihtiyacın altını çizmektedir.

Anahtar Kelimeler: Görsel Tasarım, Yapay Zekâ, Sanat Eğitimi, Bilişsel Emek

Abstract

This qualitative study investigates the attitudes and behaviors of undergraduate students in visual communication design and film design towards the potential impact of artificial intelligence (AI). Through in-depth interviews with eight students, the research reveals a complex relationship with AI. While acknowledging its advantages in streamlining tasks and generating ideas, students express concerns regarding its impact on creativity, ethical implications, and potential job displacement.

The study found that students are actively incorporating AI into their creative processes, using it as a tool for research, inspiration, and visual development. However, they recognize the need for a balanced approach, emphasizing the importance of maintaining their unique artistic voices and navigating the ethical considerations surrounding AI.

Students advocate for comprehensive educational programs that integrate AI, including courses on AI tools, ethical frameworks, and copyright issues. They anticipate a future where AI expertise will be crucial in the creative industry and are adapting their career plans accordingly. This research highlights the critical need for preparing future creatives to embrace the transformative potential of AI while addressing its challenges.

Keywords: Visual Design, Artificial Intelligence, Art Education, Cognitive Labour

Introduction

Artificial intelligence (AI) technology is predicted to bring about significant changes in all industrial sectors, including the cultural industry, alteration of education, organizational structures, production techniques and processes of cultural products, distribution, and ownership of production tools. While it remains uncertain whether AI will lead to profound changes within the framework of digital culture, where the use of digital media in daily life is becoming increasingly prevalent, it is likely to shape the future of the cultural industry. AI technology, already present in the production processes of art and design students who will shape the future of the cultural industry, can also be interpreted as a source of unease for creative individuals. The attitudes and behaviors of undergraduate students who are currently pursuing education and training in art and design—to stay in the field, continue their work, shift directions, or create partnerships with different fields and disciplines,

etc.—are important for determining the future of the field. This study focuses on discovering the thoughts, feelings, attitudes, and behaviors of art and design students who are beginning their education to produce creative works and become part of the workforce in these areas.

The purpose of this study is to explore the attitudes and behaviors of undergraduate students in the fields of visual communication and film design towards the potential effects of artificial intelligence regarding the development of AI technology alongwith their assessments of the professional conditions, organizational structures, future, and current state of the field. The research aims to reveal how students perceive AI's role in facilitating creativity while also examining its impact on artistic processes. The study starts with the question, "What are the attitudes and behaviors shaped by AI technology in art and design students in the field of visual communication design?" Understanding the attitudes and behaviors of undergraduate students specializing in visual communication design towards AI technology can provide guidance for decisions to be made regarding AI in undergraduate education and training processes, and it can provide a cornerstone for future studies on education and training planning and career planning.

The data collection methods and techniques employed in this research are observation and in-depth interviews. This qualitative study employs in-depth interviews with eight students – consisting of Visual Communication Design Department undergraduate students and Film Design and Management Department undergraduate students; to gather insights into their views on the integration of artificial intelligence in creative processes. The findings highlight the active involvement of students in utilizing AI tools and techniques, alongside their reflections on the balance between human creativity and technological innovation. Participants were selected among students who create projects and conduct activities that focus on the three main sub-fields of film design and visual communication design. These three sub-fields are: "photography and film image", "graphic design, illustration, and concept development" and "animation and digital game design". Participant students were randomly selected among students enrolling in courses and producing projects in all three sub-fields. In-depth interviews were conducted with a total of eight participants.

Hypotheses

Art and design undergraduate students can adapt to the developments in AI technology, enhancing and shaping their expertise.

Art and design students may shift their areas of specialization within visual communication design field or make adjustments in their fields or develop partnership with related disciplines.

Art and design students may entirely leave the visual communication design field and its sub-fields and pursue career paths in other areas.

The findings of the research revealed that undergraduate students in film and visual communication design studying in different departments and sub-fields of design develop projects with

different thoughts, feelings, attitudes, and behaviors regarding AI. It was found that students, similar to any new technology, experience negative emotions such as discomfort, anxiety, and fear when encountering AI, which transform into more positive emotions as they start using these tools and learn about them. It was observed that students' attitudes and behaviors are not influenced by AI as a whole, but rather in certain stages and when used as a tool that they can direct. The importance of teaching AI technology in **project-based education, research projects and training processes** emerged as a key finding**, in relation to** AI's potential to **enhance** originality and creativity, as observed in the research results.

1. Literature Review

The relationship between new technologies, society and culture has been a constant topic in communication studies throughout history, though it can be viewed as a new stage of an ongoing debate regarding media cultures and the emergence of new technologies. From this perspective, the development of AI technology can be seen as an important step in a new stage within digital culture, just as in different media cultures that began with the invention and widespread use of writing, printing, and the telegraph.

From the perspective of visual communication design, it can be argued that a new era is dawning, one where the traditional image production methods will be replaced and new art movements and visualization techniques will come to the forefront, just as happened with the invention and widespread use of photography. However, it is also possible to interpret this as the opening of a new field within the context of expanding digital media culture. Photography emerged in a new world, the world in which modern society lives, and historically it has been an important technology that deeply influenced the forms and processes of image production in the "new media" of the postmodern era. Considering the diversity, types, speed, and roles that technological developments play in everyday life in the first quarter of the 21st century, it is clear that the production, distribution, and consumption of images are also transforming under the influence of these developments.

The transition of computer technology from laboratories to everyday life spaces and activities, the development of the internet and Web 2.0 technology, and the potential for digital culture to create a shared language, memory, and common narratives among different national and local cultures have formed the important cornerstones of the digital media age. The digital culture, where boundaries are lifted or become ambiguous, personalized content, increased options, intensified participation, and enhanced transparency, also has a darker side. This is another face of digital surveillance, digital labor exploitation, and the emergence of new power techniques in the relationship between power and the subject, for example, the evolution from disciplinary techniques to psychopolitical techniques (Chul-Han, 2020). The digital subject, or, in Törenli's (2011) words, the e-individual—that is, the modern person who is flexible, adaptable, and open to innovation (as they should be)—is also a subject that Toffler defines as a prosumer (producer-consumer)" (Törenli, 2011, p. 217). The

transition from a disciplinary society and the biopolitical power characteristic of Foucault to a neoliberal society has led the subject (Subject) to become a project (Project) that is constantly reinventing and reinvigorating itself (Chul-Han, 2020). "The performance subject, who believes they are free, is actually a slave. They are the ultimate slave to the extent that they voluntarily exploit themselves without a master" (Chul-Han, 2020, p. 12).

From an economic-political perspective, in the relationship between cultural work and the digital labor of the worker, there is a tendency for capital to increase the productivity of labor in order to lower the costs of both the commodities and the labour itself. This occurs through the application of new technologies in the labor process, breaking down the work into its component parts, making workers unskilled, separating conception from implementation, and subjecting the work to managerial control. Again, according to Braverman, capitalism tends to reduce the majority of workers to a homogenous group requiring very little specialization, replaceable from within (Braverman, 1998; cited in Cohen, 2015, p. 55). Cohen's (2015) argument that cultural work in research, translation and design areas sets them apart from other workplace-based jobs and places them in a more privileged position, thus that cultural workers have a relative autonomy to determine their own working conditions, should be revisited through the lens of AI technology. The capitalist modes of production that Marx criticized with his concept of alienation are likely to drive digital workers—who are the focus of this article—completely out of the production process through new technologies such as AI. By putting them in a position of complete unskilledness, merely as digital personalities from whom data is collected, they are left feeling unsettled. These digital workers, who can be defined as the digital workers of the cultural industry, make up a small minority in the creation of the images and content of the digital world. In a world where everyone can be a content producer and has easy access to the tools that allow them to participate directly in digital culture, everyone has become a prosumer for the digital cultural industry through their instantaneous actions, choices, and consumption habits. Digital subjects are also digital workers, working as part of a data-gathering information machine. The data they generate becomes a commodity that can be processed and sold where it accumulates. The concept of free labor, according to Terranova (2004), is defined as "hyperactivity that makes the internet successful and turns it into a hyperactive environment" (cited in Wittel, 2014, p. 408). Drawing on this, Wittel (2014, p.408) states that free labor has three important characteristics: "First, free labor is free in the sense that it is unpaid... Second, it is freer in terms of freedom. It is more autonomous than paid labor and less alienating. It is more like a playground than a factory. So, it's fun. Its third characteristic is that it is exploited by capital". The key difference between the free labor of digital subjects who voluntarily produce data freely and enjoyably and the worker in a factory in an industrial society is perhaps that they are not aware of what they are doing. They are engaged in data production in every breath they take—from their leisure activities to their communication in the workplace, from their virtual shopping to their heart rate and daily step count.

According to Toffler (2008, cited in Kara, 2013, p. 36), Western countries entered the third wave (information society) in the 1950s after the first wave (agricultural society) and the second wave

(industrial society). According to Castells, "the information society is a specific form of social organization in which the production, processing, and transmission of information have become the main sources of productivity and power due to the new technological conditions that emerged in this historical period" (Castells, 2008, cited in Özçetin, 2020, p. 263). "In the postmodern information economy, what characterizes services is the central role played by knowledge, information, affect, and communication" (Peters & Bulut, 2014, p. 39). Immaterial labor, or, in Fuchs's (2014, p. 137-188) words, informational labor, or, in other words, cognitive labor (Peters & Bulut, 2014), like the manual labor of the industrial society worker, is fragmented and is likely to be partially, and perhaps wholly in the future, transferred to algorithms.

2. Defining Artificial Intelligence

There is a body of literature on the definition of artificial intelligence as a concept and the difficulty of defining this concept. For example, Wang (2019, p. 29) concludes in his article "Defining Artificial Intelligence" that there is no single correct and functioning definition of AI, and that existing definitions cannot be considered incorrect because they have theoretical and practical value, but they are also equally incomplete.

"According to this analysis, there is no complete definition of AI; each has its theoretical and practical values, i.e. it is not wrong. However, when evaluated against the criteria presented at the beginning of this article, all valid definitions are not equally good. While there is no such thing as a perfect working definition and I do not expect consensus on which is best any time soon, at least the ultimate lack of harmony between perspectives must be recognized." (Wang, 2019, p. 29).

According to Simmons and Chappell (1988, p. 14), the term artificial intelligence refers to the behavior of a machine that would be considered intelligent if a human were to behave in the same way. They also argue that the obstacle to expanding this very general and not-too-explanatory definition is the uncertainty of the factors that determine human intelligence. Taking a similar approach, Aydın also uses the "machine that can behave like a human" approach when defining AI. "Artificial intelligence is a general name given to non-organic systems (computers, programs, robots, etc.) that can think, perceive, interpret, analyze, and make decisions like humans, based on the functions of the human brain" (Aydın, 2017, p. 3).

"The term artificial intelligence refers to the behavior of a machine that would be considered intelligent if a human were to behave in the same way." (Simmons & Chappell, 1988, p. 14).

According to Lee (2020), a neuroscientist who argues that we still know very little about how human and animal intelligence works, "Intelligence can be defined as the ability to solve complex problems or make decisions that will benefit the actor and has evolved in life forms to adapt to different environments so that they can survive and reproduce" (Lee & Weder, 2020). Lee, too, points to the difficulty of defining intelligence, stating that when making such a definition, he is working from an

evolutionary perspective, and that different life forms may have different types of intelligence because they have different developmental roots and have developed different adaptations to different environments. "Intelligence can be defined as the ability to solve complex problems or make decisions that will benefit the actor and has evolved in life forms to adapt to different environments so that they can survive and reproduce" (Lee & Weder, 2020). "For example, different life forms may have very different types of intelligence because they have different evolutionary origins and have adapted to different environments" (Lee & Weder, 2020).

The AI Watch report published in 2020 by the European Commission Joint Research Centre (JRC), which focuses on defining AI, examined a total of 55 important sources that approach the definition of AI from policy, research, and industry perspectives, and proposed an operational definition including the taxonomy of the term. One of the definitions that stands out in this review is that proposed by the HLEG (High Level Expert Group on Artificial Intelligence) (2019).

"Artificial intelligence (AI) systems are systems that are designed by humans, consisting of software (and possibly hardware), that are able to perform complex tasks when given a complex goal, are able to perceive their environment through data collection, interpret the collected structured or unstructured data, act in the physical or digital realm, reason or process the information gleaned from this data, and decide on the best action(s) to take to achieve the given goal. AI systems can use symbolic rules or learn a numerical model, and they can also adapt their behavior by analyzing how the environment is affected by previous actions." (HLEG, 2019, cited in JRC, 2020, p. 9).

The JRC Report proposes a taxonomy of AI, expanding and framing the definition of AI areas and sub-areas by classifying them through their "core" areas, which play a central role, and the "horizontal" relationships they establish with other different areas. According to this review, the core areas of AI are "reasoning," "planning," "learning," "communication," and "perception." The horizontal relationship with other areas outside of itself includes "integration and interaction," "services," "ethics and philosophy." The core sub-fields include areas such as knowledge representation, automated reasoning, common sense reasoning, planning and scheduling, search, optimization, machine learning, natural language processing, computer vision, and audio processing (JRC, 2020, p. 11).

3. Artificial Intelligence in Art and Design

The emergence of new technologies, as in the past, continues to deeply affect the fields of artists and designers. An example of this is the invention of photography, which was one of many technological innovations that played a role in the transformation of everyday life in the 19th century. Photography, as a technological innovation, emerged in the early 19th century, but it was not until the end of the century that it became a part of everyday life. The immediacy in the creation of an image, and the ease with which it could surpass the time and labor required for a portrait painter to be trained and produce an image, were factors that also determined the direction of art in the modern world. However, art and art production did not disappear, but rather transformed, expanded, and

finally, with the advent of photography and then cinema, as moving pictures, became layered. The emergence of AI technology, while not new, has been brought to the fore in terms of its integration into everyday life, its transformation of everyday life objects, and—from our point of view—its integration into cultural industry products. Although AI may not be a new technology, its integration into daily life, everyday life objects, and cultural industry products, which are relevant to our subject, is new, and its trajectory is still unclear. However, AI is beginning to shape the production processes and technical and aesthetic trends of works in visual communication design fields such as film, photography, graphics, and animation. As a result, AI technology appears to be a production tool that is likely to become part of design education and training processes. The relationships that students pursuing education and training in visual communication design and film build with AI technology will be crucial to the future of the industry, as they are the designers of tomorrow.

In fact, the use of AI technology in art and design is a topic that has been on the agenda for some time. For example, Ai-da, the first ultra-realistic humanoid robot with AI, is an artist. Ai-da, who took her name from the British mathematician Ada Lovelace, states that she creates her paintings using AI algorithms, the cameras in her eyes, and her robotic arm, though she adds that "analyzing a vast corpus of texts" helped her understand poetic structures when it came to writing poetry, and that this is a different kind of consciousness than that of humans, because it does not have subjective experiences (NTV, 2022). Ai-da was born in 2019 as a humanoid robot. She can paint with robotic arms in England and is also a performance artist. Ai-da, a human/machine/AI hybrid being with AI capabilities, can also be considered an artwork in terms of her artist persona. (AI for Good, n.d.). However, Ai-da is not just working with AI technology; behind her work and her work are human inputs, even though she receives AI support.

Another artist working with AI technology is Refik Anadol. "In Refik Anadol's works, where art and science come together, he has pushed the limits of the impossible, transforming data into a poetic language with AI, aiming to make the invisible visible" (Bozok & Bostancı, 2022, p. 170). According to Anadol, "machines, if they can learn and process memories, can also dream and imagine" (Anadol, 2021; cited in Artun, 2021). With his "Archive Dream" exhibition, the first of its kind in Istanbul and the world, Anadol prioritized difference rather than singularity, and movement rather than stagnation, creating random and personal experiences (Çelenk & Kurak Açıcı, 2022, p. 78). Refik Anadol's interest in thinking and learning machines that can remember and even dream is manifested in the form of visualizing data, mapping it, and animating it for projection on architectural facades. For example, Machine Hallucinations: Coral Dreams is a 40 ft x 40 ft AI data sculpture based on 1,742,772 coral/reef images selected from publicly available image databases. With this work, Anadol hopes to call attention to an urgent environmental problem, attempting to convey the impact of climate change on coral death. "Machine Hallucinations is a continuing AI research on data aesthetics at RAS Lab, based on the collective visual memory of nature. Since 2016, Anadol and his team have spearheaded proprietary algorithms to process these vast data sets and unlock the unrecognized layers of our external realities, memories, and dreams" (refikanadol.com, 2021).

Another artist, and also a new media theorist, working with AI is Lev Manovich. Manovich thinks about "AI aesthetics & generative art," but also uses AI technology to create images and held an exhibition of his works, entitled Unreliable Memories, at Evora (Portugal) in 2022-2023.

4. The AI Revolution in Visual Communication Design: A Creative Partnership that Transcends Boundaries

Although AI has roots in ancient Greek philosophy, modern AI research began in the 1950s with Alan Turing's "Turing Test," which questioned the ability of machines to think (Turing, 1950). The Dartmouth Conference in 1956 marks the official birth of the field of AI (McCarthy et al., 1955). In subsequent years, different approaches such as expert systems, symbolic AI, and machine learning have been developed (Russell & Norvig, 2003). In the 1990s, the increase in large data sets and computational power led to the development of new AI techniques such as deep learning (LeCun et al., 1998). AI experienced rapid development in the 2010s. In the field of image recognition, deep learning models began to surpass human performance in the ImageNet competition (Krizhevsky et al., 2012). In the field of natural language processing, transformer-based models (Vaswani et al., 2017) achieved great successes in tasks such as language translation, text summarization, and question answering. In particular, large language models such as GPT-3 (Brown et al., 2020) and ChatGPT (OpenAI, 2022) have attracted attention for their ability to generate human-like text. Of course, significant advances have also been made in areas such as autonomous vehicles, robotics, design, and healthcare.

AI is no longer just a technological advancement, it has become a force that is at the heart of the world of art and design, reshaping creative processes and pushing the boundaries of human imagination. Artists and designers are embracing AI models as powerful tools, creating artistic expressions and design solutions that were previously unimaginable.

At the heart of this creative revolution lies AI models trained to perform specific tasks. For example, AI writing tools such as ChatGPT and Jasper, which are equipped with natural language processing capabilities, can break new ground in writing and storytelling, which form the conceptual basis of art and design. ChatGPT can create a poetic text for an exhibition catalog or a manifesto defining the conceptual framework behind an art installation, while Jasper can write a compelling brand story that reflects the new brand identity of a design studio.

In the field of visual design, AI models with text-to-image conversion capabilities, such as DALL-E 2 and Midjourney, are enabling artists and designers to create surreal and impressive visuals that push their boundaries. For example, an artist can give DALL-E 2 a command such as "a dream scene in the style of Dali, skyscrapers melting into violins," creating the foundation for a surreal and thought-provoking work. Midjourney, on the other hand, is starting to offer graphic designers aesthetic possibilities that have not yet been explored in logo and icon design for new brand identities.

In the field of video art and animation, AI is bringing about revolutionary changes. Platforms such as RunwayML are providing artists with AI-powered video editing, style transfer, and effect creation tools, enabling them to create abstract and experimental videos or reinterpret a historical film scene in the aesthetics of a different art movement. Platforms like Synthesia, on the other hand, are offering video artists the opportunity to create striking works that question human nature and explore the concept of digital identity, using realistic human avatars generated by AI.

In the field of 3D modeling and design, the impact of AI is growing. Systems such as DreamFusion, for example, are making the process of creating complex and organic forms easier for designers working in a wide range of fields, from architects to industrial designers. An architect can use DreamFusion to lay the groundwork for an innovative and futuristic visual design using a written command such as "a museum building inspired by the organic forms of nature, built with sustainable materials."

Music and sound design, which have a deep connection to art and design and play a significant role in the production process of visual communication products that are extended over time—especially film, animation, and motion graphics—are also undergoing revolutionary changes thanks to AI. Models like Jukebox are giving composers and musicians the ability to explore different genres of music, create original melodies, and even create new interpretations by imitating the style of a particular composer. For example, a film score composer can use Jukebox to create an original piece of music that reflects the emotional atmosphere of a particular scene, while also being consistent with their own compositional identity.

AI is leading to a paradigm shift in the world of art and design. Artists and designers are beginning to embrace AI models not as passive tools, but as active partners that nourish their creativity, push their boundaries, and enable them to discover new forms of expression. It is still uncertain how this partnership will shape the future of art and design, and where it will take the boundaries of human creativity.

5. Method

Since the main objective of the research is to explore the thoughts, feelings, attitudes, and behaviors of undergraduate students who are actively engaged in education and training in film and visual communication design, undergraduate students in these fields were identified as the primary data source. In-depth interviews were conducted with a total of eight undergraduate students: three students from the Film Design and Management Department at Marmara University and five students from the Visual Communication Design Department at Istanbul Medeniyet University. Six of the interviews were conducted face-to-face in the relevant department classrooms at Marmara University and Istanbul Medeniyet University, while two interviews were conducted online. The interviews, which were completed between April 16 and May 17, 2024, were audio-recorded with the consent of the voluntary participants, and the names of the interviewed students were changed for use

in this text. The participants were Sinem, Sena, Burak, Reyhan, Melike, Yasemin, Banu, and Eda. Sinem, Burak, and Reyhan are students from the Film Design Department, and Sena, Melike, Yasemin, Banu, and Eda are students from the Visual Communication Design Department.

The research questions were structured around groups of questions aimed at understanding what art and design undergraduate students think about AI technology, what they feel about it, and the actions they are undertaking in response to its emergence. Before preparing the question set, the sub-fields of Film Design and Management and Visual Communication Design were grouped into three categories: "photography and film image," "graphic design, illustration, and concept development," and "animation and digital game design". The goal of this research, which aimed to reach students' thoughts, feelings, attitudes, and behaviors, included demographic and introductory questions followed by an in-depth interview process, which continued with cognitive, affective, and behavioral questions. A total of three questions were designed for each category (cognitive, affective, behavioral), independent of the sub-questions. The interviews were completed with a single closing question. The question set consisted of a total of thirteen questions aimed at collecting qualitative data (see Appendix 1).

During the sample selection process, students were randomly selected among students who were actively pursuing undergraduate education and training in the relevant departments, from different class levels and with different types and techniques of projects, who were taking classes and producing projects in all three sub-fields. In-depth interviews were conducted with a total of eight participants. The first interviews were conducted face-to-face in a classroom at Istanbul Medeniyet University. All three interviews conducted at the Film Design and Management Department at Marmara University's Faculty of Fine Arts were conducted face-to-face. The last two in-depth interviews were conducted online with two participant students from Istanbul Medeniyet University's Visual Communication Design Department. Audio recordings were made during all interviews with the consent of the participant students, and the interviews conducted online were recorded visually and aurally. It was decided that the visual-aural, aural, and written files (transcribed full text files) containing the interview recordings would be stored in a digital archive accessible only to the research group for a period of five years.

6. Findings & Discussion

In-depth interviews with a total of eight undergraduate students—five from the Visual Communication Design Department and three from the Film Design Department—were conducted to explore their thoughts, feelings, and experiences regarding AI. The students were first asked to briefly introduce themselves and explain the reasons and the processes of choosing the department they are currently studying in.

The students generally expressed that they are interested in visual communication design and that they are drawn to different areas such as photography, film, illustration, animation, and digital

games. Some students wanted to work professionally in this field, while others preferred to produce creative work more in line with their personal interests and hobbies.

Some students explicitly stated that they have been interested in visual communication design since childhood. It is interesting to note that these students also stated that their childhood interest in painting and art was a significant source of professional training, and that they were unable to develop these abilities and interests during their primary and secondary education, only to be able to regain this root motivation at the undergraduate level.

Their expectations from the department are generally include the development of creativity, the acquistion of new skills and the pursuit of employment opportunities within the sector. Some students say they chose this department because of the diversity it offers and the opportunity to focus on different areas.

When asked what they think about AI, they were observed to have positive, anxious, and complex perspectives. For example, while Sinem and Sena see AI as a tool that simplifies their work, saves time, and helps them explore new ideas, Burak, Reyhan, Melike, and Yasemin, from an anxious perspective, believe that AI could negatively impact creativity, make people lazy, and lead to job losses in the sector. Banu and Eda think that AI has both advantages and disadvantages and emphasize the need to be careful when using this new technology in their projects.

For example, Melike states that AI, in addition to its advantages, has made her lazy and distanced from research. She expressed that AI makes her work easier, but it also makes her get used to taking the easy way out. However, Melike also thinks she will find it difficult to stop using AI in the future.

"Melike: For example, let's say I write down exactly what I'm thinking, with all the details, AI gives me exactly what I want when I write it. But, as I said, because it makes it a little easier, it kind of drags me towards laziness."

Reyhan, who is specializing in the field of Film Design and Management and writes screenplays, believes that AI is not yet sufficiently creative, but that it could have an impact in making human creativity lazy. She expressed her thoughts along with the feeling of fear she is experiencing.

"Reyhan: Actually, AI scares me. Because I think it makes people too lazy intellectually. This affects me too. For example, if you're going to write a screenplay, you talk to ChatGPT instead of thinking first. Actually, I see that it's not very creative in terms of art. Then, it scares me for the future of the matter. Yes, I mean, maybe better visual effects can give viewers a better experience, but the situation of people who work in the arts being unemployed scares me. So, I'm observing something like this. I mean, it could have some effects on the sector. And, I mean, it's not really very creative. It's not creative for now, anyway. Actually, AI and computer systems are systems designed for machines to be able to think more like humans. It works really well in some areas, maybe. It's really useful when writing essays, for example. But again, when we turn back to the human side, it restricts our way of

thinking. It makes us even lazier. We're just giving AI briefs and getting data from it. We don't have any input in the thinking process. We can only ask questions now."

Sinem, another student specializing in Film Design and Management, expresses her perspective differently from Reyhan, suggesting that AI does not make her lazy. Sinem believes that AI makes life easier, and she describes it as a useful tool for both consumers and producers. She also believes that AI can reduce costs and simplify production processes in the film industry.

"Sinem: (...) So, I think it makes life seriously easier. Not just as a consumer, but also as a producer, it makes our lives easier. As an example, I can really give an example from my own department. The other day, when we were doing homework together with Yüce Hoca, we got a reference from AI for the spaceship, for example, and when I searched for it on Pinterest, I couldn't find exactly what I wanted. But, with the help of AI, I actually created what I wanted, in a way."

When asked about their thoughts on AI regarding their areas of specialization—photography and film image/design and illustration/animation and digital games—students frequently shared their thoughts on the pros and cons of the technology.

AI advantages in the context of the sub-fields they want to specialize in were listed as follows: speeding up and simplifying post-production processes (Burak, Banu); helping to discover new ideas and get inspiration (Banu, Eda, Sena); making it easier to create reference images (Banu, Melike); the potential to speed up animation and game development processes (Sena, Yasemin).

AI disadvantages were stated as follows: limiting creativity and making people lazy (Banu, Melike, Sena, Yasemin); causing job losses in the sector (Burak, Eda, Reyhan, Sena, Yasemin). Some students (for example, Büşra, Melek, Yaren Gül, etc.) also noted that they believe work generated by AI looks unrealistic and "artificial."

In addition, students such as Banu and Yasemin see issues related to copyright and ethical concerns as drawbacks of AI.

"Yasemin: (...) Apart from that, AI... It's like watering down the copyright a little bit. It's not putting water in it, it's putting ink in the water. Because it's mixed it up a lot. It's kind of blurred the concept of justice, the concept of copyright a little bit. From that perspective, I don't think it's very ethical. Even though I don't think it's ethical, I still use it, actually. Even though it's reflecting my own thoughts. Because society and the age are moving in this direction. So, even if I want to oppose it, I want to keep up with it."

When asked about their ideas on the future effects of AI on the field, students were observed to address the topic both from a design perspective and a sector perspective. For example, while Sena suggests that AI will improve design quality, Sinem believes that AI could lead to the emergence of more diverse designs in the future.

From a sectoral perspective, while students generally re-expressed their concerns that AI could lead to job losses in the sector, many students believe that people with AI knowledge will have competitive advantage and be preferred (Banu, Eda, Reyhan, Sinem, Sena). The same students highlighted the importance of learning AI in order to be able to play a role in the field, as someone who is proficient in AI technology could get ahead of them.

Sena, who compares the emergence of AI to the emergence of the internet and believes that people will adapt to this new technology, expresses anxiety about the possibility of many professions disappearing due to AI, but also believes that it will improve design quality and make creative people's work easier. Sena mentioned that she uses Runway when doing her animation project and that AI is not yet sufficiently successful in the field of animation. Sena believes that using AI as the main method could have negative consequences for a designer. She initially used AI models as the main method in her homework and projects but felt that this was hindering her own development of an original design language, so she continued to use AI as a supporting method.

"Sena: (…) I think it definitely needs to be used as a supporting method. It's like, how much should we use the internet? Because everything has a lot of downsides. Especially when I used it as my main tool, it was too much, it was homework. But, for example, what happens with these? Does originality remain, does anything remain? And I think that's one of the worst things that can affect a designer. Especially, I'm very careful to use it as a supporting tool now. Because there's so much that you can do. You can actually use it as your main tool. But I think it definitely needs to be used as a support tool. Because if you do it as your main tool, I don't think you can think about anything over time. It's like it takes over you, in a way, AI does, somehow."

Sena's discomfort is a result of unease, even alienation, experienced as a result of the fragmentation and transfer of her immaterial (cognitive) labor to a machine at a more advanced stage of AI use. Therefore, Sena emphasized the need for a bit of a pullback, or to maintain a certain distance to "not be taken over by AI."

To illustrate Banu also uses AI like an assistant in her research and to get inspiration. She thinks that artificial intelligence is not yet developed enough in the fields of video and animation, which Banu wants to specialize in. While she acknowledges that AI saves time, she expresses concern that it could limit creativity. Banu believes that if she masters the use of AI effectively, she could surpass her peers.

"Banu: I have a friend who graduated from design school, a graphic designer. She now creates all the packaging designs from AI. She uses micro-color. But, again, she is the one creating it. So, she didn't lose her job, she just took certain prompt training, created this by writing it herself, and created it in her own imagination, and the company is using it this way, with certain corrections. So, a person needs to develop himself or herself in terms of current technology and AI, especially in terms of prompts. If they don't develop himself or herself, then of course they will be overtaken by us."

This section, which focuses on students' thoughts about AI, suggests that although AI technologies are rapidly developing and undergoing transformations, it is important for them to be actively used in undergraduate education and training processes to help students develop in terms of the sector and design. AI has been observed to help students find unique, creative ideas and obtain references, as well as to be used to support the easier and faster production of products. It is also interesting from a research perspective that students have used AI, independently of school and training programs, to avoid being left behind and ending up unemployed.

In the next stage, questions were directed at the students to reach their feelings about AI technology. This stage aimed to explore students' affective processes and subsequently link them to their attitudes and behaviors.

When asked what they felt when they first heard about or learned about AI technology, students stated they experienced emotions such as excitement, surprise, fear/anxiety, and curiosity. While Sinem and Yasemin experienced the excitement of encountering a new technology, Eda, Reyhan, and Sena said they felt anxious that AI would take their jobs away and negatively impact humanity. Burak and Melike were curious to see what AI could do.

For example, Burak, who wants to specialize in the field of film design and management, sees AI as a tool that simplifies post-production processes such as cleaning up image noise and changing backgrounds. He predicts that AI could make films on its own in the future and even write screenplays, but he is concerned that this could inhibit creativity. Moreover, Burak expresses that he is afraid that the use of AI in the film industry will reduce the workforce in the sector and lead to unemployment.

"Burak: When I'm going to do a task when I'm going to fix something, okay, there's AI, I can easily fix the noise in the image in a few seconds without spending hours on it, I think. But, on the other hand, AI will start fixing those images on its own, and I will no longer be required."

When asked about their feelings regarding the effects of AI in terms of photography and film image/design and illustration/animation and digital games, and their current feelings, it can be said that feelings of excitement, curiosity, and anxiety/fear continue to exist. The fear and anxiety of students such as Burak, Eda, Reyhan, Melike, and Yasemin are linked to the belief that AI will negatively affect creativity, encourage laziness, and threaten their professions. Sinem's excitement mixes with curiosity, while Sena's fear and anxiety have given way to excitement and curiosity.

"Sena: Because I started getting into it. I solved the applications. And, how to put it... I think I contributed to it, I mean I contributed to it and it's not so scary after all, because I started to think, "It's actually my job." Initially, I started to think, "It's actually its job." This is still a debated topic, like, is the work that comes from AI your work, or is it its work? I accept it as my work because, in the end, I'm the one who enters the prompt.

Still, Sena expresses that she has some fears and anxieties about her progress in the drawing application. In fact, she has dropped her drawing class because of the AI technology's ability to provide the desired drawings very quickly:

"Sena: But, for example, the fact that AI gives me what I want directly has caused me to fall behind in many of my classes. I even dropped my drawing classes. And that affected me badly. But, right now, for example, I'm trying to start over little by little. But it's still a terrible situation, of course. I mean now... AI can give us what we want in the style we want. When you say charcoal, it can give you charcoal. And actually, the important thing is to express yourself, will it be like that in the future? There's a fear about that. And right now, I have an anxiety that I'm wasting time drawing, for example. That's why I prefer to use it as a support tool. The same goes for ideas..."

Eda, who states that she has formed an emotional bond with AI, says she developed this relationship with AI through her "Creative Programming" class projects. Eda states that she was initially opposed to AI, but after becoming familiar with AI technologies through the "Creative Programming" class, her perspective changed. She now sees AI as a factor that reduces manpower but believes that it will increase the importance of designers who can think and generate ideas.

"Eda: I was very afraid at first, as I said. Then, I started to feel like it was a friend, honestly. For example, I stopped talking to a friend. I missed my friend a lot, but we we were having an argument, and I asked ChatGPT, "Can you make a copy of him, I mean, I want to feel like I'm texting with him, like he's a friend." And we texted with it, like my friend. It didn't feel one hundred percent like him. But it had fulfilled my need, like that. After that, it became like a friend to me. Whatever I need, I go to ChatGPT. I use Google very little now."

The reasons for their excitement, fear, curiosity, or anxiety, when asked about their initial and current feelings about AI technology, were linked to their environment, bringing up their relationships with their friends, professors, and the media. Positive environmental influences included others who used AI and had positive experiences, leading them to become more open to AI (Burak, Eda, Sena, Yasemin), while negative environmental influences included people who conveyed their concerns related to negative effects of AI and negative news in the media (Eda, Reyhan, Yasemin).

This section, which aimed to access students' initial and current feelings about AI technology, reveals that students have feelings of excitement, curiosity, fear, and anxiety, while also demonstrating that working with AI and getting to know the technology can lead to a change in these feelings, moving from negative to positive. It also reveals that the surrounding environment—friends, professors, and media content—can affect them emotionally. Drawing on this, the need for education and training programs where students' emotions about AI are linked to their experiences—particularly in their academic environment—becomes apparent.

In the next stage, the goal was to explore the attitudes and behaviors of students whose thoughts and feelings about AI had already been identified, or how they are engaging with AI.

When asked what they did first when they heard about or learned about AI technology, many students said they investigated it first and tried to understand how it works. Students also generally stated that they experienced free AI tools such as ChatGPT. Some students said that their production increased with AI, while others mentioned that their creativity was negatively affected.

All of the students stated that they used AI in their homeworks or projects. The areas of AI usage included: conducting research (using ChatGPT to collect information, find sources); getting inspiration and creating reference images (using text-to-image AI tools); post-production (image editing, background replacement). While students generally use everyday language when writing prompts for text-to-image AI tools, some students also use terminology they learned at school and is specific to their field. Most students stated that they use AI as a supporting tool, but some stated that they are now able to do projects that they could not do without AI.

Students' attitudes and behaviors towards AI revealed that instead of staying away from AI, they used it without waiting for school and training programs, and as they got more involved, they began to move towards becoming professionals who use it for research, as well as a supporting tool when creating images. Students who have reached the stage of managing AI with expertise gained from the teaching process have begun to change their initial feelings and thoughts about AI, making it a part of their production process while also understanding the importance of not losing their own designer identities and being able to create a unique language.

When asked what they plan to do in the film design or visual communication design field in the future, students who wanted to pursue areas such as photography, stop-motion animation, and illustration stated that they plan to continue using AI. Some want to specialize in AI (such as prompt engineering) and believe that AI will become more common in their professions in the future, emphasizing the importance of having knowledge in this area.

For example, Eda states that she uses professional terminology when writing prompts and pays attention to providing detailed explanations. She is now a student who wants to become a prompt engineer in the future. The student states that she uses ChatGPT or other AI models more for research than for creating images and that she doesn't have enough coding knowledge to learn how to obtain the code for the visuals she wants to create from AI. Eda also mentions that she learned this method of getting from image to prompt, not from her teacher, but on her own.

"Eda: I haven't had an assignment where I produced visual images. But I have an assignment where I give it an image and want it to give me text, again as part of my Project 3 class. In Project 3, I'm creating generative art using code from the Processing application. I get the code for this generative art from AI. But I don't know in detail what prompts I need to enter to get the code for the generative art I want. I don't know those terms. I put the image of the generative art I want in ChatGPT4 and ask it to give me the prompt for it. Because it has access to that technical knowledge, it gives me the prompt. I take the code from the prompt it gives me. And I apply the code."

Students' use of various AI tools free of charge was an important finding from the interviews. Students do not have access to the paid and more feature-rich versions of AI due to economic reasons, and they are only able to experience a limited part of it. They also made suggestions about its integration into education and training processes. The finding that students are concerned about the field and their future because they don't know AI and are unable to explore it is significant.

7. Conclusion

This research focused on the thoughts, feelings, attitudes and behaviors of undergraduate students from Visual Communication Design and Film Design and Management departments, towards the predicted effects of AI technology. Through in-depth interviews with a total of eight students, various conclusions were drawn. It can be stated that the participant students have a complex and multifaceted perspective on AI. They acknowledge the conveniences and potential benefits offered by AI, but they also express their concerns about creativity, ethical values, and the future of their profession.

Students use AI not only in image production, but also for research purposes within the context of theoretical courses. While they sometimes use it as the main method for practical projects and assignments, they are increasingly shifting to using AI as a supporting tool, within a wide range of uses, from idea and concept development to image correction, as they spend more time with it, in order to solidify their own unique and creative ideas. The negative emotions that initially stemmed from not knowing this new technology and the fear of being pushed out of the field have been replaced by anxiety about AI overshadowing their own designer and artist identities at a more advanced level of use. Therefore, suggestions came from students that AI should be integrated actively into education and training programs.

Research also revealed that students are able to discover new forms of use for AI during their own exploration process, geared towards achieving the goals of their projects and assignments. In general, the conclusion is that students have both excitement and curiosity, as well as anxiety, about AI. They recognize the opportunities and conveniences offered by AI, but they also have concerns about how it will affect creativity, ethical values, and their professions. The findings also draw attention to the fact that as students gain experience in using AI and as AI technology evolves, there are changes in their attitudes and behaviors.

Undergraduate students who want to be part of the cultural industry and are pursuing related degree programs, faced with the prospect of their labor being replaced by AI, have actually taken steps to follow the technology, understand its possibilities, and master it as a production tool, without waiting for education and training programs to change. The alienation characteristic of the Fordist mode of production seems to be happening in the face of the risk of the complete or partial replacement of labor by machines in the AI era.

In the fields of art and design, where subjectivity must be prioritized, it is essential to integrate AI into undergraduate education and training plans and programs. It is important to support the students' learning process in using AI as a tool that enhances creativity, originality, and artistic expression. It is also crucial to address ethical considerations regarding the use of AI in design and the potential impact on copyright and authorship. By integrating AI into education and training, we can prepare students for a future where AI will play a significant role in the creative industries.

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ANNEX 1

The main research question is "What are the attitudes and behaviors created by artificial intelligence technology in art and design students in the field of Visual Communication Design?" The interview questions of the research are as follows:

Demographic questions

Age:

Gender:

Class in:

City of residence:

Introductory questions:

1 – Could you briefly introduce yourself?

2-Why did you come to this section? What were your expectations?

Cognitive questions:

3-What do you think about artificial intelligence?

4-What can you say about artificial intelligence regarding photography and film image / design and illustration / animation and digital game [4]?

 – According to your field etc. Could there be pros and cons?

5 – What are your ideas about the future effects of artificial intelligence in your field?

 – The impact of artificial intelligence on design

 – Sectoral impact of artificial intelligence

 – Do you think that someone who has mastery of artificial intelligence will be ahead of you or will be preferred?

Affective questions:

6 – What did you feel when you first heard about artificial intelligence technology?

-So what do you feel now? What are your current feelings?

7 – What do the effects of artificial intelligence make you feel regarding photography and film image / design and illustration / animation and digital games?

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4   In-depth interviews regarding the sub-fields of photography and film image / design and illustration / animation and digital games were conducted by 3 separate researchers who are experts in their fields. Assoc. Dr. Since Yüce Sayılgan is an expert in the field of photography and film image, he included the word group "photography and film image" in the question form; Assoc. Dr. Aslı İgit Graphic Design, due to her expertise in illustration and concept development, the word group "design and illustration"; Assoc. Dr. Özge Sayılgan, due to her expertise in the field of animation and digital games, primarily asked the relevant questions (4th, 7th and 8th questions) to the participants by using the word group "animation and digital games" in the relevant questions.

8 – Do you think your environment had an impact on your feeling of photography and film images / design and illustration / animation and digital games (positive or negative)?

(if it happened) Like what? How? Can you give an example?

Behavioral questions:

9 – What was the first thing you did when you heard about artificial intelligence technology or learned about its existence? (Did he research? Did he use it? How did he use it? Did he give money? Did his production increase or decrease? Or did it have no effect?)

10 – Have you used artificial intelligence in your homework or other studies?

– How? Can you give examples? (promtla? Blend)

– (If not) Why didn't you use it?

– (If so) Did you use ordinary or everyday language, domain-specific terminology or imagery?)

– (If used) Did you use it as the main method of the project or assignment or as an auxiliary method? Can you give an example?

12-What do you plan to do in this field in the future?

– From where?

Concluding question:

13-Finally, is there anything you would like to add?