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Artificial Intelligence and Internet Journalism: Presentation of Artificial Intelligence News to Internet and X (Twitter) Users in Türkiye

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Abstract

Artificial intelligence (AI) has altered and transformed almost every field today as one of the outputs of new communication technologies. One of the areas that have undergone this alteration and transformation is journalism, or news practices. Despite the ample favorable opportunities AI technology provides in news search, gathering, editing, and distribution, it might also instigate ethical considerations. The news practices offered by online news sites on X (Twitter) regarding AI technologies are therefore essential to explore because of their positive or negative outcomes that might alter the perception, attitude, or behavior of audiences or readers. In this regard, this study sought to reveal how the top five most frequently visited Turkish online news sites (i.e., Hürriyet, Milliyet, Sabah, Mynet, Sözcü) by Turkish internet users presented news about AI shared on X to viewers/readers. While the research population comprised AI news, the sample consisted of AI news shared by five online news sites on X. In this context, 520 AI news items were included in the study, with 11345 codes being created using the MAXQDA 2024 program for news analysis. The study demonstrated how online news about AI varied by news sections, the purpose of news production, the topics of news titles and headings, the use of visuals and themes, the references to other sources, the use of links, the sources cited in the news, the people mentioned in the news, their titles, news tones, word count and areas of expertise. It further showed how AI journalism differed between online news sites.

Keywords

Media; Communication; Online Journalism; News; Journalism; X (Twitter); Artificial Intelligence; User

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Искусственный интеллект и интернет-журналистика: представление новостей об ИИ пользователям интернета и X (Twitter) в Турции

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Аннотация

Искусственный интеллект (ИИ) как одно из достижений новых коммуникационных технологий сегодня изменил и трансформировал практически все сферы деятельности. Одной из таких сфер, претерпевших эти изменения, является журналистика и практика распространения новостей. Несмотря на широкие возможности, которые технологии ИИ предоставляют в поиске, сборе, редактировании и распространении новостей, они также могут вызывать этические вопросы. Практика представления новостей об ИИ на интернет-ресурсах и в X (Twitter) является важной темой для изучения, поскольку такие новости могут оказывать положительное или отрицательное влияние на восприятие, отношение и поведение аудитории. В связи с этим данное исследование направлено на выявление того, как пять наиболее посещаемых турецких интернет-изданий (Hürriyet, Milliyet, Sabah, Mynet, Sözcü) представляют новости об ИИ пользователям X. Объектом исследования стали новости об ИИ, а выборку составили материалы, опубликованные указанными пятью интернет-изданиями в X. В рамках исследования было проанализировано 520 новостных публикаций, в которых с помощью программы MAXQDA 2024 было создано 11345 кодов для анализа контента. Исследование показало, как онлайн-новости об ИИ различаются по тематическим разделам, целям публикации, заголовкам и подзаголовкам, использованию визуального контента и тематики, ссылкам на другие источники, включению гиперссылок, цитируемым источникам, упоминанию персоналий, их должностям, тональности новостей, объему текста и профессиональным сферам. Кроме того, работа демонстрирует различия в подходах к освещению ИИ-журналистики между разными интернет-изданиями.

Ключевые слова

медиа; коммуникация; онлайн-журналистика; новости; журналистика; X (Twitter); искусственный интеллект; пользователь

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Introduction

Innovations in information and communication technologies (ICT) and their inclusion in journalism have resulted in several alterations and transformations in journalism and journalistic practices. One of the most important outputs of this has been various AI applications. These applications might be claimed to have significant impacts on journalism, news production, distribution, and consumption. The impact of AI applications on journalism and journalistic practices has added a new dimension to the field. Accordingly, as tackled in this study, it is essential to explore the AI news presented by online news sites to users on X (Twitter), one of the social media platforms. To this end, the study aimed to reveal the news presented by the five online news sites most frequently visited by internet users in Turkey (i.e., Hürriyet, Milliyet, Sabah, Mynet, Sözcü) to viewers/readers about AI on X (Twitter) within specific categories. In this regard, AI and journalism literature have been utilized to outline the topic and understand and interpret AI's position in online journalism (OJ), contributing theoretically to the field and prospective researchers.

A literature review on AI technology use in journalistic practices in Turkish and international contexts has revealed essential factors for evaluating AI news (Li et al., 2022), creating a content-focused mechanism for integrating AI into journalism and content experience mechanisms to encourage ethical development (Kuo, 2023), comparison of news written by ChatGPT with news written by expert journalists (Nah et al., 2024; Aydın & İnce, 2024; Zhaxylykbaye et al., 2025), examining the effects of journalistic practices (Stanescu, 2023; Böyük, 2024), current trends in AI-powered journalism in Turkish news media (Kırık et al., 2024), its use in automated news production processes (Öngel, 2023; Petruccio et al., 2025), impact on news production, editing and distribution (Manisha & Acharya, 2023; Etike, 2023; Şen, 2025; Karaburun, 2025; Voinea, 2025), its application in news communication between practical research and ethics (Yijing, 2024; Misri et al., 2025; García de Torres et al., 2025), its growing impact on live news broadcasting (Mahajan et al., 2024), and news consumers' preferred AI usage intentions (Heim & Chan-Olmsted, 2023). This research is the first concerning the methods and techniques used to analyze the topic, universe, and sample, which distinguishes it from other studies in national and international contexts and contributes to its significance. In line with the aims, the following research questions are addressed:

RQ1. What are the content and presentation features of AI news?

RQ2. What is the thematic and functional analysis of visual, source, emotion, and word materials used in AI news?

RQ3. Who are the people, and what are their characteristics in AI news?

This article is divided into five sections. The first part includes information about OJ in the world and Turkey, which will theoretically contribute to the study. The second part contains specific inferences and information about AI and related

journalism/news discussions. The fourth and final section presents the research methodology and provides information about the population, sample, and data collection and analysis. In the fourth and last section, the results are given based on the findings, the limitations are recognized, and various suggestions are offered for prospective researchers.

Theoretical framework

Emerging as a result of the advancement of ICT, the Internet has altered and transformed every sphere of life. One of these areas is mass media and the way these tools operate. The impacts of the Internet on mass communication have created a new type of journalism called OJ. Therefore, unlike traditional journalistic practices, it can be called a type of journalism in which such practices are performed on the Internet, and the news is transmitted to users through online features.

Online journalism in the world

OJ involves the presentation of dynamic news narratives in various forms, increasing participation through user collaboration, multimodal narration, creating hyperlinks between different sources, documents, and institutions, and inevitably consisting of ever-changing and unreliable processes that, in theory, never create a measurable structure (Karlsson & Strömback, 2011).

The roots of OJ go back to the 1970s. Almost no one, except Isaac Asimov and some science-fiction writers, predicted that everyone would have a computer one day. This new type of journalism appeared when computers were not widely used because of their large size. However, those who created computer systems during this period expected individuals to use televisions, not computers, to access information. While individuals used computers only to create and store information, they used television sets with the help of decoders for the television system to present information. The use of television in information presentation continued until the 1990s. Videotext and teletext were the critical technologies used in this period (Carlson, 2003). Videotext is a system that provides interactive content and displays it on such devices as television. It was used from the 1970s to the mid-1980s.

Conversely, teletext is a non-interactive transmission system of texts and graphics for display on a television set compatible with data transmission (Kılıç, 2015). Therefore, the story of how and where OJ began takes us back to "teletext," invented in England in 1970. Instantaneous, short, and current information provided through teletext broadcasts forms the basis of OJ used today (Carlson, 2003).

In 1993, the development of Mosaic, a graphical browser, caused more than 4,900 newspapers to start their online broadcasts (Pavlik, 1999). The number of

newspapers and magazines transferred to the Internet exceeded 150 by 1995 (Díaz Noci, 2013). As of 2001, OJ organizations approached 14,000 worldwide (Deuze, 2003). In 1994, the British Daily Telegraph newspaper started the era of OJ as the Electronic Telegraph (Siapera & Veglis, 2012). This tradition (transition from traditional journalism to OJ) was followed by Le Monde, The New York Times On the Web (now just The New York Times), and El País in December 1995, January 1996, and May 1996, respectively. One of the crucial developments in OJ in 1995 was that the eight major American newspaper giants (i.e., Advance Publication Inc., Cox Newspaper Inc., the Gannet Company, the Hearst Corporation, Knight-Ridder Inc., the Times Mirror Company, the Tribune Company, and Washington Post Company) gathered to create a content and advertising collaboration called the New Century Network. On April 19, 1995, these eight significant companies started delivering ready-to-print pages to online readers through the established network (Lewis, 1995). On the other hand, BBC News, a paradigm to the world in many respects and considered one of the most significant OJ applications, entered the online broadcasting process in November 1997 with its different format and original content (Díaz Noci, 2013).

Online journalism in Türkiye

The first step toward OJ in Türkiye was the connection made with the European Academic and Research Network (EARN/BITNET) with the initiative of universities in the mid-1980s. Known as TUVAKA (TURIN- Turkish Universities and Research Institutions Network), this connection network was financed and used only by research institutes and academic institutions (Özgit et al., 1995). However, since that was the first network connection established, it fell behind with technological developments worldwide. Prof. Dr. Oğuz Manas and his team from Ege University first integrated Turkish universities into this network in 1986. Ege University was subsequently followed by Anadolu University, Yıldız Technical University, Istanbul Technical University, Boğaziçi University, Fırat University, Middle East Technical University, Bilkent University, and İstanbul University in 1987. A project called TR-NET was initiated in cooperation with METU (Middle East Technical University) and TÜBİTAK (Turkish Scientific and Technical Research Council) due to technical problems, including the limited bandwidth of the TUVAKA network, the closed software, and the limited opportunities.

Two years after public institutions and universities' widespread use of the TR-NET, the first internet network based in METU and TUBITAK, the network was decided to be expanded due to the capacity and inadequacy of the internet service offered over the network. Thus, the TR-NET team proposed a model by offering a partnership with Türk Telekom (TT). As a result of the network negotiations starting between TR-NET and TT teams, infrastructural work began in 1995, resulting in a tender submitted to run the "National Internet Network" project called TURNET. Sprint-Satko-METU won the tender. Sprint-Satko-ODTÜ was granted

the right to establish and operate TURNET, provided it leaves most of its income to TT. Although universities, especially METU and TUBITAK, were the main actors in advancing the Internet's establishment and development stages, the Internet's first period in which the rules were determined, resulted in the TURNET tender being awarded to the TT in November 1995 (Başaran, 2010; Kılıç, 2015; Aydoğan, 2004; Akgül, 2001; Özdemir, 2005).

Considering the Internet's emergence and development stages in Türkiye, OJ might be tackled in two periods. The first period covers the emergence and development of the Internet between 1995 and 2000. The number of news sites was limited during this period, as the Internet was in its infancy and less known among journalists. The news sites of this early period can generally be described as digital copies of printed newspapers. The second period covers the post-2000 period, when many journalists who were unemployed due to the crisis attempted to do journalism with their means, resulting in the handling of OJ in absolute terms (Gürcan, 2005). Despite OJ's rapid development in Türkiye between 1996 and 2000, a new approach was adopted, regarded as the third and fourth periods. The third period encompasses creating original news content shaped as a new communication platform for webpages, a new approach in which readers can not only read the news but are also involved and even navigate the places mentioned. The fourth period represents a period in which journalism is included through personal blogs and individual pages, and readers not only read the news but also perform OJ practices (Tokgöz, 2006; Tokgöz, 2008).

Aktüel was the first Turkish magazine to transfer its contents to the Internet in July 1995. In doing so, Aktüel broke new ground in Turkish press history by broadcasting over the Internet on July 19, 1995, via the servers of Boğaziçi University (Gürcan, 1999). Aktüel was followed by Leman, broadcasting in October of the same year, and as of December 2, 1995, Zaman newspaper transferred its news and columns to the Internet (Karaduman, 2005). About a year later, on January 25, 1996, Xn (Eksen) was the first site to launch OJ in Turkey (Özgen, 2012). Milliyet was the first daily newspaper to publish its content online regularly as of November 1996. Following Milliyet's steps (December 25, 1996), Fanatik went online, and on January 1, 1997, Hürriyet and Sabah followed this process (Çakır, 2007). Apart from these, Radikal went online on March 28, 1998, followed by Cumhuriyet on May 7, 1998. Cumhuriyet introduced a subscription system for its readers, allowing only subscribed readers to access the current issue (Yüksel, 2014).

The "NetHaber" portal started Türkiye's third period of OJ (independent journalism). NetHaber was founded by Superonline, one of Türkiye's largest service providers, on December 17, 1997, and is the first news site to introduce independent online broadcasting (Aydoğan, 2004). The first site to independently publish its content regarding OJ, which has increased significantly since the beginning of 2000 in Türkiye, is "www.dorduncukuvvetmedya.com," founded by journalist Ahmet Tezcan (2003). In addition, Medyakronik, Jurnal Net, Sanal Gazete, and Deep

Not have taken their place among the new sites with original content that is not affiliated with any media organization and publishes online independently (Işık, 2001; Çevikel, 2004).

Unlike traditional journalism, OJ is a journalistic practice followed within the framework of the opportunities offered by the internet infrastructure. Therefore, the various components of the developing Internet and technological opportunities for journalistic practices (i.e., rapid dissemination, interactive content, and direct and interactive communication with readers) create significant potential for OJ's production, distribution, and consumption. Such components will inevitably continue to increase, with advancing ICT impacting new journalistic practices significantly in different online environments and features.

What is artificial intelligence (AI)?

It will be helpful to provide information about the concept of intelligence to understand the AI concept better. Various scientists and disciplines have defined the concept of intelligence. No universal definition of intelligence is associated with abstract words such as consciousness, subconscious, and soul (Legg & Hutter, 2007). What is intelligence? Although it is a quotidian concept with a very concrete, perhaps pure meaning (Legg & Hutter, 2007), it can be defined as interpreting and transforming external stimuli into information and use. The concept can be evaluated using two approaches (conventional and contemporary). In the conventional approach, intelligence is considered a measurable concept related to the organization and use of information. In the contemporary approach, intelligence cannot be measured with numerical test scores and is not fixed but is changeable and renewable (Bümen, 2004; Selçuk, 2012; Arslan, 2020).

Although AI's history and development date back to ancient times, the 20th century can be viewed as its short history. The term robot associated with AI was first used in 1920 in the theater play "Rossum's Universal Robots" by Czech writer Karel Capek. Robots in the play were expressed as artificial humans working as enslaved people in a factory (Čapek, 2021). Isaac Asimov, who graduated from Columbia University in 1945, used the term robotics, and Alan Turing, who identified with AI with his work in 1950, asked whether machines could think, opening it up for discussion. Alan Turing introduced the 'Turing Test', which helps to understand whether machines are intelligent, in his review of "Calculating Machines and Intelligence" in Mind magazine. This test remains current today (Turing, 1950; Kaku, 2014; Grewal, 2014; Russell ve Norvig, 2010). In 1955, it was used in an official application by John McCarthy, Marvin L. Minsky, Nathaniel Rochester, and Claude E. Shannon for the Dartmouth Summer Research Project held at Dartmouth College in Hanover, New Hampshire. The research was based on the assumption that any form of learning or intelligence could, in principle, be done in a way that made a machine mimic it (McCarthy et al., 1955). Although McCarthy and his friends introduced

the concept, the inventor is known in the literature as John McCarthy. McCarthy (2004) defines intelligence as

> "the computational part of the ability to achieve goals in the world. Varying kinds and degrees of intelligence occur in people, many animals, and some machines" — and AI as "the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to biologically observable methods."

Relevant literature about AI provided the following definitions: making computers do what humans do (Popov, 1990), a theory that aims to create an imitation of natural intelligence (Nilsson, 1990), a system based on heuristic programming (Andrew, 1991), a science aimed at intelligent programs (Copelan, 1993), a system that examines the synthesis and analysis of an intelligent computational agent (Poole and Mackworth, 2010), systems that behave like humans and think rationally (Russell and Norvig, 2010), the ability of a computer or computer-controlled machine to perform tasks related to higher-level mental processes (Nabiyev, 2005), methods of controlling all human activities in a biological sense and having them done by computer-controlled machines (Kurzweil, 2006), involving the study and design of intelligent contractors who perceive their environment and take action to maximize their chances of success (Singh et al., 2013), and intelligence displayed by machines, as opposed to the natural intelligence displayed by humans and other animals (Jain, 2018). Based on these definitions, AI can be defined as computer systems equipped with cognitive skills and capacities specific to human intelligence, such as reasoning, acquiring information, problem-solving, seeing, making sense, decision-making, and generalization.

Artificial intelligence and journalism

The age we live in requires constant renewal. AI, one of the outcomes of this era, has opened the doors of alteration and transformation in journalism, creating significant opportunities in researching news trends (Steiner, 2014), collecting and organizing news (Diakopoulos, 2019), distributing it (Helberger, 2021), and automatically broadcasting news (Carlson, 2015). Therefore, AI continues to rivet researchers from different fields, and research and discussions on its use in news processes and its impacts on journalism highlight its implications in the literature as a current value.

The impact of technological changes and updates in the 21st century on journalism has emerged in two separate areas. The first is "algorithmic journalism" or "robot journalism", created by software, algorithms, artificial intelligence, and natural language production and operating in the virtual universe. The second is robotic machine technology that emerges in physical life using existing technologies (Işık et al., 2022). Some sources also describe these developments as "automated journalism." They are expressed as a feature of post-industrial journalism

(Anderson et al., 2015). In other words, robot journalism, defined as the realization of automatic news production by coding journalistic information (Linden, 2017), is also explained as AI journalism.

AI journalism is the automatic production of news and data through computer programs with AI software and their interpretation, editing, and presentation in a way humans can read (Guanah et al., 2020). Based on this statement, Flew et al. (2012) argue that AI applications in journalism can provide new opportunities for investigative journalism and increase the scope of new interactions with readers. So, what is the contribution of AI applications to journalism? Based on data, AI algorithms can quickly convert information into news texts. News content created by algorithms in minutes frees human journalists from the constraints of ordinary news, allowing the editorial team to focus on more time-consuming news (Dalen, 2012). AI algorithms have four different areas of use in journalism: (i) automatic news content creation, (ii) data mining, (iii) news dissemination, and (iv) content optimization. Creating automatic news content is a situation that provides excellent convenience for journalists. Data mining creates a more appropriate writing language by supporting the style of the news platform during the news writing phase. AI can be used to disseminate news in individual and different media. Finally, content optimization is also a process that requires time and cost for news media. Using AI to perform these operations enables news organizations to work more efficiently (Kotenidis and Veglis (2021). Beckett (2019) considers the following when examining the situation regarding AI applications in news organizations: (1) better personalized distribution of content, (2) more efficient, auto-generated content, (3) dynamic pricing for advertising and subscriptions, (4) finding more news topics in data and finding more data for news, (5) better automatic analysis (transcriptions), (6) managing content moderation, (7) detection or identification of fake (fake) news or fake content produced with deepfake technology, (8) new tools for debunking fake news, (9) improved video and image (or content) search, and (10) some critical possibilities and formats, such as more sentiment analysis in user-generated content.

Based on the opportunities offered by researchers in AI technology regarding journalistic practices, AI technologies facilitate journalists' work and help them broadcast more accurate, faster, and more effective news. Therefore, AI technologies allow journalists to access information faster when writing news on a particular subject, in other words, without spending too much time. On the other hand, machine learning and deep learning techniques can also be exploited to automatically collect, analyze, and classify data in social media and other online environments. Thus, it might enable journalists to demonstrate a comprehensive reporting practice on these issues by analyzing extensive data to draw a broad picture of what issues are discussed in these online environments and which issues determine the public agenda. In addition, AI practices in online environments can differentiate the journalism sector and minimize these needs by eliminating economic resource

needs and reducing the editorial and publishing process requirements. AI technologies can positively contribute to the diversification of editors' decisions and news content journalists produce for the journalism sector.

It is argued that AI can improve and revitalize key elements of profound news production practices such as investigative journalism (Broussard, 2015) and increase the scope for new bases of interaction with readers (Flew et al., 2012). The use of AI or other automated technologies in newsrooms has tangible positive aspects, such as reducing news costs, increasing efficiency, and expanding data research (Moran & Shaikh, 2022).

Although AI practices have favorable opportunities in journalism, there are some adverse ethical problems besides these prospects. Therefore, "What are the negative, ethical problems AI applications create in journalism/news?" Based on this question, it is essential to mention the discussion topics pending solutions within the framework of some technical, legal, and ethical problems related to journalism to comprehensively understand and evaluate the issue.

AI algorithms produce news from data prepared and determined with certain judgments in advance. Therefore, algorithms can produce undesired and unexpected errors. On the other hand, it can only ask questions as it has been taught. Just as it cannot explain new phenomena, it cannot establish causality. For this reason, its ability to observe society and perform the essential tasks of journalism, such as directing and creating public opinion, if necessary, is limited. In addition, the writing quality of automated news content is lower than human writing. However, it will likely increase, mainly as natural language creation technology develops (Graefe, 2016). Algorithms can determine whether news items are accurate through deep learning. With the use of these systems together with journalism, ethical news evaluation leads to controversy from a journalistic point of view because the concept of ethics forms the basis for AI's prospective actions. Therefore, such questions as "Can AI be ethical in determining the title and content of the news?" lead to ethical discussions. In this case, AI algorithms that replace human errors will reveal an unethical action for humans to place their responsibility on AI in case of any mistakes during the news production phase (Ersoy, 2018). It brings with it information security problems in media and publishing. Developments in AI technologies and artificial learning have led to a remarkable increase in fake content generation and its delivery to users (Agarwal et al., 2019). Equally, the role of large technology companies also raises an important ethical issue for both professionals and researchers. Offering solutions for AI technologies to media centers, these companies bear significant responsibility for ethical issues. For this reason, it is imperative to be objective about the tools they develop, transparent about the data sets used to train the models, and clearly state "what journalists do with the data they transfer to artificial intelligence" to avoid ethical violations (Gutiérrez-Caneda et al., 2024). Cools and Koliska (2024) addressed 16 specific cases of AI used in media centers in their research. Additionally, the possibility of exacer-

bating existing biases, threats to the confidentiality of personal data, and the risks associated with manipulating information in various sophisticated ways have become some of the most frequently discussed issues among academics, media professionals, and policymakers (Broussard et al., 2019). More importantly, the need for individuals in newsrooms is decreasing with AI technologies (Kim & Seongcheol, 2018), and the possibility of journalists losing their jobs will significantly increase shortly. Therefore, AI use in journalism may be perceived as a threat to their work among journalists (Hislop et al., 2017). However, this situation concerns only those who write regular news. AI has joined the stakeholders in journalism ethics as a novel player. For that reason, news businesses need to establish new regulations to prevent future problems. Algorithms have become controversial, and what consequences they may have, especially in terms of democracy, are among the questions that still need to be answered. Using AI to create content based on target audiences could further fragment public opinion. The use of AI by news organizations requires a qualified workforce and a budget allocated to it. It raises concerns that the inequality between large and small news organizations will widen further (Zengin & Kapır, 2020).

Methodology

Data collection methods

This study aims to reveal the attitudes of Türkiye's five most frequently visited online news sites (i.e., Hürriyet, Milliyet, Sabah, Mynet, Sözcü) regarding AI. For that purpose, the study adopted content analysis, including qualitative or quantitative research techniques frequently used in social sciences. In quantitative content analysis, textual data are provided as frequency expressed as percentages or real numbers of primary categories. (Bengtsson, 2016). In qualitative content analysis, data are presented in words and themes, enabling the interpretation of the results. In this context, research methods are shaped by how deeply researchers try to represent their statements on the topic (Kalatpour & Farhadi, 2017; Moldavska & Welo, 2017). Content analysis is a repeatable, valid, and systematic method (Krippendorf, 1980; Berelson, 1952) that allows flexibility in the process of improving predefined coding schemes about topics (White & Marsh, 2006; Krippendorff, 2018), defining cognitive schemes, extracting in-depth predictions from the literature (Prashar and Sunder M, 2020), understanding the depth of different research areas and topics (Haggarty, 1996), determining the objective characteristics of messages to a certain extent (Neuendorf, 2002).

Population and sample

The research population comprised the top five online news sites in Türkiye frequently visited by internet users (i.e., Hürriyet, Milliyet, Sabah, Mynet, Sözcü). The research sample, on the other hand, consists of news posts about AI (f = 520)

accessed on X (Twitter), one of the social media environments of the top five news sites, using purposive sampling, one of the non-probability sampling methods.

Five online news websites in Türkiye were selected as the research population, both because they are the most frequently visited online news websites in Türkiye and because they have more followers on their Twitter accounts compared to other news media outlets. The reason for selecting 520 AI news shared on X (Twitter) by the five internet news sites as the research sample is that, due to the data policies of X (Twitter) belonging to the specified official news sites between January 5 and 6, 2024, news containing a maximum of 520 artificial intelligence titles, hashtags, texts, and images could be accessed. The distribution of 520 AI news items reached for the research by newspapers is as follows: Hürriyet (f=93), Milliyet (f=84), Mynet (f=42), Sözcü (f=254), and Sabah (f=47). The examined AI news pieces were chosen from X (Twitter) because it provides such values as volume, speed, and diversity in providing data regarding AI news (McAfee & Brynjolfsson, 2012) and is an online environment granting access to a broad follower base with open, horizontal networks (Park & Kaye, 2017).

AI news items from five Turkish internet news sites on X (Twitter) were selected as the research sample because they had the highest frequency of visits in Türkiye and more followers on their X (Twitter) accounts than other media outlets. The top five online news websites most frequently visited by Turkish internet users are “Hürriyet, Milliyet, Sabah, Mynet, Sözcü” and the top five Turkish online news websites with the most followers on X (Twitter) are identified through “SimilarWeb” and “Comscore” respectively.

Data collection and analysis

Data were collected by typing “artificial intelligence” (from: “hurriyet,” “milliyet,” “sabah,” “mynet,” and “sozcu”) in X’s (Twitter) search bar to determine the AI news on five internet news sites. The search was conducted between January 5 and 6, 2024, and all news items were examined individually and included in the research (except columns) to the extent provided by X (Twitter).

The study employed MAXQDA 2024, a qualitative data analysis program. This software allows researchers to manage AI news through a single program, providing insights and meanings to be obtained and interpreted based on defining efficient basic codes and sub-codes for news visuals, entries, and bodies (Brailas et al., 2023). The study utilized content analysis according to Graneheim and Lundman’s (2004) approach comprising six steps:

1. The AI news obtained between the dates specified in the research was manually transferred one by one to the MAXQDA 2024 program, read, and re-read to reveal the initial ideas. 2. Each news item was read in detail and coded to create the original codes. In this step, a hybrid coding approach using deductive and inductive coding was utilized to code the data transferred to the program and develop the coding system. 3. In the preliminary stage, codes were determined for each research question, both in support of the research questions and in light of

existing research, considering the research data. 4. Based on the determined codes, reductions or increases were made by associating them with each other, the extracted codes, and the entire dataset. 5. Codes and subcodes were created based on the similarities and differences of the codes and subcodes. 6. The data obtained from coding the research report was presented objectively under the title of findings and interpretation, without including the researcher's comments or thoughts.

One of the content analysis techniques, frequency analysis, was used to analyze the data, which was examined according to repetition and frequency or number and percentage rates. In addition, after the coding process of all AI news was completed, both the news and the codes were reviewed, and necessary corrections were made in cases where missing or incorrect situations were identified. The "n=520" AI news obtained from the research was coded a total of "n=11345" times using the MAXQDA 2024 program.

Figures 1 and 2 show the codes and subcodes for the study:

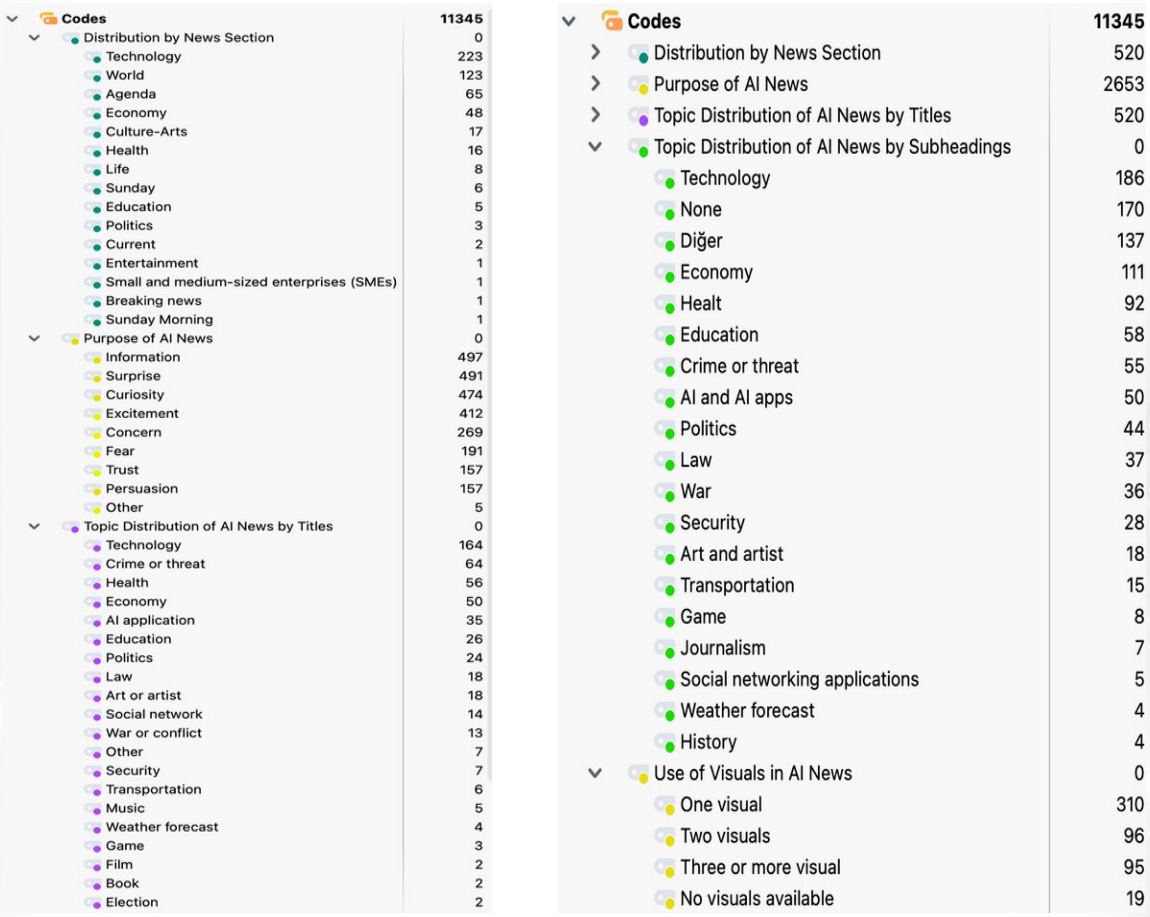
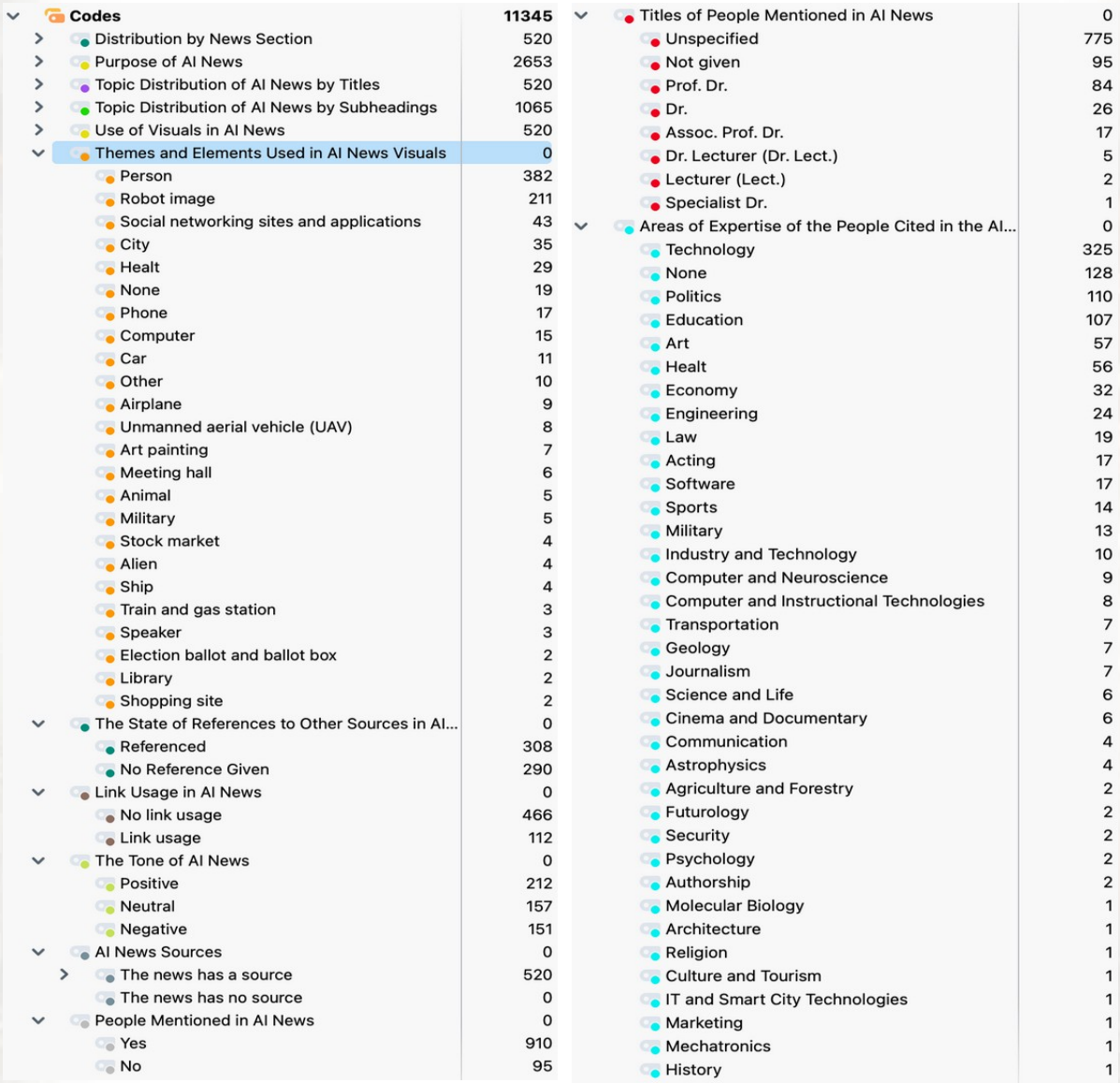


Figure 1. Codes and Subcodes Created for AI News



Codes	11345
Distribution by News Section	520
Purpose of AI News	2653
Topic Distribution of AI News by Titles	520
Topic Distribution of AI News by Subheadings	1065
Use of Visuals in AI News	520
Themes and Elements Used in AI News Visuals	0
Person	382
Robot image	211
Social networking sites and applications	43
City	35
Healt	29
None	19
Phone	17
Computer	15
Car	11
Other	10
Airplane	9
Unmanned aerial vehicle (UAV)	8
Art painting	7
Meeting hall	6
Animal	5
Military	5
Stock market	4
Alien	4
Ship	4
Train and gas station	3
Speaker	3
Election ballot and ballot box	2
Library	2
Shopping site	2
The State of References to Other Sources in AI...	0
Referenced	308
No Reference Given	290
Link Usage in AI News	0
No link usage	466
Link usage	112
The Tone of AI News	0
Positive	212
Neutral	157
Negative	151
AI News Sources	0
The news has a source	520
The news has no source	0
People Mentioned in AI News	0
Yes	910
No	95

Titles of People Mentioned in AI News	0
Unspecified	775
Not given	95
Prof. Dr.	84
Dr.	26
Assoc. Prof. Dr.	17
Dr. Lecturer (Dr. Lect.)	5
Lecturer (Lect.)	2
Specialist Dr.	1
Areas of Expertise of the People Cited in the AI...	0
Technology	325
None	128
Politics	110
Education	107
Art	57
Healt	56
Economy	32
Engineering	24
Law	19
Acting	17
Software	17
Sports	14
Military	13
Industry and Technology	10
Computer and Neuroscience	9
Computer and Instructional Technologies	8
Transportation	7
Geology	7
Journalism	7
Science and Life	6
Cinema and Documentary	6
Communication	4
Astrophysics	4
Agriculture and Forestry	2
Futurology	2
Security	2
Psychology	2
Authorship	2
Molecular Biology	1
Architecture	1
Religion	1
Culture and Tourism	1
IT and Smart City Technologies	1
Marketing	1
Mechatronics	1
History	1

Figure 2. Codes and Subcodes Created for AI News (Continued)

Trustworthiness

The criteria of Lincoln and Guba (1985) and Graneheim and Lundman (2004) were followed to increase the reliability of the data obtained from the research. Data reliability was ensured by the researcher's continuous interest in the research topic at the time of the study and, in general, spending sufficient time collecting data and digitally recording it in the MAXQDA program. In addition, both the data and the codes and subcodes obtained from the data were reviewed and checked by two participants who are experts in the field related to the research topic. Similar findings were obtained, ensuring confirmability. Another coder calculated the agreement between the coders to test the reliability and validity of the study's categories and subcategories using Miles and Huberman's (2015) formula:

Percentage of Consensus = Agreement / (Agreement + Disagreement)*100. During the calculation process, another coder coded one hundred AI news items, 10 from each internet news site (Hürriyet, Milliyet, Sabah, Mynet, Sözcü), out of 520 AI news items. The calculation resulted in the reliability coefficient for consistency between coders being "94.57" Accordingly, the agreement between the coders led to a consensus on the final version of the categories and subcategories.

Findings

The study aimed to reveal the attitudes of Türkiye's five most frequently visited internet news sites (Hürriyet, Milliyet, Sabah, Mynet, and Sözcü) toward AI. In this regard, the researcher accessed AI news shared by the internet news sites Hürriyet, Milliyet, Sabah, Mynet, and Sözcü via the X (Twitter) account. X's (Twitter) data policies granted access to only 520 AI news items. According to internet news sites, the distribution of AI news accessed was: Hürriyet (f=93), Milliyet (f=84), Mynet (f=42), Sözcü (f=254), and Sabah (n=47). This part of the research includes the findings of 520 AI news items from internet news sites (Hürriyet, Milliyet, Sabah, Mynet, and Sözcü).

Table 1. Distribution of AI News by Website News Section

Distribution by News Section	Frequency (f)	Percentage (%)
Technology	223	42,88
World	123	23,65
Agenda	65	12,50
Economy	48	9,23
Culture-Arts	17	3,27
Health	16	3,08
Life	8	1,54
Sunday	6	1,15
Education	5	0,96
Politics	3	0,58
Current	2	0,38
Sunday Morning	1	0,19
Breaking news	1	0,19
Entertainment	1	0,19
Small and medium-sized enterprises (SMEs)	1	0,19
Total=	**520**	**100**

Table 1 illustrates the distribution of n=520 AI news items accessed on X (Twitter) according to the news section on the site. Accordingly, it was found that news items about technology were the highest (f=223, 42.88%) among the overall AI news pieces (n=520). The other topics were distributed as follows: f=123 (23,65%) "world," f=65 (12,50%) "agenda," f=48 (9,23%) "economy," f=17 (3,27%) "culture-arts," f=16 (3,08%) "health," f=8 (1,54%) "life," f=6 (1,15%) "Sunday," f=5 (0,96%) "education," f=3 (0,58%) "politics," f=2 (0,38%) "current," with four news items having the same frequency (i.e., f=1 (0,19%) "Sunday Morning", f=1 (0,19%) "breaking news", f=1 (0,19%) "entertainment," and f=1 (0,19%) "SMEs."

The situations related to the technology in the AI news are generally economic in nature. Emphasis on the efficiency provided by its applications in various fields, the opportunities it creates for consumers, the proper and healthy execution of resources and processes with these applications, supporting the increase of human capacity, and providing various opportunities have come on the agenda in the news related to the economy. On the other hand, some news stories about artificial intelligence have contributed to the portrayal of ethical violations in the context of technology in the minds of readers. For example, it was found that some ethical violations, such as artificial intelligence technology imitating someone else's voice, doing homework on education with artificial intelligence, prejudice, harassment, and theft, were explicitly conveyed to readers/viewers in the news. The design of such ethical violations in AI news can create a certain perception in the minds of viewers/readers and a potential incentive for this negative situation.

Table 2. Purpose of AI News
*** The news items in the relevant category were coded multiple times.**

Purpose of AI News	Frequency (f)	Percentage (%)
Information	497	18,73
Surprise	491	18,51
Curiosity	474	17,87
Excitement	412	15,53
Concern	269	10,14
Fear	191	7,20
Trust	157	5,92
Persuasion	157	5,92
Other	5	0,19
Total=	**2653**	**100**

The majority of AI news items examined within the scope of the study aimed to deliver information (f=497, 18.73%). Other purposes were as follows: (18,51%) "surprise," f=474 (17,87%) "curiosity," f=412 (15,53%) "excitement," f=269 (10,14%)

"concern," f=191 (7,20%) "fear," f=157 (5,92%) "trust," f=157 (5,92%) "persuasion," and f=5 (0,19%) "other."

It has been observed that the news posts about artificial intelligence on X (Twitter), one of the social media environments of the top five most visited Turkish news sites, which are considered within the scope of the research, have a largely informative, surprising, intriguing, and exciting purpose.

The research findings show that it has the most informative purpose because AI technologies have started to take place in almost all areas today. Therefore, in addition to raising individuals' and societies' awareness of AI technologies, their potential benefits and risks should be communicated. In this regard, it is essential to inform the public by prioritizing the informative purpose of news sites and ensuring that a complex technology such as AI is understood well.

AI news generally included emotions about uncertainty and surprise. These pieces emphasized the potential future effects of AI technologies and innovations that exceeded the limits of today's known technology. For example, AI technology imitates the human voice, provides easy access to human information, and uses AI technologies in art and music. Therefore, the rapid development of AI technology and the uncertainty about the unexpected consequences of this development enabled making such surprising news.

The degree of curiosity in AI news was also high to attract the reader's attention and encourage them to be informed. The focus of intriguing news was generally the potential, problems, and uncertainties of AI technologies for the future. The news items such as "*Artificial intelligence will change a life like this*," "*Artificial intelligence has read the human mind*," "Is *artificial intelligence an art thief*," "*Experts warned about artificial intelligence: Fraud may increase*," "*Artificial intelligence steals passwords from keystrokes*" encouraged individuals to think intriguingly, triggering the desire to learn more about AI technology.

AI news with the aim of excitement is built on the innovations and effects of technology on our lives. In this news, information about the potential of technology was conveyed to individuals by arousing great interest in the audience, mostly based on the expectation of a positive emotion. To give an example from the news headlines; "*Possibility of early diagnosis with "artificial intelligence" against coronavirus*", "*Artificial intelligence will marry!*", "*Giant step in tumor detection with artificial intelligence*", "*Heart diseases and lung cancer will be diagnosed with artificial intelligence in the UK*", "*Artificial intelligence era in identification*", "*Artificial intelligence can detect cancer* ", social transformations in the lives of individuals and developments that push the limits of technology with AI news that emphasize such a sense of excitement have been fictionalized as news texts and conveyed to individuals.

In AI news with the aim of anxiety and fear, technologies that pave the way for the formation of social, economic, and social problems are generally mentioned. Such news may hurt the audience and create a situation of anxiety and uncertainty towards AI technologies. To give examples from the news headlines; "*Artificial*

intelligence encouraged my wife to commit suicide", "*Artificial intelligence will eliminate 4.5 million jobs*", "*Concerns turned into reality! Artificial intelligence made dozens of employees lose their jobs...*" "*Difficult but necessary*", "*Artificial intelligence robot hospitalized 24 employees*", and "*Caution, artificial intelligence can steal your password*", in such alarming and frightening news about AI technologies, it is pointed out that AI technology has positive aspects as well as negative aspects that need to be taken care of. In particular, by conveying the risks posed or to be posed by these technologies to individuals, a sense of anxiety and fear was aroused in the audience and attention was drawn to the need to be careful.

Table 3. Topic Distribution of AI News by Titles

Topic Distribution of AI News by Titles	Frequency (f)	Percentage (%)
Technology	164	31,54
Crime or threat	64	12,31
Health	56	10,77
Economy	50	9,62
AI application	35	6,73
Education	26	5,00
Politics	24	4,62
Law	18	3,46
Art or artist	18	3,46
Social network	14	2,69
War or conflict	13	2,50
Other	7	1,35
Security	7	1,35
Transportation	6	1,15
Music	5	0,96
Weather forecast	4	0,77
Game	3	0,58
Election	2	0,38
Book	2	0,38
Film	2	0,38
Total=	**520**	**100**

The news on trust and persuasive AI is designed for individuals to internalize and accept the changes and transformations towards AI technologies and to increase their trust and belief in these technologies. It was observed that this sense of trust was constructed both positively and negatively in the news. Examples

of such news include "*Microsoft launches artificial intelligence chip*", "*Artificial intelligence will know what you read*", "*WordPress also joined the artificial intelligence trend*", "*Regulation for artificial intelligence from the European Union*", "*Amazon is getting involved in the productive artificial intelligence race.*" While such news instills confidence in individuals to use this technology with the benefits of AI, it can also accelerate the social acceptance of technology by shaping the perception of societies for this technology positively or negatively.

The topic distribution of AI news by titles revealed that most news items were about "technology" (f=164, 31.54%). Other topics were: f=64 (12,31%) "crime or threat," f=56 (10,77%) "heath," f=50 (9,62%) "economy," f=35 (6,73%) "AI application," f=26 (5,00%) "education," f=24 (4,62%) "politics," f=18 (3,46%) "law," f=18 (3,46%) "art or artist," f=14 (2,69%) "social network," f=13 (2,50%) "war or conflict," f=7 (1,35%) "other," f=7 (1,35%) "security," f=6 (1,15%) "transportation," f=5 (0,96%) "music," f=4 (0,77%) "weather forecast," and f=3 (0,58%) "game." It was also found that "election," "book," and "film" had the same frequency (f=6, 0.38%) among the overall AI news pieces (n=520).

Table 4. Topic Distribution of AI News by Subheadings
*** The news items in the relevant category were coded multiple times**

Topic Distribution of AI News by Subheadings	Frequency (f)	Percentage (%)
Technology	186	17,46
None	170	15,96
Other	137	12,86
Economy	111	10,42
Health	92	8,64
Education	58	5,45
Crime or threat	55	5,16
AI and AI apps	50	4,69
Politics	44	4,13
Law	37	3,47
War	36	3,38
Security	28	2,63
Art and artist	18	1,69
Transportation	15	1,41
Game	8	0,75
Journalism	7	0,66
Social networking applications	5	0,47
Weather forecast	4	0,38
History	4	0,38
Total=	**1065**	**100,00**

Within the study's scope, 1065 codes were made, either none or one or more codes, according to the headings of AI news (n=520) on X (Twitter). In this context, most subheadings were used in the news about "technology" in f=186 (17.46%) of the total news items (n=520). The other subheadings were distributed as follows: f=170 "none,", f=137 "other," f=111, "economy," f=92, "health," f=58, "education," f=55, "war or crime," f=50, "AI and AI applications," f=44, "politics," f=37, "law," f=36, "war," f=28, "security," f=18, "art and artist," f=15, "transportation," f=8, "game," f=7, "journalism", f=5, "social networking applications," with two headings ("weather forecast" and "history") having the same frequency (f=8, 0,38%).

Table 5. Use of Visuals in AI News

Use of Visuals in AI News	Frequency (f)	Percentage (%)
One visual	310	59,62
Two visuals	96	18,46
Three or more visuals	95	18,27
No visuals available	19	3,65
Total=	**520**	**100**

The news items were also examined regarding the use of visuals (no visual, one, two, and three or more). Findings indicated the use of "one visual" (f=310, 59,62%) the most, followed respectively by f=96 (18,46%) "two visuals," f=95 (18,27%) "three or more visuals," and f=19 (18,27%) "no visuals." One interesting finding was the proximity of "two visuals" and "three or more visuals" frequencies. However, as the percentages illustrate, this is not true for the "one visual" and "no visuals." On the other hand, significant percentage differences exist between "one visual" and "no visuals."

Using visuals in the news is crucial in attracting the readers' attention and summarizing the topic at first glance. The fact that two, three, or more visuals are behind the use of a single visual in the artificial intelligence news covered in the research also supports the fact that journalists do not focus on complex issues related to artificial intelligence technologies because it was seen that short and straightforward artificial intelligence news obtained from the research was supported with a single visual. In contrast, complex issues that were difficult to understand were conveyed to the readers by helping them with two, three, or more visuals. However, it was also established that AI news was limited to visuals such as AI-created photographs or images. At this point, using visuals in various formats, such as infographics, graphs, animations, or detailed network maps, in the AI news journalists convey to their readers is crucial to providing more effective and comprehensive information about AI news and making it more concrete and understandable. Therefore, the visuals used in AI news should not be limited to photographs only. Visual techniques and tools in different formats should be used

to provide the reader with in-depth information on the subject and accelerate access to information.

Table 6. Themes and Elements Used in AI News Visuals
*** The news items in the relevant category were coded multiple times**

Themes and Elements Used in AI News Visuals	Frequency (f)	Percentage (%)
Person	382	45,69
Robot image	211	25,24
Social networking sites and applications	43	5,14
City	35	4,19
Health	29	3,47
None	19	2,27
Phone	17	2,03
Computer	15	1,79
Car	11	1,32
Other	10	1,20
Airplane	9	1,08
Unmanned aerial vehicle (UAV)	8	0,96
Art painting	7	0,84
Meeting hall	6	0,72
Military	5	0,60
Animal	5	0,60
Ship	4	0,48
Stock market	4	0,48
Alien	4	0,48
Train and gas station	3	0,36
Speaker	3	0,36
Shopping site	2	0,24
Election ballot and ballot box	2	0,24
Library	2	0,24
Total=	**836**	**100**

X (Twitter) news items were also analyzed regarding the themes and elements in visuals. According to the analysis, the use of visuals ranged from “none” to “one,” “two,” and “three or more.” Therefore, news items with one visual were coded once, while those with “two” and three or more” were coded multiple times. Accordingly, 836 codes (including visuals or not) were created in the overall news items (n=520).

The top three themes and elements available in the analyzed news items were f=382 (45,69%) "person," f=211 (25,24%) "robot image," and f=43 (5,14%) "social networking applications." Other themes and elements included in the news were: f=35 (4.19%) "City," f=29 (3.47%) "Health," f=19 (2.27%) "None," f=17 (2.03%) "Phone," f=15 (1.79%) "Computer," f=11 (1.32%) "Car," f=10 (1.20%) "Other," f=9 (1.08%) "Aircraft" and f=8 (0.96%) "UAV," f=7 (0.84%) "Art painting," and f=6 (% 0.72) "Meeting Hall." Additionally, several news items had the same frequency. For instance, f=10 (0,60%) items were about "military and animal," f=12 (0,48%) were about "ship," "stock exchange," and "alien," and f=6 (0,36%) news pieces were related to "train and gas station." Moreover, f=6 (0,24%) news items were about "shopping site," "election ballot and the ballot box," and "library."

Table 7. The State of References to Other Sources in AI News
*** The news items in the relevant category were coded multiple times.**

The State of References to Other Sources in AI News	Frequency (f)	Percentage (%)
Referenced	308	51,51
No Reference Given	290	48,49
Total=	**598**	**100**

Referencing other sources was another analysis area in the overall AI news (n=540). Findings revealed multiple references to other sources in some news and none in others, creating 598 codes. Consequently, f=308 (51,51%) AI news pieces referenced other sources, while f=290 (48,49%) gave no references.

Citing other sources in AI news is essential to evaluating its information-based presentation format and reliability. Combining information from different sources in AI news using any reference indicates that the news provides in-depth content. Besides, almost half of the news reported without references may highlight a one-sided use of information based on the effort to create original content in the news production processes. Therefore, when producing news on AI-related issues, which have become a topic of debate in many areas today, using accurate and reliable references and clearly stating the references' significance will establish more transparent and reliable communication with other journalists and readers. The research findings, using more than one reference in a news article, show that journalists' news about AI is fed from different sources and presents its reliability from a broad perspective. Therefore, journalists generally feel the need to structure their news by referencing more sources of information when producing news on complex and technical topics such as AI.

Table 8. Link Usage in AI News
*** The news items in the relevant category were coded multiple times.**

Link Usage in AI News	Frequency (f)	Percentage (%)
No link usage	466	80,62
Link usage	112	19,38
Total=	**578**	**100**

Table 8 shows the link usage state in the analyzed AI news items. While more than one link was used in some news, no link usage was found in others. Therefore, 578 codes were obtained from multiple codes in some analyzed news items. Of the 540 news items about AI, f=112 (19,38%) included links, while f=466 (80,62%) did not. Ninety-one news items (out of 93) in Hürriyet did not include links, while Sözcü contained links in 47 of its overall news items (n=249). In addition, forty-two news items in Sabah did not include links, similar to Milliyet's (n=84) and Mynet's (n=42) news pieces. One striking finding about these two news sites was that neither used links in their AI news items.

Links are a website's technological capability to connect to another website or resource within a particular website and domain. They enable individuals or groups in different parts of the world to communicate instantly, quickly, and directly on the Internet, thus improving their social or communication interactions. In this bridge system, individuals can gather around a common background, interest, or project, share information and collaborate, and maintain these relationships through various connections (Park, 2023). According to many scholars, news with links has noticeable features, such as improving news foundation by creating more interaction, credibility, transparency, and diversity (De Maeyer, 2003). In this context, there is a large amount of link usage in the analyzed AI news items. Therefore, the features listed above, such as interaction, diversity, and evidence, are inadequate for AI news. This is especially the case for topics that require technical and detailed explanations, where the use of links is quite limited. This reduces the potential for readers to take actions that expand the boundaries of knowledge, such as verifying information on artificial intelligence from other sources and finding additional sources.

Table 9. AI News Sources

AI News Sources	Frequency (f)	Percentage (%)
Sözcü	180	34,62
Anadolu Ajansı (AA)	91	17,50
Hürriyet	71	13,65
Milliyet	56	10,77
Sabah	31	5,96
Demirören Haber Ajansı (DHA)	26	5,00
British Broadcasting Corporation (BBC)	23	4,42
Mynet	21	4,04
İhlas Haber Ajansı (İHA)	12	2,31
Nergis Tv (NTV)	2	0,38
Radikal	2	0,38
Reuters	2	0,38
Euronews	1	0,19
HaberTürk	1	0,19
Deutsche Welle	1	0,19
Total=	**520**	**100**

News sources were another focus area in the analyzed news outlets on X (Twitter). In this regard, the top three news outlets were f=180 (34,62%) "Sözcü," f=91 (17,50%) "Anadolu Ajansı (AA)," and f=71 (13,65%) "Hürriyet." Other news sources were as follows: f=56 (10,77%) "Milliyet", f=31 (5,96%) "Sabah", f=26 (5,00%) "Demirören Haber Ajansı (DHA)", f=23 (4,42%) "British Broadcasting Corporation (BBC)", f=21 (4,04%) "Mynet," and f=12 (2,31%) "İhlas Haber Ajansı (İHA)." On the other hand, the news outlets with the same frequency were "Nergis TV (NTV)," "Radikal," and "Reuters" (f=6, 0,38%) as well as "Euronews," "HaberTürk," and "Deutsche Welle" (f=3, 0,19%). Hence, 15 sources (11 national and four international news outlets) were used in 520 AI news items. On the other hand, the five news media (i.e., Hürriyet, Milliyet, Sabah, Mynet, and Sözcü) not only cited themselves as sources when reporting on AI but national news agencies (e.g., Anadolu Ajansı, Demiroören Haber Ajansı, and İhlas Haber Ajansı) and TV and internet news sites (e.g., NTV, Radikal, and HaberTürk) as well. In addition, "BBC," "Reuters", "Euronews" and "Deutsche Welle" were among the TV, newspaper, and news sites cited as international media outlets.

Table 10. People Mentioned in AI News
*** The news items in the relevant category were coded multiple times**

People Mentioned in AI News	Frequency (f)	Percentage (%)
Yes	910	90,55
No	95	9,45
Total=	**1005**	**100**

Table 10 illustrates the state of the people mentioned in AI news tackled within the study's scope. Examination results showed that some people were mentioned in some news pieces while they were not in others. With zero coding in some news items and multiple times in others, the total number of codes was 1005. People mentioned in the analyzed news items were f=910 (90,55%) and f=95 (9,45%) people were not. In addition, the people mentioned in the AI news by the five relevant news outlets were cited as sources to bolster or increase news accuracy and reliability. The views of people mentioned in the AI news indicated their rich knowledge and experience in AI.

Table 11. Titles of People Mentioned in AI News
*** The news items in the relevant category were coded multiple times**

Titles of People Mentioned in AI News	Frequency (f)	Percentage (%)
Unspecified	775	77,11
Not given	95	9,45
Prof. Dr.	84	8,36
Dr.	26	2,59
Assoc. Prof. Dr.	17	1,69
Dr. Lecturer (Dr. Lect.)	5	0,50
Lecturer (Lect.)	2	0,20
Specialist Dr.	1	0,10
Total=	**1005**	**100**

It was found that 1005 people were mentioned in 520 news pieces about AI. The titles of some people mentioned in the AI news were included in the news, while they were not in others. Thus, mentions of multiple people resulted in 1005 codes. The titles of the people mentioned in the analyzed news items (n=520) were mostly unspecified (f=775, 77,11%) and "Not given" (f=95, 9,45%). Other people cited in the news were f=84 (8,36%) "Prof. Dr.", f=26 (2,59%) "Dr.", f=17 (1,69%) "Assoc. Prof. Dr.", f=5 (0,50%) "Dr. Lect.", f=2 (0,20%) "Lect.," and f=1 (0,10%) "Specialist Dr."

Table 12. Areas of Expertise of the People Cited in the AI News

Area of Expertise	Technology	None	Politics	Education	Art	Health	Economy	Engineering	Law	Acting	Software	Sports
(f)	325	128	110	107	57	56	32	24	19	17	17	14
(%)	32,34	12,74	10,95	10,65	5,67	5,57	3,18	2,39	1,89	1,69	1,69	1,39

Area of Expertise	Military	Industry and Technology	Computer and Neuroscience	Computer and Instructional Technologies	Transportation	Geology	Journalism	Science and Life	Cinema and Documentary	Communication	Astrophysics	Psychology
(f)	13	10	9	8	7	7	7	6	6	4	4	2
(%)	1,29	1,00	0,90	0,80	0,70	0,70	0,70	0,60	0,60	0,40	0,40	0,20

Area of Expertise	Authorship	Futurology	Agriculture and Forestry	Security	Architecture	Religion	Culture and Tourism	IT and Smart City Technologies	Marketing	Mechatronics	History	Molecular Biology
(f)	2	2	2	2	1	1	1	1	1	1	1	1
(%)	0,20	0,20	0,20	0,20	0,10	0,10	0,10	0,10	0,10	0,10	0,10	0,10

The areas of expertise of the people cited in the AI news were examined in the study. The analysis demonstrated that the majority (f=325, 32,34%) had the most expertise in "technology," and the minor expertise (f=1, 0,10%) in such areas as "architecture," "religion," "culture and tourism," "IT and smart city technologies," "marketing," "mechatronics," "history," and "molecular biology." Other people cited in the news were experts in "politics," "education," "art," "health," "economy," "engineering," "law," "acting," "software," "sports," "military," "industry and technology," "computer and neuroscience," "computer and instructional technologies," "transportation," "geology," "journalism," "science and life," "cinema and documentary," "communication," "astrophysics," "psychology," authorship," "futurology," "agriculture and forestry," and "security."

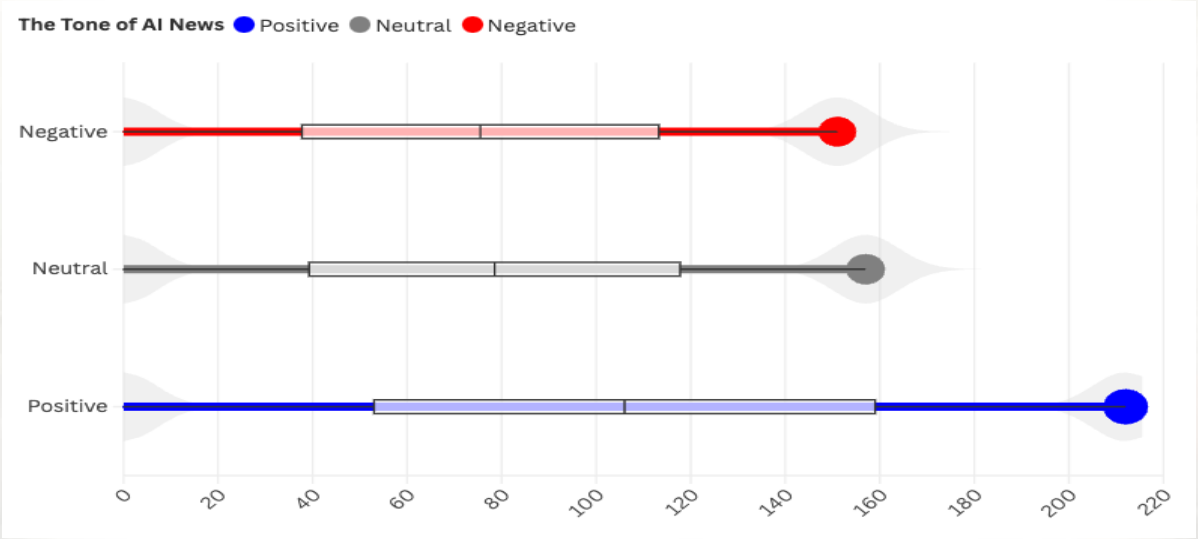


Figure 3. The Tone of AI News

The study also examined the tone (positive, negative, and neutral) of n=520 news about AI shared by five news outlets on X (Twitter). Analyses revealed that the tone of AI news mainly was "positive" in f=212 (40.77%), followed by f=157 (30.19%) "neutral," and f=151 (29.0%) "negative."

Code System	Hürriyet	Milliyet	Mynet	Sözcü	Sabah	Hürriyet	Milliyet	Mynet	Sözcü	Sabah
The Tone of AI News										
Positive	42	50	9	91	20	19,81%	23,58%	4,25%	42,92%	9,43%
Neutral	29	15	22	80	11	18,47%	9,55%	14,01%	50,96%	7,01%
Negative	22	19	11	83	16	14,57%	12,58%	7,28%	54,97%	10,60%

Figure 4. Tonal Distribution of AI News According to Newspapers

The tonal distribution of n=520 AI news items shared on X (Twitter) social media environment was analyzed according to news sites. The emotional distribution of AI news among news websites indicated the most positive (42.92%), negative

(54.97%), and neutral (50.96%) emotional states in Sözcü. Additionally, the top three websites with the most positive tones were Milliyet (50 news items, 23,58%), Sözcü (91 news items, 42,92%), and Hürriyet (42 news items, 19,81%). Contrarily, the websites with the most negative tones were Milliyet (19 news items, 12,58%), Sabah (16 news items, 10,60%), and Hürriyet (22 news items, 14,57%). In addition, Mynet was the newspaper with the least negative tone in the AI news by journalists (11 news, 7.28%). On the other hand, the news sites with the most neutral tone were Sözcü (80 news items, %50,96), Mynet (22 news items, %14,01), Hürriyet (29 news items, %18,47), and Sabah (11 news items, 7,01%).

Owing to X's (Twitter) data policies, only 520 news items about AI were accessed, distributed subsequentially as follows: Hürriyet (f=93), Milliyet (f=84), Mynet (f=42), Sözcü (f=254), and Sabah (f=47). Therefore, the emotional states of the AI news in Figures 1 and 2 may vary depending on the number of news items reached and the institution where the journalists work. Also, the emotional tones of the AI news stories written by journalists may be affected by the editorial policies of each institution, the emotional states of the journalists while creating AI news texts, or the expectations of the audience the newspaper targets in each social media environment.

In this regard, Van Dalen (212) drew attention to the differences in news organizations' negative emotional states, such as insecurity, anxiety, and fear, resulting from adopting AI technologies. On the other hand, the Sözcü news site stood out with its news on AI, producing almost half of the news accessed. While it is plausible to assert that the Sözcü internet news site's intensive approach conveys the social effects of artificial intelligence to its readers on a broader spectrum, the negative tone can be argued to indicate that the newspaper may approach artificial intelligence technology from a critical perspective or that this issue may create negative consequences with various social risks. It was established that Hürriyet and Milliyet presented AI news in a more balanced mood. While the Hürriyet internet news site preferred to present its news on AI in a more impartial and neutral framework, the Milliyet website similarly presented its AI news in a more positive tone. It offered its audience a positive vision of the future of AI technologies in a social sense. While the Mynet internet news site seemed to share AI news more limitedly than other internet news sites, Sabah also observed limited sharing. Based on the news shared by both online news sites on X (Twitter), we can argue that they preferred a limited approach to AI technologies.



Figure 5. Total Word Cloud in AI News Videos

Word clouds allow the most frequently used words in the analyzed data set to be identified for research. In addition to allowing the most frequently used words to be understood and interpreted in specific contexts, word clouds also enable researchers to visualize certain themes from the data set obtained as a result of the research (Williams et al., 2013). The research obtained a word cloud for 520 news articles related to artificial intelligence from five internet news sites in Turkey (Hürriyet, Milliyet, Sabah, Mynet, Sözcü) using the MAXQDA 2024 program, a qualitative data analysis program. Figure 3 illustrates that the total number of words used in the AI news shared by five internet news sites on the X (Twitter) social media platform are visualized in the word cloud in uppercase, lowercase, and color. The largest and darkest words in the word cloud represent the most frequently used words in AI news, while the smallest and lightest words represent the less frequently used words (Yaşa, 2022). Figure 4 below gives the first ten most frequently occurring words in the word cloud and their frequency values.

Word	Word length	Freque...	%	Rank	Documents	Documents %
yapay	5	3063	1,90	1	501	96,35
zeka	4	1961	1,22	2	396	76,15
yeni	4	591	0,37	3	275	52,88
büyük	5	440	0,27	4	228	43,85
teknoloji	9	345	0,21	5	183	35,19
Google	6	328	0,20	6	104	20,00
Türkiye	7	328	0,20	6	89	17,12
ChatGPT	7	321	0,20	8	96	18,46
insan	5	305	0,19	9	159	30,58
iyi	3	224	0,14	10	115	22,12

Figure 6. Top 10 Words in AI News and Their Frequency Frequencies

The words used in AI news by five internet news sites (Hürriyet, Milliyet, Sabah, Mynet, and Sözcü) that share artificial intelligence news on X (Twitter) were analyzed. The analysis showed usage of a total of n=197693 words in 520 AI news. Figure 3 shows the first ten most frequently used words and their frequency values in AI news of five internet news sites. The analysis of the first ten words included other suffixes, conjunctions, numbers, expressions, and word groups irrelevant to the research. However, the study did not include these because they took the research out of context. After excluding irrelevant suffixes, conjunctions, numbers, expressions, and word groups, the most frequently used word in AI news n=3063 times was artificial (1.90%), while the most commonly used word after the word artificial was intelligence (1.22%). The most frequently used words following these words were "new" f=591 (0.37%), "big" f=440 (0.27%), "technology" f=345 (0.21), "Google" and "Turkey" f=328 (0.20%), "ChatGPT" f=321 (0.20%), "human" f=305 (0.19%) and "good" f=224 (0.14%) respectively, which were among the first ten words.

Discussion and conclusion

This study examined the AI news shared by the top five most frequently visited online news sites (i.e., Hürriyet, Milliyet, Sabah, Mynet, Sözcü) on X (Twitter) under the following areas: (i) news section, (ii) the purpose of news production, (iii) topics of news titles and headings, (iv) use of visuals and themes, (v) reference to other sources, (vi) link usage, (vii) news tones, (viii) sources used in the news, and (ix) people mentioned in the news, (x) their titles, and (xi) areas of expertise. Therefore, the topic's outlines were drawn through a literature review on AI and journalism to provide a theoretical contribution to the field and prospective researchers. Thus, it is crucial to understand and interpret AI's position within the framework of OJ and determine news presentation styles to viewers/readers.

As results indicated, the most common section in 520 AI news items on five news sites on X (Twitter) was technology in the site's news sections, titles, and headings. The main reason behind this section's emergence is the opportunities or challenges created by AI, which have emerged with technological developments. It is also linked to societies' interest levels in AI and their interpretation efforts. It, therefore, becomes even more meaningful and essential given the necessity of the function and duty of traditional and online journalism to inform and create public opinion (Lewis & Zamith, 2017). Concerning this, the AI news was presented by journalists for informative purposes because, as mentioned before, one of journalism's primary functions and duties is to inform the public and create public opinion on a topic.

The examination of visual usage in Turkey AI news indicated the use of visuals in 501 of 520 news pieces, while no visuals were used in 19 news items. In this case, visual usage in AI news can provide viewers/readers with instant and in-depth visual information on a topic and the proper perspective to solve a complex situa-

tion (Gray et al., 2012). It was therefore determined that the visuals in AI news were presented to support news stories and increase credibility (Rigel, 2000) and in the context of emphasis on technology and contextualized technological representations through AI news (Lorenz, 2010). In addition, these visuals are necessary to create a structure that viewers/readers will understand, interpret, and benefit from these narratives (Burton, 1995). However, when combining visuals with news texts, care must be taken to avoid creating visual manipulation, since the advertising banners used on online newspaper sites, the combination of advertisements with broadcast and advertising content, and the frequent use of clickbait in news, bring up many ethical issues in the field of journalism (Özkan, 2018). Based on the news examined in this context, some news items contained no visuals, while others included one, two, three, or more visuals, with "people" mainly being used as visuals in the news.

Regarding the references to other sources in the news, it was established that reporters adopted a narrative format such as "[...] according to the news" and referred to one or more sources in the news for support and credibility increase. This is directly connected with link usage and the people mentioned in AI news because different links were provided, and people were cited in the analyzed news about AI to support, verify, and increase the reliability of views on a topic. Additionally, links were not used extensively in AI news. This situation prevents the creation of more interaction, reliability, transparency, and diversity in the news (De Maeyer, 2003). Therefore, journalists in Türkiye who create AI news limit their readers' ability to verify information about AI technologies from other sources and find additional resources. The low use of links in AI news may be strategic for journalists because, based on the findings, news without links is generally short-format and only includes basic information fictionalized with AI and its benefits. Therefore, since the reason behind such short-format news is usually based on fast consumption, the need for additional guidance by providing readers with related links may be ignored. Another reason is that journalists who attract users (readers) to their internet news sites through social media platforms under various subjects do not direct users to external sources by providing links to make them spend more time on the site.

AI news was presented mainly positively to internet users. Among the examples of the news with a positive tone were (i) providing more effective treatment methods by diagnosing diseases early in health, (ii) individuals making fewer mistakes through AI use, taking and improving crime prevention and security measures, (iii) providing personalized learning experiences to students, (iv) making quick decisions and developing their actions quickly, (v) energy saving, efficient production in entertainment and arts, (vi) forecasting and monitoring weather events, and (vii) creating transportation opportunities.

It was also found that news items with a negative or neutral tone had similar situations. The news with a negative tone can be exemplified as follows: (i) negative

specific automation provided by AI technologies for professional groups, (ii) unemployment creation, (iii) deterioration of economic balances, ethical and security-related problems in daily life, (iv) endangerment of global order, biased or unfair decisions of algorithms, (v) data security, (vi) violation of human rights (privacy), and (vii) potential risks and threats about environmental and sustainability issues.

The analyzed AI news articles (n=520) included 197,693 words. The number of words used is intensive compared to the rate of the news. Therefore, it is believed that the richness and diversity of the news on artificial intelligence technologies may be related to the increasing interest in Turkish society. In addition, it was determined that the most frequently used words in the research were 'artificial' and 'intelligence', while the following words were new, big, technology, Google, Turkey, ChatGPT, human, and good. It is normal that the words 'artificial' and 'intelligence' are the most used in relation to the subject of the research. However, the words that follow these are important in terms of obtaining information about which topics and words both journalists and news organizations in Turkey construct intelligence news. It can be argued that the words "new," "big," and "technology" represent the meaning given to discoveries and large-scale developments while transferring artificial intelligence technology to societies. Although the research was conducted on a Turkish scale, global and local transfers were in the examined AI news too. The fact that the contexts of "Google" and "Turkey" were among the top 10 most frequently used word groups explicitly showed that AI news was constructed on both global and local scales. Besides, the fact that the word "human" was among the most frequently used words was an intense discussion on the effects of AI technology on both social and individual levels. As determined in the research findings, this situation shows that the headlines and subheadings of AI news support the technology category determined. In addition, another most frequently used word, "ChatGPT" is among the essential elements that have a place in society at the individual level under AI technologies and shape individuals' perceptions of AI technologies.

Considering that the publication outlet that accessed the most AI news regarding the sources used in the news was "Sözcü," the news publication outlet cited as a source was also "Sözcü." While internet news sites generally cite themselves (Hürriyet, Milliyet, Sabah, Mynet, Sözcü) as sources, one news site also cited news publication outlets other than itself. The news publication outlets they cited as sources were "Anadolu Agency (AA)," "Demirören News Agency (DHA)," "İhlas News Agency (İHA)," "Nergis Tv (NTV)," "Radikal," "HaberTürk," "British Broadcasting Corporation (BBC)," "Reuters," "Euronews" and "Deutsche Welle." Additionally, news analysis revealed the extensive use of people and their experiences with AI to verify the news and increase its reliability. While the titles of these people were encountered in some news, they were not in others. People's names are not extensively mentioned in the news. In addition, the news sites benefited mainly from profes-

sors' experiences with AI. It was also found that the people whose experiences were benefited from were mostly technology experts.

As with every research, this research was conducted within certain limitations. One of the most critical limitations was the coverage of AI news shared by five online news sites on X (Twitter), one of the social media environments. Therefore, the study's scope comprised only AI news on X (Twitter) and excluded those shared by online news sites in other social media environments. Another limitation was the use of quantitative and qualitative content analysis methods. In this context, prospective researchers might be offered suggestions on the topic. For example, journalists who write about AI on online news sites can be contacted and interviewed to obtain more in-depth information about AI. In addition, other AI news presentation styles shared in different social media environments can be explored using the content analysis method since the research only covered news shared on X (Twitter) by internet news sites. Furthermore, interactions (e.g., likes, comments, and retweets) between users in these environments might be examined by selecting only one of the social media environments where internet news sites share AI news or by using the ethnography method to compare between social media environments. Critical readings on AI news shared on social media platforms and online news sites can also be performed at certain levels using the critical discourse analysis method.

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