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Artificial Intelligence and Journalism Education in Higher Education: Digital Transformation in Undergraduate and Graduate Curricula in Türkiye

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Abstract: This study investigates the integration of artificial intelligence (AI) into undergraduate and graduate curricula in journalism and new media programs in Türkiye, offering a systematic analysis of course structures and content. Utilizing a qualitative research approach, this study combines document analysis and thematic content analysis to examine course catalogs, syllabi, and institutional reports from 72 universities. The findings reveal that AI education in these programs is predominantly theoretical, with courses emphasizing AI ethics, media algorithms, and the impact of automation on news production. Practical applications, such as data journalism and AI-assisted content creation are comparatively scarce. This study highlights the uneven distribution of AI-related courses across institutions, illustrating significant disparities in curriculum depth and focus. While some universities have embraced a more comprehensive AI framework, others offer minimal exposure to AI-related competencies. By systematically mapping AI course distribution across institutions, this study provides empirical insights into the gaps and disparities in AI education, offering recommendations for a curriculum compatible with digital transformation.

Keywords: AI; journalism education; new media education; higher education; curriculum development; AI in media studies; media informatics

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1. Introduction

In recent years, the rapid development of artificial intelligence (AI) technologies has profoundly transformed various aspects of human life, creating significant impacts across a broad spectrum, from education to media, healthcare to engineering. This transformative power of AI has necessitated a restructuring of university curricula, where the integration of AI into course content has become an essential trend in academic programs. Communication faculties, in particular, stand out as one of the areas most affected by this transformation. The integration of AI into communication faculties curricula offers significant opportunities in various fields, from media production to data analysis, from journalism to public relations (Alshater, 2022).

The use of AI in the journalism and new media fields, in particular, has deeply influenced the work processes of media professionals, making the restructuring of educational

programs within the communication discipline inevitable. Nearly a decade ago, the Journalism, Media, and Technology Trends and Predictions Report from the Reuters Institute (2017) identified AI and big data as key challenges for media and journalism. Today, AI brings an interdisciplinary perspective to journalism by integrating various fields (Cervi, 2019; Creech & Mendelson, 2015). At the same time, it leads a transformative shift in the media, redefining how information is processed and disseminated (Carlson, 2015; Hansen et al., 2016). Recent studies underscore how AI tools can enhance journalists' capabilities and elevate their work to unprecedented levels (Tejedor & Vila, 2021; Thurman et al., 2017). Beyond improving efficiency by automating repetitive or routine tasks (Apablaza-Campos et al., 2024; Wang, 2016), such as gathering and organizing existing information (Diakopoulos, 2015), AI also plays a crucial role in identifying emerging news trends early (Steiner, 2014) and developing personalized news recommendation systems (Noain-Sánchez, 2022). In this context, integrating AI technologies into academic curricula plays a critical role in ensuring that future media professionals are equipped with the necessary competencies to master these technologies (Christou, 2023; Tejedor et al., 2024).

AI is transforming journalism and new media education, shaping both professional practice and academic training. Universities worldwide are incorporating AI into their journalism curricula, offering courses on automated news writing, data-driven journalism, and AI applications in media production (Diakopoulos, 2019; Lewis et al., 2019). AI-powered tools such as machine learning algorithms, natural language processing (NLP), and robotic journalism are increasingly used in newsrooms, necessitating a shift in journalism education to equip students with relevant skills (Kasneci et al., 2023). While global trends show a systematic integration of AI into journalism education, Türkiye is also experiencing similar developments. Journalism and new media programs in the country are gradually adapting to these changes, integrating AI-related subjects into their curricula. However, the extent and nature of AI education in journalism and new media programs remain inconsistent across institutions, largely due to variations in faculty expertise, institutional priorities, and resource allocation.

This study analyzes how AI is incorporated into undergraduate and graduate curricula in journalism and new media programs in Türkiye. Using a qualitative research approach, it analyzes course structures and content across various universities to identify trends, gaps, and differences in AI education. The key research questions guiding this study are:

RQ1: *How is artificial intelligence integrated into the curricula of journalism and new media programs in Türkiye?*

RQ2: *How is the content of AI courses structured, and which theoretical and practical courses are included in the training programs?*

RQ3: *How do the prevalence and integration of AI courses into curricula differ across public and private universities?*

Through a comprehensive analysis of course catalogs, syllabi, and institutional reports, this study identifies prevailing trends and gaps in AI education within journalism and new media programs, offering insights into how curricula can be further developed to better align with the evolving demands of the media industry.

1.1. Literature Review

1.1.1. AI Integration in Journalism and New Media Education

The increasing adoption of AI technologies in journalism and new media has prompted a transformation in media education, requiring curricula to equip students with both technical competencies and critical understanding of AI-driven changes (Diakopoulos, 2019). Studies have highlighted that AI applications in media, such as automated news genera-

tion, fact-checking algorithms, and audience analytics, have begun reshaping journalism education (Tejedor et al., 2024). However, the extent to which universities incorporate AI into their curricula varies significantly across regions, with some institutions emphasizing theoretical knowledge while others integrate applied AI tools into their coursework (Newman, 2023).

A comparative analysis of AI education in journalism and new media programs suggests that Western institutions have made more progress in integrating AI-driven methodologies, particularly in data journalism, automation, and content personalization (Thurman et al., 2017). In contrast, Turkish universities primarily focus on AI's ethical and conceptual dimensions, with limited opportunities for hands-on training in AI-powered media production (Tejedor & Vila, 2021). This discrepancy raises concerns about whether journalism education graduates are adequately prepared to navigate the rapidly evolving digital media ecosystem.

1.1.2. AI Course Offerings and Institutional Disparities

Research indicates that AI-related courses in journalism and new media programs are unevenly distributed, with a notable divide between public and private institutions (Apablaza-Campos et al., 2024).

The disparity between AI course offerings in public and private universities is also evident in international contexts. Studies suggest that public universities, often benefiting from state funding and national AI strategies, tend to focus on AI as a research-driven subject, whereas private institutions prioritize industry-relevant applications (Imran, 2025). For example, in countries such as Australia and Canada, AI training in journalism education is structured through interdisciplinary collaborations with technology-focused departments, ensuring a balance between theoretical and applied knowledge (Christou, 2023). However, in developing economies, limited financial and infrastructural resources hinder the establishment of AI-specific courses, leading to an uneven distribution of AI literacy among journalism students (Schiff, 2022).

Private universities tend to offer a broader range of AI courses, often within new media and digital communication programs, whereas public universities' journalism curricula emphasize traditional reporting and editorial principles, with limited AI integration (Alshater, 2022). This gap suggests that AI education in Türkiye is still developing, with efforts needed to standardize and expand AI-related coursework across all institutions.

Moreover, the nature of AI courses also differs significantly. Studies reveal that while AI ethics and policy-related topics are commonly included in curricula, courses dedicated to AI-based data analysis, machine learning for journalism, and algorithmic content generation are scarce (Porlezza & Schapals, 2024). This imbalance highlights the need for a more structured AI curriculum that incorporates both theoretical and applied training, ensuring that journalism and new media students develop a comprehensive understanding of AI's implications in their field.

1.1.3. Theoretical vs. Practical Approaches in AI Education

A recurring theme in AI-related media education is the predominance of theoretical instruction over hands-on experience (Carlson, 2015). While discussions on AI's ethical, legal, and societal impacts are essential, scholars argue that students must also be equipped with practical AI skills, such as programming, data visualization, and machine learning applications in journalism (Diakopoulos, 2019).

A growing body of research emphasizes the necessity of bridging the gap between theoretical discussions of AI and hands-on technical training (Hwang et al., 2020). While universities in North America and western Europe increasingly integrate AI-powered

newsroom simulations, computational journalism modules, and hands-on machine learning workshops, many institutions, particularly in Türkiye and Latin America, continue to approach AI education from a predominantly theoretical standpoint (Schiff, 2022). This imbalance raises concerns about the readiness of journalism graduates to engage with AI-driven news production tools effectively (Porlezza & Schapals, 2024). Establishing interdisciplinary collaborations between journalism and computer science faculties could help address this divide, ensuring that students develop both technical expertise and critical awareness of AI's impact on media ethics (Christou, 2023).

Research on AI-driven media education suggests that a hybrid model—integrating both conceptual discussions and applied training—is the most effective approach for preparing future journalists and media professionals (Noain-Sánchez, 2022).

Current trends in AI education indicate that universities should balance theoretical foundations with practical AI training by incorporating courses that teach students how to use AI-powered content generation tools, analyze data-driven journalism practices, and critically assess algorithmic decision-making in newsrooms (Steiner, 2014). Without these skills, journalism graduates risk falling behind in an industry increasingly shaped by AI-driven automation and analytics.

1.1.4. The Future of AI Education in Journalism and New Media

As AI continues to influence the journalism industry, scholars emphasize the urgency of adapting academic curricula to meet industry needs (Lewis et al., 2019). Several studies highlight the importance of interdisciplinary AI training, where journalism and new media programs collaborate with computer science and data analytics departments to provide students with broader exposure to AI technologies (Hwang et al., 2020). Additionally, incorporating AI-related research methodologies—such as computational content analysis, sentiment detection, and automated fact-checking—can equip journalism students with advanced analytical skills (Christou, 2023).

Given the increasing reliance on AI in digital media, future research should explore how universities can further integrate AI applications into journalism education. Expanding AI-related coursework to include hands-on training in AI-assisted reporting, data mining for journalism, and algorithmic transparency in media can better align journalism curricula with contemporary industry demands (Newman, 2023).

The future of AI education in journalism will likely depend on universities' ability to adapt their curricula to rapidly evolving industry demands. As AI-powered journalism becomes more prevalent, educators must move beyond conceptual discussions and incorporate training in AI-assisted reporting, algorithmic transparency, and computational fact-checking (Newman, 2023). Furthermore, interdisciplinary collaborations between journalism and computer science faculties have proven effective in countries such as Germany and the Netherlands, where AI-driven storytelling is embedded into media programs (Christou, 2023). Future research should explore how similar integrative approaches could be applied in regions where AI education remains fragmented, ensuring that journalism students are equipped with both theoretical and applied competencies (Imran, 2025). Ensuring that graduates possess both theoretical knowledge and applied AI skills will be crucial in fostering media professionals who can navigate the evolving challenges of AI-driven journalism and digital communication.

2. Materials and Methods

2.1. Research Design

This study aims to analyze the integration of AI into undergraduate and graduate journalism and new media curricula in Türkiye. To achieve this objective, a qualitative

research approach was adopted, combining document analysis (Bowen, 2009) and thematic content analysis (Krippendorff, 2004). Document analysis was used to systematically examine course structures and content, while thematic content analysis allowed for the identification of recurring patterns and themes in AI-related coursework.

The study population consisted of 72 communication faculties affiliated with public and private universities across Türkiye during the 2024–2025 academic year. From this population, journalism and new media departments were selected as the focus of analysis due to the significant impact of digitization and AI technologies on these fields. Among the 72 universities examined, those that explicitly listed AI-related courses in publicly accessible curricula were selected for analysis. The inclusion criteria for this selection were as follows: (1) the university must offer at least one AI-related course in journalism or new media programs, (2) course syllabi must be available in university course catalogs or official documents, and (3) the courses should be explicitly focused on AI applications in media, rather than general technology courses. Universities that did not meet these criteria were excluded from the sample, as their curricula did not provide sufficient data for comparative analysis.

Furthermore, this study examines the thematic distribution of AI-related courses to determine their pedagogical focus. Courses were categorized into three primary instructional approaches:

- Theoretical courses primarily cover conceptual discussions on AI ethics, media algorithms, and the impact of automation on journalism.
- Applied courses focus on applied skills such as AI-driven data analytics, automated news writing, and coding-based journalism tools.
- Hybrid courses combine theoretical and applied approaches, offering students a balanced perspective on AI integration in media studies.

The classification of courses as theoretical, applied, or hybrid was determined based on their descriptions in official university curricula. Course categorizations were made according to the instructional methods and course objectives outlined in the syllabi. Below, Figure 1 summarizes the classification criteria.

COURSE TYPE	COURSE CONTENT
THEORETICAL COURSES	Focus on conceptual discussions, theories, or ethical aspects of AI
	Course descriptions do not mention hands-on training or practical applications
	Listed as lecture-based or seminar-style courses in syllabi
PRACTICAL COURSES	Emphasize hands-on, technical, or skills-based training
	Course content includes AI tool usage, coding, automation, or data journalism
	Listed as lab-based or workshop-style courses in syllabi
HYBRID COURSES	Integrate both conceptual discussions and practical applications
	Course objectives include both theoretical understanding and AI tool implementation
	Combine lecture-based and lab-based components

Figure 1. Classification of AI-related courses in journalism curricula.

Furthermore, this study employs a comparative approach to assess whether public and private institutions differ in their adoption of AI education.

2.2. Data Collection Method

During the data collection process, official websites, the Bologna Course Information Package, and other publicly available documents were used to access the curricula of universities in Türkiye. For universities where course content was unavailable, emails were sent to request the necessary information, and the responses received were included in the analysis.

2.3. Data Analysis

Step 1: Organizing the Data. In the first step, the curriculum data collected from the universities were organized. The data were categorized based on key parameters such as the names and content of AI-related courses, the type of course (required or elective), the type of university (public or private), the credit allocation at different academic levels (undergraduate, master's, and doctoral programs), and the instructional approach (theoretical, practical, or hybrid). Each course curriculum was processed into a table according to these parameters and made ready for comparison. To ensure accuracy and consistency, the data organization process was cross-checked by two independent researchers. The categorized data were reviewed for discrepancies, including variations in course content and instructional methods, and any inconsistencies were resolved through discussion among the research team.

Step 2: Coding. In the second step, thematic coding was performed on the collected data using a structured coding form (Supplementary Materials). Course contents and titles were analyzed in detail, and prominent AI-related themes (e.g., "robot journalism", "data analytics", "machine learning", "AI and journalism") were manually identified. These themes were categorized based on the scope of the course content.

The coding process was conducted manually by two independent researchers to ensure accuracy and methodological rigor. Inter-coder reliability was measured at 92%, and any discrepancies were addressed through discussion until a consensus was reached, ensuring consistency in the categorization process.

In addition to thematic classification, several key parameters were coded, including university name, course title, program level (undergraduate, master's, doctoral), course type (required or elective), and institution type (public or private university).

This structured approach enabled a systematic and replicable analysis of AI integration within journalism and new media curricula.

Step 3: Presentation of Findings. In the final stage, the data were analyzed within the framework of the identified themes and the findings were presented using figures. Categorical data such as whether AI-related courses were required or elective and their distribution across public and private universities were analyzed to understand the role of AI in curricula. No software was used in the data analysis process; all steps were performed manually.

2.4. Reliability and Validity

In qualitative research, reliability and validity are critically important for ensuring the verifiability of the research process. This study was conducted using various strategies to ensure both reliability and validity. A team of five researchers collaborated during the data collection, coding, and analysis phases. Care was taken to enhance reliability and validity at every stage of the research.

2.4.1. Reliability

Reliability in qualitative research refers to the consistency and dependability of data collection and analysis (Cypress, 2017). To enhance reliability, we took the following steps:

- Triangulation of sources. Data were collected from multiple sources, including official university course catalogs, Bologna Process course information packages, and direct correspondence with faculty members, ensuring a comprehensive dataset.
- Inter-coder reliability. The thematic coding process was conducted manually by two independent researchers, with an inter-coder reliability score of 92%. Discrepancies were resolved through discussion until consensus was reached, minimizing subjective bias (Nowell et al., 2017).
- Structured coding process. A coding form (Supplementary Materials) was utilized to ensure systematic categorization of key parameters such as university name, course title, program level, course type (required/elective), and institution type (public/private). This structured approach enhances a study's replicability.

2.4.2. Validity

Validity refers to the extent to which a study accurately measures what it intends to examine (Yin, 2009). Several measures were taken to enhance validity:

- Researcher triangulation. This study employed the researcher triangulation strategy. Several researchers conducted the data analysis, while other members of the research team assessed the accuracy of the findings and conducted cross-checks. This method ensured that different perspectives were integrated, thereby enhancing this study's validity (Flick, 2009).
- Thick description. Detailed explanations of how AI-related courses are integrated into curricula provide contextual depth, allowing for a nuanced interpretation of the findings (Tracy, 2019).
- Cross-checking and verification. All coding and classification processes were reviewed by an independent researcher to ensure consistency with original course documents.
- Transparency and documentation: The entire research process, including data collection, coding procedures, and analysis, was systematically recorded, ensuring traceability and allowing for future researchers to replicate this study (Noble & Smith, 2015).

2.5. Ethical Approval

This study does not require ethical approval, as it is based on publicly available curriculum data and does not involve human subjects. However, academic ethical principles were rigorously observed during the data collection and analysis processes.

3. Results

3.1. Findings on Journalism and New Media Programs in Türkiye

According to data from a national higher education database, journalism and new media programs in Türkiye (Council of Higher Education, 2025) exhibit distinct distribution patterns across public and private universities (Figure 2).

According to the findings, a total of 72 undergraduate programs are being run in the relevant fields in Türkiye, 45 of which are journalism programs and 27 are new media programs. The data reveal that journalism education remains largely embedded within public universities, with 39 out of 45 programs (87%) hosted by public institutions. In contrast, only six journalism programs (13%) are available at private universities, indicating that traditional journalism education continues to be predominantly structured within the public sector.

UNIVERSITY	PROGRAM		TOTAL
	JOURNALISM	NEW MEDIA	
PUBLIC UNIVERSITIES	39	5	44
PRIVATE UNIVERSITIES	6	22	28
TOTAL	45	27	72

Figure 2. Distribution of journalism and new media programs in Türkiye.

On the other hand, new media programs demonstrate an inverse trend, with private universities taking the lead in adopting digital media education. Of the 27 new media programs, 22 (81%) are offered by private institutions, while only 5 (19%) exist in public universities. This suggests that private universities are taking more initiative in integrating emerging media technologies, as they offer greater flexibility in program design and collaborate more closely with industry stakeholders.

The overall distribution reveals an important structural distinction. While journalism education is concentrated in public universities, private universities are at the forefront of developing specialized programs in new media and digital communication. The extent to which students of both journalism and new media departments are prepared for the evolving digital environment and how they integrate their curricula to adapt to rapid technological changes is directly related to the current and dynamic structure of the educational programs of these departments.

In order to present the current situation in detail, among the 72 journalism and new media programs examined, universities that include artificial intelligence courses and artificial intelligence-related course content in their curricula were classified according to their types and degrees (Figure 3).

Figure 3 presents a comprehensive analysis of AI integration in journalism and new media programs at 35 universities in Türkiye, 19 public and 16 private, distinguishing between institutions offering dedicated AI courses and institutions that integrate AI-related content into broader topics. Universities marked with a green check provide standalone AI courses, while those with a blue check include AI topics as part of existing course structures. This classification highlights the uneven distribution of AI education across institutions, revealing significant variations in curriculum depth and focus.

The data indicate that AI education is more prevalent at the undergraduate level compared to graduate programs. In journalism undergraduate programs, 7 universities offer standalone AI courses (green), while 12 incorporate AI-related content within other courses (blue). Similarly, in new media undergraduate programs, 6 universities provide AI courses directly, while 12 include AI-related subjects in their broader curricula.

At the graduate level, the presence of AI in the curriculum is limited. In master's programs, six universities offer specific AI courses, while five universities integrate AI-related content into existing courses. At the doctoral level, AI courses are fewer; only three universities integrate AI content into broader topics, and there is no standalone AI course. These findings suggest that although AI is increasingly becoming a part of journalism and new media education, its role is still complementary rather than fundamental.



Figure 3. Programs included in this study.

3.2. Findings on AI Courses in Journalism Undergraduate Programs

The available data indicate that out of the 45 Journalism programs examined, only 7 offer a total of eight AI courses (Figure 4). The majority of these courses are provided by public universities (Figure 3). Notably, among the universities incorporating AI courses into their curricula, there are six public universities compared to only one private university.

Considering that there are 39 journalism undergraduate programs in public universities and only 6 in private universities (Figure 2), the numerical majority of AI courses in public universities is an expected situation.

UNIVERSITY	COURSE NAME	COURSE INFORMATION				
		THEORETICAL	PRACTICAL	ECTS	ELECTIVE	REQUIRED
ANKARA HACI BAYRAM VELİ UNIVERSITY	INTRODUCTION TO AI	✓		3	✓	
ÇANAKKALE 18 MART UNIVERSITY	AI DRIVEN JOURNALISM	✓		5	✓	
ÇUKUROVA UNIVERSITY	AI TECHNOLOGIES AND MEDIA	✓		4	✓	
	AI AND JOURNALISM	✓	✓	4	✓	
NİĞDE ÖMER HALİSDEMİR UNIVERSITY	DATA AND ROBOT JOURNALISM	✓	✓	5	✓	
SİVAS CUMHURİYET UNIVERSITY	AI AND JOURNALISM	✓		4	✓	
ÜSKÜDAR UNIVERSITY	MEDIA AND AI	✓		4	✓	
YOZGAT BOZOK UNIVERSITY	ROBOTIC JOURNALISM	✓		4	✓	

Figure 4. AI courses in journalism undergraduate programs.

As seen in Figure 4, all AI courses offered in journalism programs are designated as electives. The fact that these courses are not widely available or required suggests that AI has not yet been recognized as a fundamental component of journalism education, and students' proficiency in this field depends on their individual course selections. Additionally, beyond being elective, these courses also exhibit credit variations ranging from 3 to 5. These differences in credit allocation reflect the varying approaches universities take toward AI courses, indicating that the scope and significance of AI integration into curricula are not standardized.

The curriculum includes courses such as "Introduction to AI", "AI-Driven Journalism", "AI Technologies and Media", "AI and Journalism", and "Data and Robot Journalism". These courses primarily focus on robotic journalism, AI-driven content creation, data analytics, and AI technologies in the media, reflecting the growing role of automation and data-driven decision-making in journalism. However, the dominance of theoretical courses over practical applications suggests a gap in hands-on AI training for journalism students. The limited number of AI-focused courses and their designation as electives indicate that the integration of AI into journalism curricula is still in its early stages, with universities taking cautious steps toward incorporating AI-related topics.

The findings highlight that while AI-related education is emerging within journalism programs, its integration remains scattered and optional rather than standardized. Given the rapid transformation of the media industry through AI and automation, the absence of required AI courses raises concerns about whether journalism students are adequately prepared for the evolving digital media landscape.

3.3. Findings on AI-Related Course Contents in Journalism Undergraduate Programs

Among the 45 Journalism programs examined, 7 programs offer a total of 8 AI-specific courses (Figure 4), while 12 programs include AI-related content within 17 different courses (Figure 5). The majority of these courses are part of public university curricula (Figure 3), with 10 of the 12 programs incorporating AI-related course content belonging to public universities and only 2 to private universities.

As seen in Figure 5, out of the 17 courses analyzed, 5 are required, while 12 are offered as electives. Although the number of AI-specific courses remains low (Figure 4), the relatively high presence of courses that include AI-related content suggests that AI education is

becoming more widespread but has not yet become a core curriculum component. Similarly, the distribution of required and elective courses, along with credit variations ranging from 1 to 5, highlights the differing approaches universities take toward AI and emphasizes that these courses are largely chosen based on student preferences.

UNIVERSITY	COURSE NAME	COURSE CONTENT	COURSE INFORMATION				
			THEORETICAL	PRACTICAL	ECTS	ELECTIVE	REQUIRED
ANKARA UNIVERSITY	NEW MEDIA TECHNOLOGIES	Data mining, data security, network architecture	✓		3		✓
	DIGITAL TECHNOLOGIES AND DIGITAL CULTURE	AI, AI and society, AI and professions, AI and time	✓		3	✓	
	DATA ANALYSIS WITH PYTHON	Statistical analysis, Python programming, Numpy, Pandas, Seaborn	✓		3	✓	
ANKARA HACI BAYRAM VELİ UNIVERSITY	DATA MINING	Algorithms, data mining concepts, data mining techniques	✓		3	✓	
	INTRODUCTION TO DATA SCIENCE	Data science, data literacy, data analytics, Python programs	✓		3	✓	
ANADOLU UNIVERSITY	DIGITAL LITERACY	AI, Digital Marketing, Understanding Data	✓	✓	5		✓
ÇUKUROVA UNIVERSITY	JOURNALISM PRACTICES AND CODING	Coding with Python, data analysis with Pandas	✓	✓	4	✓	
	NEXT GENERATION JOURNALISM PRACTICES	Machine learning, deep learning, advanced coding	✓	✓	4	✓	
DİCLE UNIVERSITY	NEW APPROACHES TO JOURNALISM IN THE DIGITAL AGE	New technologies, data journalism, drone journalism, ethical issues	✓		4	✓	
EGE UNIVERSITY	NEW APPROACHES TO JOURNALISM IN THE DIGITAL AGE	Robot journalism, data journalism, drone journalism, mobile journalism	✓		4		✓
İNÖNÜ UNIVERSITY	DIGITAL JOURNALISM	Robot journalism, data journalism, drone journalism, mobile journalism	✓		5	✓	
İSTANBUL AREL UNIVERSITY	DIGITAL LITERACY	Algorithmic thinking, data structures, web programming, programming languages, Codding	✓	✓	1	✓	
NİĞDE ÖMER HALİSDEMİR UNIVERSITY	DIGITAL INFORMATION RESOURCES	Big data, data mining, innovation and sustainability in digital technologies	✓		5	✓	
	ROBOTIC CODING	Software and programs to control and direct a robot's movements	✓		5	✓	
SAKARYA UNIVERSITY	DATA JOURNALISM	Storytelling skills for news from big data on the internet	✓	✓	5	✓	
SELÇUK UNIVERSITY	NEW COMMUNICATION TECHNOLOGIES	Knowledge on changing journalism, robot journalism, data journalism	✓		4		✓
ÜSKÜDAR UNIVERSITY	NEW APPROACHES IN JOURNALISM	Providing knowledge on data journalism, robot journalism, social media journalism	✓		5		✓

Figure 5. AI-related course contents in journalism undergraduate programs.

Courses offering artificial intelligence content include "New Media Technologies", "Digital Technologies and Digital Culture", "Data Analysis with Python", "Data Mining" and "Robotic Journalism". As shown in Figure 5, the content of these courses covers a broad spectrum of AI applications, ranging from data mining and security to advanced coding with Python. For instance, courses like "Data Journalism" and "New Approaches to Journalism in the Digital Age" explore the use of AI in processing big data, while others focus on developing algorithmic thinking and machine learning techniques in journalism practice.

A key finding from this analysis is the distribution of courses based on their instructional approach. Among the 17 courses identified, 12 are primarily theoretical, focusing on AI's ethical, societal, and conceptual implications. Five courses adopt a hybrid model, integrating both theoretical discussions and practical applications. Notably, no course is purely practical, suggesting that hands-on AI training is incorporated only within a broader theoretical framework.

These findings indicate that AI-related course content in journalism programs is concentrated on equipping students with the technical skills necessary to navigate the

evolving digital media landscape. Topics such as big data analysis, the ethical implications of AI, and the practical application of AI in media production form the core of these courses. However, the predominance of theoretical instruction suggests that universities emphasize AI literacy from a conceptual standpoint rather than offering direct hands-on training in AI-driven content creation.

By providing students with conceptual knowledge alongside some applied elements, universities are preparing future media professionals to critically engage with AI technologies. However, the limited number of hybrid courses and the complete absence of fully practical AI courses raise concerns about whether journalism graduates are adequately prepared for the technical demands of AI-driven journalism.

3.4. Findings on AI Courses in New Media Undergraduate Programs

New media programs, which provide education on the rapidly evolving dynamics of digital communication and media production, are becoming increasingly common in Türkiye, with a total of 27 undergraduate new media programs available (Figure 2). The available data reveal that only 6 of the 27 programs examined offer a total of eight AI courses in their curricula (Figure 6). Of these courses, four are provided by private universities and four by public universities. Notably, among the universities incorporating AI courses into their curricula, there are four private universities compared to only two public universities. Considering that there are 22 new media programs in private universities and only 5 in public universities (Figure 2), the numerical majority of AI courses in private universities is to be expected. According to the data in Figure 6, AI courses in new media programs are divided equally, with four being required and four offered as electives. The variation in credit hours for required courses, ranging from 5 to 8, suggests that AI is recognized as a fundamental component of the curriculum in these programs. On the other hand, elective courses provide students with flexibility, indicating that AI curriculum integration in new media programs has not yet been consistently established and that course content varies across universities. Considering that new media departments focus on digital media education, it is evident that AI courses are still limited within the curriculum.

UNIVERSITY	COURSE NAME	COURSE INFORMATION				
		THEORETICAL	PRACTICAL	ECTS	ELECTIVE	REQUIRED
ÇANAKKALE 18 MART UNIVERSITY	AI APPLICATIONS	✓	✓	5		✓
	AI CONTENT GENERATION	✓	✓	5	✓	
FENERBAHÇE UNIVERSITY	AI APPLICATIONS IN SOCIAL MEDIA	✓		5	✓	
ISTANBUL AYDIN UNIVERSITY	AI AND MEDIA	✓		3	✓	
ISTANBUL GELISIM UNIVERSITY	AI	✓		8		✓
ISTANBUL KÜLTÜR UNIVERSITY	AI AND CONTEMPORARY APPROACHES	✓		4	✓	
YOZGAT BOZOK UNIVERSITY	INTRODUCTION TO AI	✓		6		✓
	AI APLICATIONS	✓		6		✓

Figure 6. AI courses in new media undergraduate programs.

The AI-related courses identified include titles such as “AI Applications”, “AI and Contemporary Approaches”, and “Artificial Intelligence and Media”. These courses introduce students to fundamental AI concepts, AI-generated content, and the use of AI in social media. However, most of these courses remain at an introductory level, indicating that AI is yet to be deeply embedded in new media curricula.

A significant finding is that the available courses primarily focus on theoretical discussions, with minimal emphasis on practical AI applications. Among the eight courses identified, six are categorized as theoretical, while only two incorporate both theoretical and practical components. Notably, no course is designed as a fully hands-on, practice-based AI training module.

This suggests that while AI topics are present in some curricula, they have not yet become a prominent or standardized component of new media education in Turkish universities. The current course offerings highlight an initial attempt to introduce students to AI technologies and their applications in contemporary media practices. However, the overall lack of AI-focused courses raises concerns about whether students in these programs are receiving adequate training to navigate an increasingly AI-driven media landscape.

3.5. Findings on AI-Related Course Contents in New Media Undergraduate Programs

Among the 27 new media programs examined, 6 programs offer a total of 8 AI-specific courses (Figure 6), while 12 programs incorporate AI-related content within 22 different courses (Figure 7). All of these courses are part of private university curricula (Figure 3), whereas public universities' new media programs do not include AI-related content under different course titles.

UNIVERSITY	COURSE NAME	COURSE CONTENT	COURSE INFORMATION				
			THEORETICAL	PRACTICAL	ECTS	ELECTIVE	REQUIRED
AVRASYA UNIVERSITY	DATA MANAGEMENT IN NEW MEDIA	Learning data sources, big data usage, data mining	✓		5	✓	
	CODING IN NEW MEDIA	Learning R programming language and data mining	✓	✓	5		✓
	INTERNET OF THINGS	Use of AI with IoT and robots. IoT analytics, big data	✓		6	✓	
FENERBAHÇE UNIVERSITY	READING DATA	Learning the use of data in media, programming languages for data analysis	✓		5	✓	
	NEW MEDIA AND CODING	The course aims to develop students' basic coding skills	✓	✓	5		✓
	BIG DATA	The emergence of data, its impact on business and cultures	✓		5	✓	
IBN HALDUN UNIVERSITY	DATA DRIVEN COMMUNICATION	Data-based analytics in digital communication, data ethics, data analytics with R and Python	✓	✓	5		✓
İSTANBUL AREL UNIVERSITY	BIG DATA	Learning machine learning and algorithms, data mining, NoSQL systems	✓		5	✓	
	CS50X WE ARE CODING	Learning algorithmic thinking, web programming, data structures	✓		1	✓	
ISTANBUL AYDIN UNIVERSITY	BIG DATA	Learning how technological innovations are integrated	✓	✓	4		✓
	DIGITAL COMMUNICATION RESEARCH AND STUDIES	Planning the researched news, collecting, storing, analyzing data to convert into news	✓	✓	4	✓	
İstanbul Bilgi University	READING DATA	Use of big data in news and communication, reading data with algorithms	✓		6		✓
İSTANBUL GELİŞİM UNIVERSITY	BIG DATA MANAGEMENT	Basic big data technologies such as Hadoop, Spark and large-scale machine learning methods, media	✓		7		✓
İSTANBUL KÜLTÜR UNIVERSITY	DATA MANAGEMENT	Conducting studies on data mining in Türkiye and the world	✓		4		✓
	INTERNET OF THINGS	Use of AI with IoT and robots, IoT analytics and big data	✓		4		✓
İSTANBUL NİŞANTAŞI UNIVERSITY	NEW MEDIA STUDIES	Big data and data mining	✓		5		✓
İZMİR UNIVERSITY OF ECONOMICS	DATA: THEORY AND APPLICATIONS	Big data, politics of big data in social media, neutrality, and algorithmic bias	✓	✓	4	✓	
KADİR HAS UNIVERSITY	COMPUTATIONAL THINKING	Problem solving with algorithmic thinking in complex problems	✓		5		✓
	TRANSFORMATIVE THINKING	3D printers, Industry 4.0, robots, Internet of Things, AI	✓	✓	8		✓
	BIG DATA	Analytical thinking, data mining, importance of big data in business	✓	✓	5	✓	
	CREATIVE CODING	Basics of computational thinking with P5.js, event-driven, object-oriented real-time software development	✓	✓	6	✓	
ÜSKÜDAR UNIVERSITY	READING DATA	Technologies, components, and capabilities required for big data	✓		6		✓

Figure 7. AI-related course contents in new media undergraduate programs.

As seen in Figure 7, out of the 22 courses analyzed, 12 are required, while 10 are offered as elective. Although the number of AI-specific courses remains low (Figure 6), the relatively high presence of courses incorporating AI-related content suggests that educational content in this field is expanding, though it has not yet become a core component of the curriculum. The prevalence of required courses and the variation in credit hours, ranging from 3 to 8, indicate that universities are beginning to adopt a more structured approach to AI education in new media programs. However, the curriculum still maintains flexibility and diversity.

The courses cover a broad range of topics, including big data, data-driven communication, computational thinking, coding, and the Internet of Things (IoT). Specifically, subjects such as "Data Management in New Media", "Big Data", "Machine Learning", "Transformative Thinking", and "Creative Coding" indicate an increasing emphasis on AI's role in digital communication and media.

A key observation is the distribution of courses based on their instructional approach. Among the 22 courses, 13 are primarily theoretical, focusing on conceptual discussions around AI, data mining, and digital transformation. Meanwhile, nine courses integrate both theoretical and practical components, introducing students to hands-on applications such as programming with Python and R, data analytics, and algorithmic thinking. Notably, no course is purely practical, highlighting that AI-related skills are largely embedded within broader theoretical frameworks rather than delivered through standalone applied training.

Moreover, the predominance of AI-related education in private universities suggests a disparity between public and private institutions in adapting AI into communication curricula. Public universities currently lack dedicated AI-focused coursework in new media programs, reflecting a need for broader curriculum development across institutions.

As AI continues to reshape digital communication landscapes, the identified courses indicate a growing, albeit uneven, integration of AI into new media education. However, the elective nature of many AI-related courses suggests that AI is still not a standardized or required component of journalism and communication education, limiting the extent to which students are equipped with AI competencies essential for the evolving digital media industry.

3.6. Findings on Journalism and New Media Graduate Programs in Türkiye

According to data obtained from a national higher education database, journalism and new media graduate programs in Türkiye (Council of Higher Education, 2025) exhibit different distribution patterns between state and foundation universities (Figure 8).

UNIVERSITY	PROGRAM				TOTAL
	JOURNALISM		NEW MEDIA		
	MASTER'S	PhD	MASTER'S	PhD	
PUBLIC UNIVERSITIES	30	17	10	1	58
PRIVATE UNIVERSITIES	3	1	9	9	22
TOTAL	33	18	19	10	80

Figure 8. Distribution of journalism and new media graduate programs in Türkiye.

According to the data obtained, a total of 80 postgraduate programs are being run in Türkiye, including 33 master's and 18 doctoral programs in the field of journalism, and 19 master's and 10 doctoral programs in the field of new media. Specifically, among the

33 journalism master's programs, 30 are offered by public universities (90.9%), while only 3 are provided by private universities (9.1%). At the doctoral level, out of 18 journalism programs, 17 (94.4%) are housed in public universities, while just 1 (5.6%) is offered by a private university. For new media graduate programs, 19 universities offer master's degrees, with 10 (52.6%) being public universities and 9 (47.4%) private universities. In contrast, among the 10 universities offering doctoral programs in new media, only 1 (10%) is a public university, while 9 (90%) are private universities.

The data reveal that journalism master's education is primarily concentrated in public universities, with private universities accounting for only 9% of all journalism master's programs. This disparity becomes even more pronounced at the doctoral level, where 94.4% of journalism PhD programs are in public universities, compared to a mere 5.6% in private universities. In contrast, the distribution of new media master's programs is more balanced, with public universities representing 52.6% and private universities 47.4%. However, at the doctoral level, private universities dominate, offering 90% of new media PhD programs.

These figures highlight a clear pattern: Journalism master's and doctoral programs are predominantly concentrated in public universities, whereas private universities play a much smaller role in this field. On the other hand, the gap between public and private universities is relatively small at the master's level in new media programs, while doctoral education in this field is largely concentrated in private universities. From an academic perspective, journalism as a discipline is strongly supported by public universities, while private universities contribute to a lesser extent. In these programs, the up-to-dateness of the graduate curriculum is important so that students can work effectively with developing technologies and gain the necessary competencies.

3.7. Findings on AI Courses in Journalism Graduate Programs

These programs, affiliated with social sciences institutes, primarily aim to equip students with advanced research skills, critical thinking abilities, and interdisciplinary perspectives in media and communication studies. The available data show that out of the 51 graduate journalism programs examined—33 master's and 18 doctoral programs (Figure 8)—only 6 programs offer a total of seven AI courses (Figure 9). All of these courses are provided by public universities (Figure 3). Given that public universities offer 47 journalism graduate programs, while private universities have only 4 (Figure 8), it is expected that public institutions have embraced AI integration in journalism curricula to a greater extent.

UNIVERSITY	COURSE NAME	COURSE INFORMATION					DEGREE	
		THEORETICAL	PRACTICAL	ECTS	ELECTIVE	REQUIRED	MASTER'S	PhD
AKDENİZ UNIVERSITY	AI AND JOURNALISM	✓		8	✓		✓	
HATAY MUSTAFA KEMAL UNIVERSITY	SOCIOLOGY OF AI	✓		6	✓		✓	
SAKARYA UNIVERSITY	AI AND COMMUNICATION	✓		5	✓		✓	
SÜLEYMAN DEMİREL UNIVERSITY	AI AND JOURNALISM PRACTICES	✓		6	✓		✓	
TRABZON UNIVERSITY	DIGITAL MEDIA AND AI STUDIES	✓		4	✓		✓	
YOZGAT BOZOK UNIVERSITY	AI AND COMMUNICATION	✓		5	✓		✓	
	AI AND ADVERTISING	✓		5	✓		✓	

Figure 9. AI courses in journalism graduate programs.

As seen in Figure 9, all AI courses offered in graduate journalism programs are at the master's level and designated as electives. The fact that these courses are neither widely available nor required at the graduate level suggests that AI has not yet been recognized as a fundamental component of journalism education. However, the credit variations ranging from 4 to 8 indicate the intensity of course content, reflecting a progressive approach by universities toward developing proficiency in this field.

As presented in Figure 9, courses such as "AI and Journalism", "AI and Communication", and "Digital Media and AI Research" emphasize AI's role in journalism, media, and advertising. While these courses indicate a growing academic interest in AI applications within journalism, the findings highlight several key patterns and gaps in the incorporation of AI into graduate curricula.

A notable trend is the exclusive presence of AI-related courses in public universities, with no AI-focused graduate courses identified in private institutions. This suggests that public universities may be taking the lead in integrating AI into journalism education at the graduate level, possibly due to broader institutional research priorities and academic funding structures.

Moreover, the majority of AI-related courses remain elective rather than core components of the curriculum, reinforcing the view that AI is not yet fully institutionalized as a fundamental aspect of journalism graduate education. The thematic scope of these courses varies, with some focusing on AI's role in journalism and communication practices, while others extend to sociological and advertising perspectives on AI technologies. For instance, "Sociology of AI" and "AI and Advertising" suggest a multidisciplinary approach, reflecting AI's growing influence beyond traditional journalism studies.

From a pedagogical standpoint, the analysis of Figure 9 reveals that all courses adopt a theoretical framework, with no exclusively practice-based courses offered at the graduate level. While some courses, such as "AI and Journalism Practices", include applied components, AI-related graduate education in journalism remains largely conceptual, lacking dedicated hands-on training in AI-driven media production or computational methodologies.

This theoretical emphasis raises questions about whether graduate students are being adequately prepared for the technical and analytical demands of AI-driven journalism. Unlike undergraduate programs where AI-related courses often include coding, data mining, and algorithmic thinking, the identified graduate courses focus more on media analysis and conceptual discussions of AI's impact on journalism and communication.

In summary, while AI education at the graduate level in journalism is emerging, the findings suggest that AI continues to be primarily an elective and theoretical subject in journalism programs master's programs, rather than a core or applied discipline.

3.8. Findings on AI-Related Course Contents in Journalism Graduate Programs

Among the 51 graduate journalism programs examined, 6 programs offer a total of 7 AI-specific courses (Figure 9), while 8 programs (Ankara Hacı Bayram Veli University offers 2 programs: master's and doctorate) incorporate AI-related content within 10 different courses (Figure 10). The majority of these courses are part of public university curricula (Figure 3), with seven of the eight programs including AI-related course content belonging to public universities and only one to a private university.

As seen in Figure 10, out of the 10 courses analyzed, 1 is required, while 9 are offered as electives. These courses are evenly distributed between master's and doctoral programs, with five at the master's level and five at the doctoral level. Although AI courses are relatively more prevalent in graduate journalism programs (Figure 9), the equal distribution of AI-related courses between master's and doctoral programs suggests that AI education

in this field is expanding but has not yet become a core component of the curriculum. Similarly, the distribution of required and elective courses, along with credit variations ranging from 3 to 8, highlights the need for universities to develop a more systematic and structured AI curriculum at the graduate level.



UNIVERSITY	COURSE NAME	COURSE CONTENT	COURSE INFORMATION					DEGREE	
			THEORETICAL	PRACTICAL	ECTS	ELECTIVE	REQUIRED	MASHER'S	PhD
AKSARAY UNIVERSITY	NEW MEDIA AND JOURNALISM	Examining the evolution of traditional media towards digital, such as Big Data Journalism, Robot Journalism	✓		6	✓		✓	
ANADOLU UNIVERSITY	NEW METHODS IN COMMUNICATION STUDIES	Researching Social Networks: Social Network Analysis: Algorithms: Digital Footprints	✓		6	✓		✓	
ANKARA HACI BAYRAM VELİ UNIVERSITY	NEW APPROACHES IN DIGITAL MEDIA	Covering topics such as big data, open data, biomedia and data security	✓		7	✓		✓	
	TYPES OF JOURNALISM AND NEW DEVELOPMENTS	Examining traditional journalism and new forms of journalism, new developments in journalism	✓		7	✓			✓
	DIGITAL MEDIA STUDIES	Discussing big data and data security, algorithms, bots, and biomedia	✓		7	✓			✓
maltepe university	NEW COMMUNICATION TECHNOLOGIES AND MEDIA	Addressing the transformation of media from traditional to new media	✓		3	✓			✓
	METHODOLOGY IN COMMUNICATION STUDIES	Data collection and analysis with next generation technology	✓		3		✓		✓
NİĞDE ÖMER HALİSDEMİR UNIVERSITY	JOURNALISM PRACTICES IN NEW MEDIA	Covering types of journalism such as Robot Journalism, Sustainable Journalism, and Data Journalism	✓		8	✓		✓	
SELÇUK UNIVERSITY	DIGITALIZATION AND DIGITAL CULTURE IN MEDIA	Examining new forms of journalism such as Robot Journalism, Data Journalism, and Digital Media	✓		6	✓			✓
TRABZON UNIVERSITY	HUMAN-COMPUTER INTERACTION IN DIGITAL JOURNALISM	In-depth exploration of human integration with AI	✓		4	✓		✓	

Figure 10. AI-related course contents in journalism graduate programs.

These courses cover a range of topics, including big data journalism, social network analysis, algorithmic journalism, digital transformations, and human–computer interaction in journalism. A key observation is that AI courses at the graduate level primarily adopt a theoretical approach, focusing on discussions related to big data, digital media, and AI-driven communication research, rather than providing hands-on training in AI applications. For example, courses such as "New Methods in Communication Research" and "Digital Media Studies" examine data security, algorithms, and digital footprints but do not include direct application of AI-based tools for content creation or analysis. The only required course, "Methodology in Communication Studies" at Maltepe University, integrates next-generation data collection and analysis techniques, but AI is just one of the broader methodological topics covered.

In terms of institutional distribution, public universities appear to be leading the integration of AI-related topics in graduate programs, with only one private university offering AI-focused courses. This suggests that public institutions may have stronger research initiatives in AI integration, while private universities might prioritize more industry-oriented curricula.

Overall, while AI is increasingly being recognized as an important subject in journalism graduate programs, its implementation remains largely conceptual and optional, with little emphasis on practical, hands-on applications. The findings suggest that further curriculum development is necessary to ensure that journalism students gain both theoretical knowledge and applied skills in AI-driven media production and analysis.

3.9. Findings on AI Courses in New Media Graduate Programs

The available data show that out of 29 new media graduate programs, 19 of which are masters and 10 doctoral (Figure 8), only 5 programs (Çukurova University offers 2 programs, master's and doctoral) offer a total of seven AI courses (Figure 11). Of these courses, four are included in public university curricula, while three are part of private university curricula. Considering that there are 11 graduate new media programs at public universities and 18 at private universities (Figure 8), it becomes evident that despite private universities having a larger number of graduate programs, the number of AI courses and the extent of curriculum integration in this field remain limited.

UNIVERSITY	COURSE NAME	COURSE INFORMATION					DEGREE	
		THEORETICAL	PRACTICAL	ECTS	ELECTIVE	REQUIRED	MASTER'S	PhD
AYDIN ADNAN MENDERES UNIVERSITY	AI IN DESIGN	✓	✓	5	✓		✓	
ÇUKUROVA UNIVERSITY	COMMUNICATION AND AI	✓		6	✓		✓	
	AI AND MEDIA STUDIES	✓		6	✓			✓
	AI AND MEDIA	✓		6	✓			✓
ISTANBUL KÜLTÜR UNIVERSITY	AI AND COMMUNICATION	✓		6	✓		✓	
	HUMAN AI INTERACTION	✓		6	✓		✓	
ÜSKÜDAR UNIVERSITY	AI AND COMMUNICATION	✓		12	✓			✓

Figure 11. AI courses in new media graduate programs.

As seen in Figure 11, among the AI courses offered in graduate new media programs, four are at the master's level and three at the doctoral level, with all designated as electives. The limited availability of AI courses at the graduate level and the absence of required offerings suggest that AI has not yet been recognized as a key component of new media education. However, the credit variations ranging from 5 to 12 indicate that these courses are delivered with a more in-depth approach, reflecting a more comprehensive effort by universities to support expertise development in this field.

These courses are offered at both master's and doctoral levels, focusing on AI's role in design, media studies, communication, and human–AI interaction. While courses such as "AI in Design" and "Human–AI Interaction" explore AI applications in digital communication and media production, their elective status suggests that exposure to AI remains optional rather than a core requirement for students in these programs.

From a pedagogical perspective, the courses primarily adopt a theoretical approach, with no exclusively practical AI courses in New Media graduate curricula. While some courses, such as "AI and Media" and "Human–AI Interaction", may involve practical elements, the overall focus remains on conceptual discussions, critical analysis, and theoretical frameworks rather than hands-on AI applications.

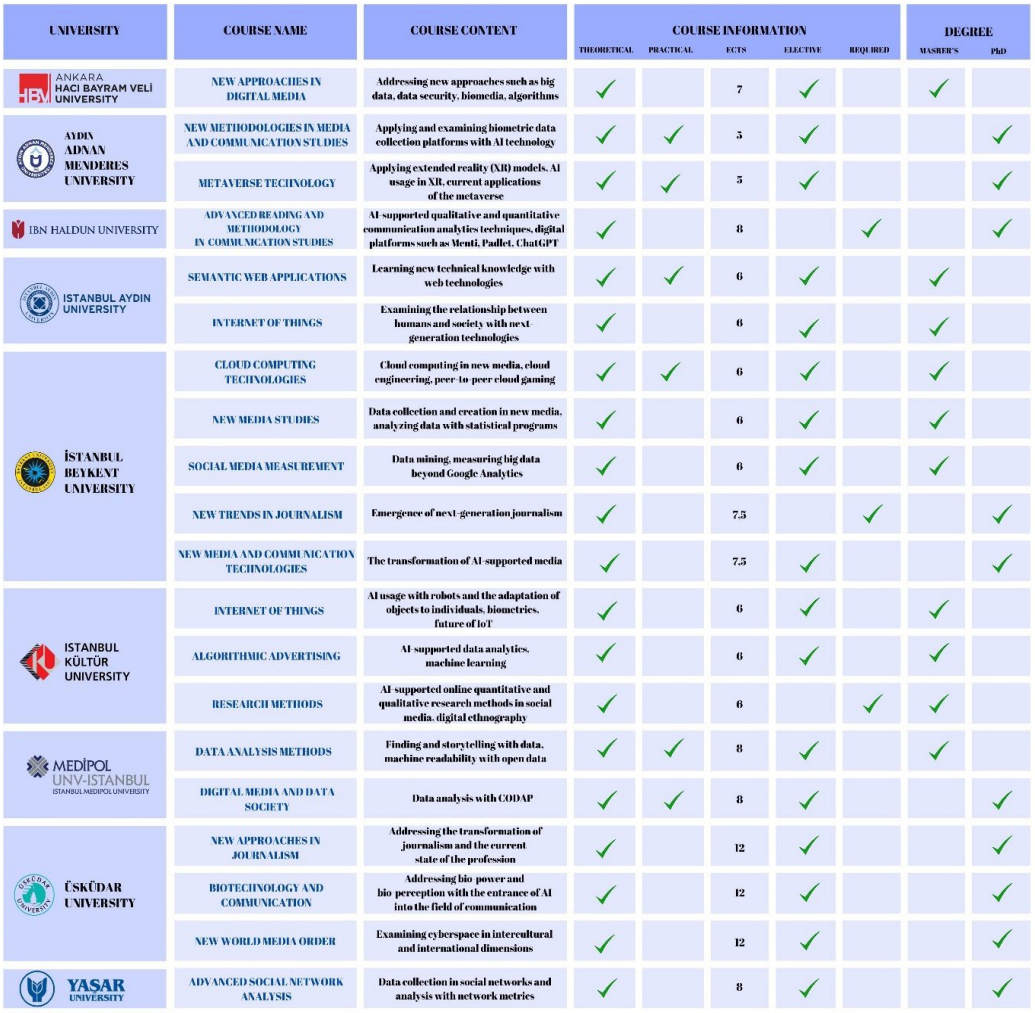
These findings suggest that new media graduate programs are beginning to incorporate AI-related topics, but the lack of required courses and practice-based training indicates that AI remains an emerging area rather than a fully integrated component of graduate education.

3.10. Findings on AI-Related Course Contents in New Media Graduate Programs

Among the 29 graduate new media programs examined, 5 programs offer a total of 7 AI-specific courses (Figure 11), while 11 programs (Istanbul Beykent University and Istanbul Medipol University offer 2 programs each, a master's and a doctorate) incorporate AI-related content within 20 different courses (Figure 12). The majority of these courses are part of private university curricula (Figure 3), with 9 of the 11 programs including AI-related course content belonging to private universities and only 2 to public universities.

As seen in Figure 12, out of the 20 courses analyzed, 3 are required, while 17 are offered as electives. These courses are evenly distributed between master's and doctoral programs, with 10 at the master's level and 10 at the doctoral level. The integration of AI-related course content into graduate new media programs is steadily increasing, as evidenced by the 20 courses offered across various public and private universities. The predominance of elective courses indicates that AI education in graduate new media programs remains largely optional, allowing for students to engage with AI-related topics based on their interests rather than as a structured component of the curriculum. The limited number

of required courses suggests that AI has not yet been fully institutionalized as a core subject in graduate new media education. However, the credit variations ranging from 5 to 12 indicate that these courses are delivered with a more in-depth approach, reflecting a more comprehensive effort by universities to support expertise development in this field.



UNIVERSITY	COURSE NAME	COURSE CONTENT	COURSE INFORMATION					DEGREE	
			THEORETICAL	PRACTICAL	ECTS	ELECTIVE	REQUIRED	MASTER'S	PhD
ANKARA HACI BAYRAM VELİ UNIVERSITY	NEW APPROACHES IN DIGITAL MEDIA	Addressing new approaches such as big data, data security, biomedia, algorithms	✓		7	✓		✓	
AYDIN ADNAN MENDERES UNIVERSITY	NEW METHODOLOGIES IN MEDIA AND COMMUNICATION STUDIES	Applying and examining biometric data collection platforms with AI technology	✓	✓	5	✓			✓
	METAVERSE TECHNOLOGY	Applying extended reality (XR) models, AI usage in XR, current applications of the metaverse	✓	✓	5	✓			✓
IBN HALDUN UNIVERSITY	ADVANCED READING AND METHODOLOGY IN COMMUNICATION STUDIES	AI-supported qualitative and quantitative communication analytics techniques, digital platforms such as Menti, Padlet, ChatGPT	✓		8		✓		✓
ISTANBUL AYDIN UNIVERSITY	SEMANTIC WEB APPLICATIONS	Learning new technical knowledge with web technologies	✓	✓	6	✓		✓	
	INTERNET OF THINGS	Examining the relationship between humans and society with next generation technologies	✓		6	✓		✓	
İSTANBUL BEYKENT UNIVERSITY	CLOUD COMPUTING TECHNOLOGIES	Cloud computing in new media, cloud engineering, peer-to-peer cloud gaming	✓	✓	6	✓		✓	
	NEW MEDIA STUDIES	Data collection and creation in new media, analyzing data with statistical programs	✓		6	✓		✓	
	SOCIAL MEDIA MEASUREMENT	Data mining, measuring big data beyond Google Analytics	✓		6	✓		✓	
	NEW TRENDS IN JOURNALISM	Emergence of next-generation journalism	✓		7.5		✓		✓
	NEW MEDIA AND COMMUNICATION TECHNOLOGIES	The transformation of AI-supported media	✓		7.5	✓			✓
ISTANBUL KÜLTÜR UNIVERSITY	INTERNET OF THINGS	AI usage with robots and the adaptation of objects to individuals, biometrics, future of IoT	✓		6	✓		✓	
	ALGORITHMIC ADVERTISING	AI-supported data analytics, machine learning	✓		6	✓		✓	
	RESEARCH METHODS	AI-supported online quantitative and qualitative research methods in social media, digital ethnography	✓		6		✓	✓	
MEDİPOL UNV-İSTANBUL İSTANBUL MEDİPOL UNIVERSITY	DATA ANALYSIS METHODS	Finding and storytelling with data, machine readability with open data	✓	✓	8	✓		✓	
	DIGITAL MEDIA AND DATA SOCIETY	Data analysis with CODAP	✓	✓	8	✓			✓
ÜSKÜDAR UNIVERSITY	NEW APPROACHES IN JOURNALISM	Addressing the transformation of journalism and the current state of the profession	✓		12	✓			✓
	BIOTECHNOLOGY AND COMMUNICATION	Addressing bio-power and bio-perception with the entrance of AI into the field of communication	✓		12	✓			✓
	NEW WORLD MEDIA ORDER	Examining cyberspace in intercultural and international dimensions	✓		12	✓			✓
YASAR UNIVERSITY	ADVANCED SOCIAL NETWORK ANALYSIS	Data collection in social networks and analysis with network metrics	✓		8	✓			✓

Figure 12. AI-related course contents in new media graduate programs.

These courses cover a broad range of AI applications in communication and media studies, encompassing technical, methodological, and theoretical dimensions. A key observation from the analysis is that AI-related courses in new media graduate programs exhibit a multidisciplinary approach, integrating AI not only within media production and journalism but also into social media research, digital communication, and algorithmic advertising. Courses such as "Social Media Measurement" and "Advanced Social Network Analysis" indicate a growing emphasis on data-driven communication, while others, such as "Biotechnology and Communication" and "New World Media Order", suggest that AI is also being explored in relation to biopolitics and international digital governance.

The analysis also reveals a strong theoretical emphasis, with 14 courses focusing on conceptual and analytical frameworks, while only 6 integrate practical components. Courses such as "Data Analysis Methods" and "Cloud Computing Technologies" include applied AI techniques, yet fully hands-on, practice-based AI training remains scarce. This trend mirrors previous findings at the undergraduate level, where AI-related courses tend to prioritize critical analysis and media implications over technical skill development.

AI-related courses in new media graduate programs are offered across both public and private universities, with a slightly higher concentration in private institutions. This distribution suggests that private universities may be more agile in integrating emerging AI technologies into their curricula, potentially due to greater flexibility in course design and closer industry collaborations.

Moreover, the presence of courses such as "Research Methods and New Methodologies in Media" and "Communication Studies" indicates that AI is being integrated into research-oriented training, equipping students with next-generation analytical tools for conducting quantitative and qualitative media studies. However, the limited number of AI-specific methodological courses suggests that further efforts are needed to expand AI-driven research competencies in communication studies.

The findings indicate that AI education in new media graduate programs is expanding, yet remains primarily elective, predominantly theoretical, and institutionally uneven. The growing integration of AI into research methodologies and interdisciplinary studies suggests an increasing awareness of AI's role in media and digital communication research. However, addressing the lack of required AI courses and the absence of fully practical AI training remains a critical area for curriculum development.

4. Discussion

This study highlights the current state of AI integration in journalism and new media education, focusing on the presence and content of AI-related courses in undergraduate and graduate programs. Artificial intelligence (AI) has become an integral component of journalism and communication studies, particularly in media automation, data journalism, and digital content creation. AI-driven tools are reshaping journalism education by fostering data literacy, algorithmic thinking, and computational methods, which are essential for contemporary media professionals (Diakopoulos, 2019). However, the findings of this study indicate while AI is becoming a subject of academic interest, its integration into journalism and communication curricula remains limited. A major limitation of AI education in journalism is the predominant focus on theoretical instruction, with minimal emphasis on hands-on training.

A similar trend is observed in Spain, where AI and big data courses in journalism curricula are predominantly theoretical, with only a handful of programs offering applied training (Tejedor et al., 2024). The Spanish case mirrors Türkiye's journalism education system, where AI remains largely a conceptual topic rather than a practical skillset. Although some courses incorporate practical components, the lack of dedicated, fully application-based AI training prevents students from developing industry-standard competencies. Similarly, Tejedor et al. (2024) highlight that while AI is gaining academic interest, its integration remains limited, leaving students unprepared for AI-driven transformations in journalism. As a result, students may gain a conceptual understanding of AI but have limited exposure to essential tools such as natural language processing, machine learning-driven content analysis, and algorithmic news generation, which are increasingly shaping contemporary journalism (Fösel et al., 2018).

Moreover, AI-related courses are largely offered as electives rather than core components of journalism curricula, indicating a lack of uniformity in AI education across institutions. The findings of Tejedor et al. (2024) further reinforce this observation in the context of Spanish journalism programs. Their study highlights that while AI and big data topics are included in a limited number of courses, these are often embedded within broader communication technology or data journalism classes rather than being standalone subjects. Similarly, in Türkiye, the absence of core AI courses suggests that universities have yet to fully recognize AI as an essential competency in journalism education. The pre-

dominance of elective AI courses, rather than required components, indicates that students' exposure to AI largely depends on individual course selections. As a result, students who do not actively choose AI-related electives may graduate without sufficient knowledge of AI tools and techniques, leaving them unprepared for AI-driven transformations in the journalism and media industries. To bridge this gap, universities in both countries could consider making AI literacy a required component of journalism curricula, ensuring that all students, regardless of specialization, acquire foundational knowledge in AI-driven media production. A more structured and standardized approach to AI education in journalism and new media programs is essential to ensure equitable AI literacy among all students. This lack of structured integration suggests that AI has not yet been recognized as a fundamental aspect of media training. Without sufficient hands-on experience, students may graduate without the necessary skills to effectively utilize AI-driven tools in the journalism and media industries. Addressing this gap requires a curriculum that balances theoretical foundations with applied AI competencies, ensuring that future journalists are equipped for an evolving digital landscape (Alshater, 2022).

Similar challenges extend to graduate-level programs, where AI education remains largely theoretical and elective. While undergraduate curricula struggle with limited AI integration, graduate programs also lack a structured approach to AI training, reinforcing inconsistencies across different levels of journalism education.

These findings directly address RQ2, which examines how AI courses are structured in journalism and new media programs. The results indicate that AI education in Türkiye and Spain remains largely conceptual, with limited practical training opportunities. While technical skills such as big data analysis and automation are emphasized, the broader implications of AI, including its ethical, editorial, and societal dimensions, are often overlooked. This highlights the need for a balanced curriculum that integrates both theoretical foundations and hands-on AI competencies to better prepare future journalists for an AI-driven media landscape.

Another finding shows that AI-related courses in journalism education predominantly emphasize technical skills such as big data analysis, robotic journalism, and automation in media production. While these components are crucial for modern journalism, the broader implications of AI (especially its impact on editorial decision-making, audience engagement, and media ethics) are not adequately addressed (Newman, 2023).

Given the increasing prevalence of AI-driven news generation and automated content moderation, journalism students require not only technical proficiency but also a critical understanding of AI's ethical and societal implications (Carlson, 2015). However, current curricula lack a structured approach to integrating AI ethics, bias mitigation strategies, and transparency measures into journalism training. In the same line, this research connects with the proposals of Salgado (2022) and Irfan et al. (2023), which stress the need for training that enhances critical thinking and the use of media from a media literacy perspective. Without a strong emphasis on critical engagement, journalism students may struggle to assess the broader implications of AI-driven content production and distribution, limiting their ability to navigate ethical challenges in the evolving media landscape.

Another key finding of this study is the significant variation in credit allocation for AI-related courses across journalism and new media programs in Türkiye. These discrepancies indicate a lack of standardization in AI education, potentially impacting student engagement and learning outcomes. At the undergraduate level, AI courses typically range from 3 to 5 credits, whereas at the graduate level, credit allocation varies between 4 and 8 credits. Notably, AI courses in new media master's programs exhibit a broader credit range, from 5 to 12 credits, reflecting an effort to provide a more comprehensive AI curriculum. Similar discrepancies in credit allocation are evident in Spain, where AI-related courses range from

3 to 6 ECTS credits, with some institutions offering elective modules that extend to 12 credits (Tejedor et al., 2024). However, these variations indicate a lack of standardization, much like in Türkiye. The Spanish study also notes that higher-credit courses tend to focus on practical applications such as data journalism and AI-driven content generation, while lower-credit courses emphasize theoretical discussions on AI ethics and automation. These parallels suggest that both countries would benefit from establishing a more standardized AI curriculum that balances credit distribution with practical and theoretical learning outcomes. These discrepancies indicate a lack of standardization in AI education, potentially impacting student engagement and learning outcomes.

Another finding is the disparity between public and private universities in AI education. Public universities show a stronger commitment to integrating AI into the journalism curriculum, while private institutions offer fewer AI-focused courses, although they are adapting to industry trends. This variation can be attributed to multiple structural and institutional factors. Public universities, often benefiting from government funding and national research initiatives, are more inclined to embed AI education within broader technological advancements in journalism training. In contrast, private universities, driven by market demands, tend to integrate AI-related content within broader digital media or communication courses rather than offering standalone AI programs. Additionally, public institutions frequently emphasize academic research, incorporating AI from a more theoretical and conceptual standpoint, whereas private institutions may prioritize applied, skill-based learning through industry collaborations. These differences highlight the need for a standardized and inclusive approach to AI education, ensuring that students across all institutions acquire the necessary AI literacy and technical competencies required for the evolving media landscape.

Beyond institutional differences, broader cultural and economic factors also shape the integration of AI into journalism education. Countries with strong governmental support for AI and digital transformation tend to exhibit a more structured AI curriculum. For instance, nations such as Finland, Singapore, and Qatar have implemented national AI strategies that facilitate the integration of AI education into higher education institutions (Schiff, 2022). These countries prioritize AI education as part of their digital transformation agendas, ensuring that universities receive sufficient funding and policy support.

Conversely, in lower-income economies, resource limitations restrict faculty training, the development of AI-related courses, and the acquisition of necessary technological infrastructure (Imran, 2025). Türkiye represents an evolving AI education landscape, where national policies increasingly emphasize digitalization and AI applications in media. However, universities face challenges in adapting their curricula due to faculty expertise limitations and budgetary constraints. While public universities in Türkiye may benefit from state-supported AI initiatives, private institutions often integrate AI within broader digital media programs rather than offering standalone courses.

These findings align with international trends where public universities, backed by governmental funding, tend to focus on theoretical AI education, while private institutions emphasize industry-driven applications through collaborations with media organizations (Schiff, 2022).

A critical observation concerns the differences in credit distribution between public and private universities. Public universities tend to offer AI courses with lower credit values, whereas private institutions allocate higher credit hours to these courses. This disparity suggests that private universities may prioritize AI education as a more integral part of their curricula, potentially due to greater flexibility in course design and stronger industry collaborations. In contrast, the lower credit allocation in public universities may stem from the need to accommodate a wider range of course offerings. Consequently,

this may limit students' incentives to enroll in AI courses, reducing their exposure to AI-driven media technologies. Given the increasing role of AI in journalism and digital communication, these variations in credit allocation could have long-term implications for graduates' competencies in AI-related fields.

These findings directly address RQ3, demonstrating that AI course prevalence, structure, and integration vary significantly between public and private universities, emphasizing the need for a more standardized and balanced AI education framework.

Another significant finding is the relationship between credit allocation and course content. Higher-credit AI courses tend to include more applied components, such as data journalism, automated content creation, and algorithmic analysis, whereas lower-credit courses primarily focus on theoretical discussions of AI ethics, media algorithms, and the societal impact of automation. To enhance AI education in journalism and new media programs, it is essential to establish a standardized credit system. Offering AI courses with lower credit values may discourage students from selecting them, thereby limiting their proficiency in AI applications relevant to the media industry.

This study also reveals that AI-related courses in journalism curricula predominantly focus on automation, data analytics, and content production, whereas their application in research methodologies remains underdeveloped. The integration of AI-supported research methods, such as computational content analysis and natural language processing, could enhance journalism students' analytical competencies, enabling them to conduct more robust investigations and data-driven storytelling. Tejedor et al. (2024) similarly found that AI in Spanish journalism curricula is rarely applied in research-oriented coursework.

Expanding practical AI training, including data-driven storytelling and AI-assisted reporting, could better align journalism curricula with contemporary industry demands (Newman, 2023).

Beyond integrating AI-focused courses, it is crucial to enhance the competency of academic staff in teaching AI-related content. Many journalism educators may not have formal training in AI, which can limit the effectiveness of course delivery (Hwang et al., 2020). Research suggests that successful AI education programs require structured faculty development initiatives, interdisciplinary collaborations with computer science departments, and continuous training on emerging AI tools in media (Schiff, 2022). Universities should consider implementing AI literacy workshops for educators, updating pedagogical resources, and integrating AI-related case studies into journalism curricula (Newman, 2023). Without these measures, journalism students may not receive sufficient hands-on training to prepare for AI-driven transformations in media (Imran, 2025).

The Spanish case further demonstrates the urgency of this transformation. Tejedor et al. (2024) argue that journalism education must evolve beyond merely introducing AI concepts and instead foster a structured learning approach that integrates both technical skills and ethical considerations. Their findings highlight the importance of a dual-track AI curriculum—one that ensures students not only understand AI's computational functions but also critically engage with its societal implications. Similarly, Turkish universities should work towards a framework that harmonizes theoretical instruction with hands-on AI training, thereby creating a more robust AI-literate workforce for the journalism industry. Furthermore, the ethical and regulatory aspects of AI in journalism education require greater emphasis. As AI tools increasingly influence news production, concerns about algorithmic bias, misinformation, and editorial transparency become more pressing (Carlson, 2015). Despite these challenges, findings suggest that journalism curricula largely frame AI as a technical tool, with limited emphasis on its ethical and regulatory dimensions. To prepare students for AI-driven news environments, it is essential to integrate AI ethics into journalism education, ensuring that they critically engage with algorithmic accountability,

bias mitigation, and the societal implications of automation in news production (Porlezza & Schapals, 2024).

AI courses in master's and doctoral programs remain largely optional rather than core curriculum components. At the graduate level, AI courses primarily focus on theoretical discussions rather than hands-on training in computational journalism, algorithmic content creation, or AI-assisted research methodologies. Moreover, AI-related courses remain largely optional, limiting students' exposure to AI-driven media technologies. A notable distinction is observed between public and private universities, with state-funded institutions offering more AI-related coursework, while private universities tend to incorporate AI within broader communication studies rather than as standalone subjects. Additionally, variations in credit allocation suggest differing institutional priorities and levels of engagement with AI literacy.

Although AI education is expanding at the graduate level, the lack of a standardized framework prevents students from acquiring consistent competencies across institutions. A structured, interdisciplinary AI curriculum is needed to provide balanced training in theory and practice at all levels.

Overall, this study contributes to the growing body of literature on AI and media education by providing a detailed analysis of current academic offerings. Addressing the identified gaps through curriculum development and interdisciplinary approaches can help ensure that journalism and communication graduates are prepared to navigate the AI-driven transformation of the media industry.

Universities should consider embedding AI-related courses more systematically into their curricula, ensuring that students graduate with both theoretical knowledge and practical competencies relevant to AI-driven media environments. To prepare future journalists and media researchers for an AI-driven industry, AI training must evolve beyond basic technical applications by integrating both hands-on experience and critical perspectives on ethics, algorithmic accountability, and media bias. Without such comprehensive integration, journalism education risks falling behind the rapid advancements in AI-driven media ecosystems. By doing so, communication faculties can ensure that graduates are equipped with the necessary expertise to navigate the evolving challenges of AI-driven journalism and digital communication. This study also aims to inform future research by identifying critical gaps in AI education.

These findings directly answer RQ1 regarding AI integration in journalism curricula in Türkiye. The results indicate that AI education remains inconsistent across institutions, with significant variations in course content, credit allocation, and theoretical–practical balance. While AI has gained recognition as an important topic, its integration into journalism curricula is still fragmented, often limited to elective courses or broader media technology subjects rather than dedicated AI-focused programs. Addressing these inconsistencies through standardized AI curricula and interdisciplinary collaborations will be crucial to ensuring that all journalism students, regardless of their institution, acquire the necessary AI literacy and practical skills for an evolving media landscape.

Limitations and Recommendations for Future Research

This study has certain limitations that should be acknowledged. While efforts were made to obtain comprehensive curriculum data—including direct communication with universities—some institutions did not provide sufficient details. As a result, the analysis reflects only the available data, which may not capture the full extent of AI integration across all institutions.

Second, this study focused solely on communication faculties, excluding AI integration in other academic disciplines. Expanding future research to encompass interdisciplinary

approaches (particularly in the social sciences, humanities, and STEM fields) could provide a more comprehensive understanding of AI's role in education.

Lastly, while this study identified AI-related courses, it did not assess their pedagogical impact or how students engage with AI in practice. Future research should analyze the effectiveness of these courses in enhancing AI literacy, their influence on student competencies, and the extent to which they prepare graduates for AI-driven media environments.

This study is based on document analysis, which allows for a systematic and objective examination of AI integration in journalism curricula. While this method provides valuable insights, future research could benefit from additional qualitative data, such as interviews with program coordinators or student surveys. This would offer a deeper understanding of how AI-related courses are taught and whether they effectively prepare students for industry demands.

To address these gaps, future studies should adopt mixed-method approaches, including longitudinal studies and comparative institutional analyses, to track the evolving role of AI in journalism education. Additionally, research on industry–academia collaborations could offer insights into how AI curricula align with professional demands, ensuring a more structured and applied AI education framework.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/journalmedia6020052/s1, Table S1: Coding form for AI-related course analysis in journalism and new media programs.

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