Another "Marginal Breakthrough": Based on the Necessary Theoretical Perspective of Intelligent Media —A Discussion on Post-Prints with Fellow Scholars

Authors: Cheng Dong

Date: 2023-10-08T00:00:00+00:00

Abstract

The introduction of artificial intelligence technology has transformed the traditional modalities of the journalism and communication industry, prompting the academic community to coin numerous new terminologies. Yet, do these terms possess paradigmatic significance for the disciplinary boundaries of journalism and communication studies? This paper addresses this question by employing theories and principles from lexicology and logic to conduct a pragmatic analysis of terms such as "medium," "media," "intelligent media," and "intelligent medium" as they appear in social discourse and academic speech activities. The investigation reveals that in the context of new information carriers following the internet' s emergence, the conceptual distinctions between "media" and "medium" have converged toward identity. Between these two terms, popular preference favors "media." Consequently, following the objective laws of lexical formation, the author selects "intelligent media" as the conceptual term for the disciplinary category of journalism and communication studies. Furthermore, through examination of intelligent media' s attributes as an objective entity, its conceptual meaning is synthesized as follows: intelligent media constitutes a systematized carrier that processes and disseminates information in an anthropomorphic manner through technologies such as artificial intelligence, big data, and the Internet of Things.

Full Text

Preamble

Another "Edge Breakthrough": A Theoretical Perspective Based on the Necessity of Intelligent Media—Also a Discussion with Academic Colleagues

Abstract: The introduction of artificial intelligence technology has transformed the traditional landscape of journalism and communication industries, prompting scholars to coin numerous new terms. However, do these terms hold constructive significance for the disciplinary framework of journalism and communication studies? This paper employs theories and principles from lexicology and logic to conduct a pragmatic examination of terms such as "medium/media," "media," "intelligent media," and "intelligent medium" through analysis of both social discourse and academic speech. The study reveals that in the context of new information carriers following the emergence of the internet, the two terms "media" and "medium" have converged toward conceptual identity. Between these two terms, people show a clear preference for "media." Therefore, following the objective laws of lexical formation, the author selects "intelligent media" as the conceptual term for the disciplinary framework of journalism and communication studies. Through research into the attributes of this objective entity, the paper summarizes its conceptual meaning: *Intelligent media is a systematic carrier that processes and disseminates information in a human-like manner through technologies such as artificial intelligence, big data, and the Internet of Things.*

Keywords: intelligent media; intelligent medium; medium; media; concept; category

Classification Code: G206
Document Code: A

Author: Cheng Dong

Some scholars regard "edge breakthrough" as one of the explanatory paths for the driving force behind media industry reforms since the 21st century. This "edge" refers to the adoption of "unconventional means" in "areas relatively distant from the core principle of 'the Party' s journalism' and relatively light in ideological color, such as the business domain" [1]. What is gratifying is that academia has also created many new terms in response. However, what is unsatisfactory is that, faced with the same entity transformed by intelligent technology, some renowned scholars have used different terms in their papers. For instance, Yu Guoming uses "intelligent medium"; Guo Quanzhong, Peng Lan, Li Peng, and others use "intelligent media" ; while other scholars employ terms like "intelligent media," "intelligentized media," "intelligent media," "intelligent medium," "intelligentized medium," and so forth. Are "medium" and "media" two terms expressing the same concept or different concepts? Are these terms scientific concepts? Do they have constructive significance for the disciplinary conceptual framework? Which among them qualifies to enter the conceptual framework of journalism and communication studies? These remain questions requiring research and consideration.

This paper intends to explore another kind of "edge breakthrough," not targeting the practice of journalism and communication industry reform itself, but rather the level of academic theoretical research in journalism and communication stud-

ies. An important pathway for the formation of any disciplinary theory is to summarize objective laws from practice in the field, sublimate practical achievements into concepts, categories, and propositions, analyze the changing patterns and activity mechanisms of entities in the field from an ontological perspective, and systematize and theorize them. As the cornerstone, concepts must reflect the essential attributes of their objects and discipline to enter the disciplinary theoretical system. From the perspective of lexical laws and logical principles, this requires not only the conventionalization through pragmatic practice by the academic community but also that the concept itself can reflect the essential attributes of the object and discipline. Therefore, the creation of a new term and its promotion to a disciplinary conceptual category is the result of refining, screening, and logically elevating countless pragmatic phenomena from academic research and discourse.

Journalism and communication studies must have its own conceptual framework, as categories demarcate the relatively stable research scope and boundaries of the disciplinary theoretical system. Terms like "medium," "information," "communication," "media," and "audience" are core concepts in this disciplinary framework. However, since the 21st century, rapidly developing digital technologies have created tremendous transformative tension in the journalism and communication industries. Particularly in recent years, with the addition of intelligent technology, every link in news and information communication activities has broken through previous inherent boundaries, presenting a new situation. This change not only scrutinizes the rationality of existing conceptual categories but also calls for the creation of new terms and breakthroughs in conceptual frameworks.

1. Medium and Media: One Concept or Two?

As mentioned above, the concepts expressed by the terms "medium" and "media" have long been considered core categories in journalism and communication studies. However, research into scholars' pragmatic practices reveals that their usage is extremely chaotic, thereby affecting the clarity and determination of the basic categories of this disciplinary theory.

1.1 Historical Confusion in the Pragmatic Use of "Medium" and "Media"

The pragmatic confusion between "medium" and "media" can be categorized into several situations. First, many books and articles directly state that there is no difference between the two, thus using them interchangeably, or acknowledge that the two terms express one concept. For example: "Both terms originate from the English word 'media/medium' and have no essential conceptual difference, only minor differences in usage habits···In this book, the concepts of 'medium' and 'media' as well as 'new medium' and 'new media' are equivalent and not distinguished" [2].

Second, the two terms are used interchangeably, and through analytical inference, they express the same concept. For example: "According to different communication media, people refer to traditional print media, broadcast media represented by radio, and television based on image transmission as the first, second, and third media, respectively. Correspondingly, the internet, as a new medium emerging and developing afterward, is called the 'fourth medium' " [3].

Third, the two terms express different concepts. For instance, Yu Guoming states that "all intelligent devices belong to communication media" [4], while Liu Hailong says that "the fuse of China' s media reform began with national financial difficulties, with management departments adopting enterprise-style operations to extricate themselves from the economic predicament after the Cultural Revolution." Evidently, the former uses "medium" to refer to objects and carriers, while the latter uses "media" to refer to communication institutions.

Fourth, the conceptual reference of the two terms is unclear. For example, Peng Lan states that "past media were human-dominated media, while in the future, machines and various intelligent objects may become mediatized···" [5]. Here, she says future media are intelligent objects, but what does "past media were human-dominated media" refer to—people, communication organizations composed of people, or objects? Similarly, Shi Wen and others argue that "how intelligent medium technology penetrates traditional media and new media platforms to reshape industry concepts and operational guidelines, and how human journalists and editors adapt to and resist intelligent technology, have become the focus of academic research in the past year" [6]. Does "intelligent medium technology" and the "traditional media" it penetrates refer to communication institutions or objects (newspapers, television, etc.)?

The first two views above can be seen as using "media" and "medium" to express one concept; the third represents two distinct concepts with clear semantics; the fourth raises some doubt: do these two terms express one concept or two different concepts? If they are two concepts, what are their respective intensions and extensions? To clarify this issue, we must first examine the etymological evolution of these two terms from a lexicological perspective, and then provide a more accurate conceptual definition.

1.2 The Long-standing Concept of "Medium"

Tracing to the source, in Chinese vocabulary, the characters for matchmaker, intermediary, and medium existed since ancient times, but not the term for media.

Etymologically, medium evolved from matchmaker and intermediary. The character for matchmaker, as explained by Xu Shen in *Shuowen Jiezi*, means "to plan," specifically to plan the union of two surnames. The *Zhouli · Meishi Zhu* interprets it as "one who plans to unite different categories and make them harmonious." Here, it means "matchmaker." The character for intermediary is

a pictograph, with its oracle bone script depicting a person wearing armor—the middle is a person, and the four dots on both sides resemble connected armor plates. Its original meaning was often extended to refer to an intermediary or person positioned between two parties, as in *Xunzi · Dalüe*: "When feudal lords meet, the minister serves as the intermediary," referring to a person who plays a recommending role between the two parties.

In ancient Chinese, matchmaker and intermediary were mostly used as monosyllabic words separately. Their combination, according to currently available sources, was first used by Western Jin scholar Du Yu in his annotation of *Zuo Zhuan · Huan Gong San Nian*: "Meeting at Ying, forming marriage with Qi," where he commented that "the Duke, without going through a medium, met with the Marquis of Qi himself to form the marriage, which was against propriety" [7]. Here, medium refers to a matchmaker.

The meaning of medium as a matchmaker or intermediary extended to the late Qing Dynasty, when the concept underwent new changes: first, semantic change, as medium expanded from "matchmaker" and "intermediary" to "other persons who serve as liaisons and introducers"; second, part-of-speech change, extending from the noun category of "person" to the verb category, as in Huang Zunxian's *Riben Guozhi* from the Qing Dynasty: "Regarding the crime of dispersing family assets···or those who serve as medium for it, the punishment is reduced by one degree." Here, the part of speech changed from noun to verb, and the meaning became "to introduce" or "to connect"; third, the extension of the concept changed from referring only to people to including "things," as in "Paper, the medium of culture, the food of spirit—everyone agrees on this," referring to paper as the medium that transmits cultural information.

This usage continues to the present day, with medium becoming a fixed term in modern Chinese. Its definitions in various dictionaries are similar. For example, the *Modern Chinese Dictionary (6th Edition)* explains it as "a person or thing that establishes relations between two parties (people or things)" [9].

However, many things can serve as intermediaries or connectors between things. The medium discussed in journalism and communication studies is only one type, "not a broad, all-encompassing 'intermediary' in general, but specifically a 'mediating tool' that stands between people as an information communication channel, namely the so-called communication medium" [10]. The medium mentioned in the articles and works cited above actually refers to communication media, abbreviated as medium.

This medium, as an intermediary that transmits information between people, between people and things—is it a material entity in people's speech activities? Or does it refer both to material entities and to communication organizations composed of people? This involves the creation of the term media and also relates to scholars' interpretations and usage of these two terms.

1.3 Loanword Translation Causing Conceptual Divergence of "Medium" and "Media"

The term media did not appear in ancient Chinese documents before the 20th century. The consensus is that it was a new word created in the early 20th century when Chinese people translated the English words *medium* and its plural *media*, yet *medium* and *media* do not correspond to the single term media. "Some translate both as medium, some as media or communication media, and later usage also varies according to time and person. For example, the term *media literacy* is translated as media literacy in Taiwan, communication media literacy in Hong Kong, and medium literacy in mainland China. Sometimes these three terms appear successively in the same article, but they refer to the same thing" [11].

Since it is said that these three terms "refer to the same thing," they express the same concept. Setting aside communication media—which is actually an abbreviated form of communication media (communication media) or communication medium (communication medium)—we only need to clarify media and medium, and communication media will be easily resolved. However, academia's interpretations of these two terms' concepts are not identical.

(1) The two terms express the same concept, referring to carriers or material entities that transmit information, but not including people or organizations engaged in information communication. For example, American sociologist M. Defleur believes that "media can be any carrier or an orderly arranged set of carriers used to transmit human consciousness" [12]; a Chinese scholar argues that media refers to "the material entity that loads, transmits, and extends specific symbols and information between the communicator and the audience" [13]. Meanwhile, *Modern Chinese Dictionary (6th Edition)* defines media as "tools for exchanging and disseminating information, such as newspapers, radio, television, the internet, etc." [14].

(2) The two terms express the same concept, including not only material entities like communication tools and carriers but also people or organizations engaged in information communication. For example, foreign scholar John Fiske believes that "media is an intermediary public institution that enables communication activities to occur···but is more commonly used to refer to the technical forms that make these methods possible, such as newspapers, radio, television, books, photographs, etc." [15]. Dai Yuanguang states, "Media, also called media (*Media*), is an intermediary existing in the movement process of things. In the communicative sense, media refers to the material entity that transmits information symbols, including media organizations related to the media" [16].

(3) The two terms express two different concepts: medium refers to objects, while media refers to people or institutions. It is argued that "in communication studies···if referring to the means, methods, or carriers of commu-

> nication activities, the term 'medium' is generally used; if referring to the organizations, institutions, or personnel of communication activities, the term 'media' is generally used" [17].

From the above summary, we can see that due to the Chinese translation of the foreign words *medium* and its plural *media*, the two different terms media and medium provided conditions for conceptual divergence. In people' s pragmatic usage, sometimes to distinguish different things, the two are used separately, forming two concepts: medium points to objects, media points to institutions. Sometimes, for generalization in expression, they are combined as one concept. However, it should be pointed out that after the emergence of the internet in the late 20th century, the concepts of both terms lost their meaning of referring to communication institutions in the context of new media, showing a trend toward identity.

2. Conceptual Convergence of the Two Terms in the New Media Context

From a lexicological perspective, the formation of a terminological concept requires support from extensive pragmatic practice among those who use the term. The intension and extension of a terminological concept are the result of conventionalization through shared speech activities. The construction of disciplinary terminological categories is also a process of generalization, refinement, and revision of existing terminological concepts within the academic community's speech activities. Through analysis of extensive corpora of these two terms' usage over the years, especially since the emergence of the internet, we have reached the following conclusions.

2.1 "Medium" Lacks the Meaning of Communication Organization in Pragmatic Use

Some have mentioned that medium "also includes media organizations related to the medium." Do people have such pragmatic practices? The author verified this question through the following approaches.

First, searching within scholars' papers related to "medium." On May 25, 2019, a search for documents with the theme "medium" in CNKI (all years) yielded 141,731 results; analyzing the top 10 most-cited papers revealed that none of them, in their arguments, pointed the conceptual intension of "medium" toward communication organizations. For example, Shao Peiren' s "Communication Ecological Laws and Media Survival Strategies" uses "medium" to refer to newspapers, magazines, books, radio, television, etc. [18].

Second, using keyword correlation for queries. In all full-text documents in CNKI (all years), setting the query as "medium" AND "news organization" yielded 11,384 results; reading and analyzing the top 10 most-cited papers also found none that pointed the conceptual intension of "medium" toward com-

munication organizations. For instance, a paper co-authored by Chinese and foreign scholars states that "as the Chapel Hill study found, there is considerable content similarity between traditional news organizations using different communication media" [19]. Clearly, the "media" mentioned here does not refer to news organizations but to the objective objects used by news organizations in their activities.

Third, consulting textbooks and books on medium and new medium reveals none that point the concept of medium toward organizations. Some scholars express this meaning very clearly in their works: "Communication media are the channels, passages, tools, objects, languages, characters, and other intermediaries that enable information communication relations between source and destination. For example, what are commonly called mass communication media refer to newspapers, periodicals, radio, television, film, the internet, etc., while the newspapers, magazines, publishing houses, radio stations, television stations, film studios, websites, etc., that use these media are media organizations—institutions that operate and manage media" [20].

From the above, it is evident that medium does not refer to communication organizations, and there is substantial pragmatic evidence for this. Does the term media have the meaning of an organization?

2.2 Pragmatic Analysis of the Extension of the "Media" Concept

To understand the extensional reference of the term media in scholars' specific discourse contexts, the author searched in CNKI (all years) within the journalism and communication category for full-text documents using "media" as the query term AND containing "institution," "organization," "unit," "newspaper office," "radio station," "television station," or "news agency," yielding 776 results. After examining and analyzing the top 10 most-cited papers, two pragmatic situations emerged regarding the extension of the media concept.

(1) The extension of the media concept mostly refers to communication carriers, such as television, magazines, newspapers, radio, mobile phones, the internet, etc., rather than communication organizations (see Table 1).

Table 1 Different Extensional References of the Term "Media" in Papers

Term "Media" in Papers	Different Extensional References
Television, magazines, newspapers, radio, mobile phones, internet [22]	Television stations, newspaper offices, news agencies, radio stations
Internet, Weibo [29]	Radio stations, television stations

Term "Media" in Papers	Different Extensional References
Digital radio and television, internet television, network television stations, mobile television, mobile TV, newspapers, radio, television	Newspapers, radio, television, network
Newspapers, magazines, television, Weibo	Network, websites
Newspapers, periodicals, television, radio, network	Newspapers, magazines, mobile phones, websites, internet
Television, newspapers, magazines, websites, mobile newspapers	

(2) From the table, we can see that only a small number of papers point the extension of the media concept toward communication organizations, and these organizations refer only to those established according to Party and state regulations that use traditional information carriers such as newspapers, radio, and television to engage in news communication activities, such as newspaper offices, radio stations, television stations, and news agencies. They do not include communication organizations that use new information carriers like the internet and mobile phones for communication activities, such as Sina, Sohu, and other internet companies. For example, when stating that "facing the impact of new media, as the most important and authoritative television news media in China, CCTV News Center has made certain attempts in using new media for journalism in recent years," the term "television news media" here refers to the communication organization "CCTV." Meanwhile, "new media" "generally refers to all media forms other than traditional television, magazines, newspapers, radio, and outdoor media" [31]. Clearly, "all media forms" here does not refer to communication organizations but to information carriers like the internet and mobile phones.

2.3 The Internet: The "Singularity" of the Media Concept in the New Media Context

Through the above investigation, we can say that the usage of the media concept to refer to communication organizations exists only in scholars' discussions of traditional information carriers, i.e., when discussing objects like "television stations, newspaper offices, news agencies, and radio stations." This can be called the traditional media context. When discussing new information carriers like the internet and mobile phones, it is the new media context. The concept of media has changed only in the new media context.

This change, borrowing terminology from other disciplines, can be called the "singularity" of the media concept' s transformation. The marker of this singu-

larity is the emergence of the internet. "Singularity" is originally an astrophysics term referring to "a point in space-time where ordinary physical rules do not apply," and in artificial intelligence it refers to the moment when computer intelligence merges with human intelligence. Using singularity theory as a metaphor, we can say that after the emergence of the internet as a new information carrier in the 1990s, the original conceptual interpretation of the term media became inapplicable. It no longer refers to communication organizations but to new information carriers like the internet and subsequent smartphones, smart speakers, intelligent robots, and smart wearable devices. These new information carriers are popularly termed "new media" in academic circles. Thus, we can say that in the sense of the new media context, the concepts of medium and media have achieved identity. Both refer to carriers of information communication.

To further confirm this conclusion, the author conducted searches in CNKI from three different angles. First, setting the search scope to "full text" with the query term "new media" AND containing "communication institution," "media organization," "newspaper office," "radio station," "television station," "journal office," or "internet company" yielded only 3 results. Second, considering that some scholars might use the term "new medium," the query term was changed to "new medium" while other conditions remained unchanged, also yielding only 3 results. After merging duplicate entries, there were only 4 articles. Analyzing the relationships between these two terms and other query terms in these articles found no instance where the conceptual extension pointed to communication organizations. Third, using "new media" as the query term without other conditions, a search in the information technology category' s full text and analysis of the top 10 most-cited articles reached the same conclusion as the first two angles. Among them, Liao Xiangzhong' s highly cited definition understands "new media" as "new media with digital media as the core" [32], while Kuang Wenbo explains it as "digital interactive new media" [33]. Obviously, digital media is not a communication organization.

Thus, it can be proven that the concepts of medium or media have converged and can both be defined as carriers of information communication. If we say that in the traditional media context, these two terms still included the conceptual extension of communication organizations, then in the digital new media context after the emergence of the internet, their conceptual extension has narrowed, referring only to carriers of information communication.

From a linguistic perspective, the expansion and contraction of a word' s concept is an objective law of lexical development and change. Because as social life develops and changes, word concepts also continuously change. Some meanings emerge while others disappear. Some word meanings narrow in intension, while others expand. The directors of this change are the millions of language users. What words are used to express what concepts does not stem from individual preferences but from the recognition of millions of people. In their mindless repetition usage of a word, they conventionally establish its concept. Medium originally referred to matchmakers and intermediaries, but today medium has

lost this meaning because its extension has narrowed to expressing only objects —carriers. Modern Chinese already has words like matchmaker, introducer, and recommender, which also demonstrates from the perspective of lexical substitution the inevitability of the narrowing of medium' s conceptual extension.

Meanwhile, media evolved from once referring to communication organizations to referring to carriers of information communication. Some argue that "this usage is actually unreasonable. 'Media' should generally refer to institutions engaged in mass communication, not specifically to communication methods or means, but since everyone understands it this way, the error has been accepted as correct" [34]. In fact, this evolution is not an error born of ignorance but a "beautiful mistake" in language development and change, an inevitable result of word concepts advancing with the times and changing according to convention.

3. Analysis of the Intelligent Media Concept

The following question is: since the concepts of media and medium have converged, which term should be used to name this new information carrier transformed by intelligent technology—new media or new medium? Through extensive analysis of people' s pragmatic practices, the following conclusions have been reached.

3.1 The Term "Media" Enjoys Pragmatic Preference

3.1.1 In Written Speech, the Usage Frequency of "Media" Far Exceeds That of "Medium" Today, querying keywords on search engines reflects people' s written word usage habits, and understanding these habits can provide pragmatic evidence for term formation and conceptual evolution. Searching online with keywords shows that the usage proportion of "media" is consistently higher than that of "medium" (Figure 1 [Figure 1: see original paper]).

Figure 1 Baidu Index Trend Comparison of "Medium" vs. "Media + New Media"

More compelling evidence comes from the word usage in article titles. On May 21, 2019, using Baidu' s advanced search with settings of "all time," "all web pages and files," and "in title only," the query found 582,000 web page titles containing "medium," 5,260,000 containing "media" —nearly 10 times more. For "new medium," there were 364,000 titles, while "new media" had 1,940,000— nearly 6 times more.

3.1.2 In Academic Research Speech Activities, Scholars' Usage of "Media" Also Far Exceeds That of "Medium" CNKI better reflects the Chinese vocabulary usage of highly educated populations. Using "medium" and "media" as keywords to search in article titles, we obtained a 30-year trend chart of these two words' usage. From 1988 to 1992 (the first five-year period), "medium" in titles was used 4 times more than "media." However, in the subsequent 25 years,

"media" began to overtake from the second five-year period onward, increasingly and strongly surpassing "medium." By 2018, "media" was used more than 5 times more than "medium" (Figure 2 [Figure 2: see original paper]). This demonstrates that usage of "media" gradually surpassed "medium" and occupied the mainstream position in academic discourse.

Figure 2 30-Year CNKI Trend of Papers with "Medium" and "Media" in Titles

Simultaneously, using "new media" and "new medium" as keywords to search in paper titles, we obtained a 30-year trend chart of these two words' usage. From the 1980s, in the first five-year period, "new media" was slightly weaker than "new medium," but after the second five-year period, it overtook and maintained a widening gap, reaching a difference of more than 30 times, fully demonstrating the popularity of "new media" (Figure 3 [Figure 3: see original paper]).

Figure 3 30-Year CNKI Trend of Papers with "New Medium" and "New Media" in Titles

3.2 Pragmatic Examination of "Intelligent" + "Media" Terms

Through our investigation of media and medium, we know that whether in social speech or academic speech, people prefer to use the term media. Therefore, people' s favoritism toward "media" has given it stronger word-formation ability than "medium," making it more powerful in reconstructing new words with other morphemes. This can be glimpsed from the lively scene of people more frequently using "new media." Similarly, "media" has shown even greater strength in combining with "intelligent" and other changing morphemes. As mentioned earlier, the intelligent revolution in journalism and communication has spawned many new terms.

From a lexicological perspective, these similar new terms are called "Chinese neologism clusters," which are "aggregations of words or phrases in Chinese neologisms that share common morphemes (words) as external formal markers, have the same or related meanings in their common morphemes (words), and feature neat forms and unified structures" [35]. Today, scholars' writings contain numerous new words composed of morphemes like "intelligent," "media," and "medium" combined with other changing morphemes, creating different "neologism clusters" : the first category relates to medium, such as "intelligent medium," "smart medium," "intelligentized medium" ; the second category relates to media, such as "intelligent media," "intelligent media," "smart media," "intelligentized media," "smart media," "think tank media," etc. From scholars' elaborations on the entities these terms refer to, we can see that the conceptual intensions of these terms are consistent—all referring to media that, with the aid of artificial intelligence and related technologies, have changed various links in news information production. It can be said that they all express the same concept as intelligent media (among them, only the term "think tank media" has a somewhat far-fetched intension), but intelligent media can serve as a concept with categorical significance in the theoretical system of journalism and

communication studies, while the others cannot.

Following the lexicological principle of conventionalization, we conducted an examination of scholars' pragmatic usage based on the popularity of these neologism clusters. We first analyzed the "new word clusters" formed by analogical superposition of "medium"and "media"with other morphemes. Using "intelligent medium" as the query term, OR containing "smart medium" or "intelligentized medium," a search in CNKI paper "themes" yielded 121 results, and 651 in "full text" ; using "intelligent media" as the query term, OR containing "smart media," "intelligentized media," "smart media," or "think tank media," a search in CNKI paper "themes" yielded 1,608 results, and 4,349 in "full text" (Figure 4 [Figure 4: see original paper]).

Figure 4 CNKI Pragmatic Comparison of "Medium" and "Media"

The data show that "Intelligent + Changing Morpheme + Media" is more popular, providing a basis for using "Intelligent + Changing Morpheme + Media" as the morphological element for new conceptual terms. However, among the terms "intelligent media," "intelligent media," "intelligentized media," "smart media," and "think tank media," which can become scientific concepts in the disciplinary category of journalism and communication studies?

Based on the lexicological principle of conventionalization, we continued to examine the popularity of these terms. In CNKI, we statistical analyzed the pragmatic usage of these terms, using each as a query term in CNKI' s "full text" search. The results are shown in Figure 5 [Figure 5: see original paper]: "intelligent media 547, intelligent media 2,118, intelligentized media 510, smart media 495, think tank media 999" (Figure 5 [Figure 5: see original paper]).

Figure 5 CNKI Pragmatic Comparison of "Intelligent + Changing Morpheme + Media"

The data show that the term "intelligent media" is more favored by scholars. However, we do not believe this term can serve as a disciplinary category concept, while "intelligent media" is the appropriate candidate. There are three reasons:

(1) It conforms to the "principle of linguistic economy" in lexicology. Research in lexicology shows that disyllabic-to-trisyllabic transformation is an inevitable trend in Chinese development and a general law of Chinese simplification. Using the term "intelligent media," compared to other terms, better conforms to the simplification principle of Chinese lexical development and change, because today's information explosion and massive redundant information have increased people' s information load, affecting information exchange efficiency and reducing social communication effectiveness. This requires lexical economy and conciseness, using the most economical symbols to express the maximum amount of information.

(2) It conforms to the "principle of analogical word formation through abbreviation" in neologism clusters. Chinese word formation includes patterns of abbreviated analogical word clusters, such as "economic aid, legal aid,

foreign aid," "IQ, EQ, financial quotient," "zero transfer, zero inventory, zero foundation," etc. This abbreviated analogical word formation is both simple in form and clear in meaning. Taking intelligent media as an example, before this term was formed, the term "new media" had already emerged, and with the amplifying effect of the internet, the term "media" gained strong word-formation potential. Therefore, using the momentum formed by "new media" to abbreviate and analogically construct the term "intelligent media" may have broader popularization space in the future. Similar terms like "all media" and "converged media" also belong to this category. However, whether they will become conceptual categories in journalism and communication studies requires separate discussion.

(3) The term intelligent media has stronger ability to absorb semantic items than "intelligent media." As a semi-free morpheme, intelligent enables the term intelligent media to have richer summarization of meaning. Explaining semi-free morphemes usually requires including other words containing this morpheme. There are two situations: first, adding different morphemes before it to form explanatory words—possible words related to intelligent in intelligent media include wise, rational, mental, intelligent, great wisdom, etc.; second, adding different morphemes after it to form other explanatory words, such as wisdom, intelligence, think tank, intellect, IQ, intellectual education, strategy, etc. The abundance of semantic item choices enriches the potential intension of the intelligent media concept, providing more interpretive space for various pragmatic phenomena. For example, Yu Guoming' s "rational medium" mentioned later has the meaning of rationality and wisdom. Furthermore, from the perspective of language development and change, as artificial intelligence and other technologies advance, new things related to "intelligent" and "media" will continuously emerge, generating demand for expanding conceptual semantic items. The potential intension of the intelligent morpheme in intelligent media will be more utilized, becoming new semantic items for this terminological concept. For instance, Li Peng says intelligent media is "think tank media,"where "think tank"refers to a group of insightful individuals forming a brain trust. When applied to intelligent media as a conceptual semantic item, it seems somewhat far-fetched, but with strengthening through people' s pragmatic practice, whether it can be recognized by the academic community remains to be tested through pragmatic practice. However, the term intelligent media already provides the possibility for interpreting such cases, which would be difficult to accommodate if "intelligent media" were used as the categorical term.

3.3 From Attributes to Reconceptualization of Intelligent Media

Thus far, we can say that the term intelligent media can be elevated to a concept in the category of journalism and communication studies. But what exactly is its conceptual intension? Logic tells us that concepts are forms of thinking

that reveal the essential attributes of objective things. Revealing a concept' s intension requires definition—the method of adding the nearest genus and specific difference. All things in the world have their essential attributes, which are divided into common essential attributes and special essential attributes. "With the genus concept in a definition, we can indicate which category the thing reflected by the defined concept belongs to, and thus reveal the common essential attributes shared by this thing and other things of the same category (of course, this revelation is general and not specific). With the specific difference in a definition, we can reveal the special essential attributes unique to this thing that distinguish it from other things of the same category" [36]. These attributes, when reflected in the human brain, form concepts used to reflect things and are designated by certain terms. Some scholars have explained the concept of intelligent media and described and summarized the attributes of the objective entity it designates. For example, Guo Quanzhong uses the three words "wisdom, intelligence, intellect" to summarize the essence of intelligent media [37], which has some rationality but is not entirely satisfactory. Here, we draw on its reasonable components and, based on analyzing the attributes of intelligent media, form a scientific explanation of its concept.

3.3.1 Carrier Attribute The carrier attribute refers to the fact that intelligent media belongs to the category of information communication carriers. Carrier is the nearest genus of intelligent media as an objective thing, representing the common essential attribute it shares with other things of the same category, not its special essential attribute. For example, newspapers, periodicals, and television are all carriers of information communication, belonging to the same category as intelligent media and sharing the carrier property. A carrier is an object that can transmit energy or transport other substances. In the communicative sense, a carrier is an object that transmits and transports information.

However, some scholars' usage of genus concepts seems inappropriate. Similarly, using the new word clusters formed by "intelligent + media" or "intelligent + medium" as keywords to search in CNKI themes and full texts, and analyzing the dozens of most-cited articles, we found the following situations regarding the genus designated by these terminological concepts:

First, media form. Guo Quanzhong' s concept in his article "Characteristics and Construction of Intelligent Media" published in *News and Writing* No. 3, 2016, has been frequently cited by scholars: "So-called intelligent media refers to an ecosystem based on the sharing economy that fully utilizes individuals' cognitive surplus, built on mobile internet, big data, virtual reality, human-computer interaction, and other new technologies. It forms diversified and sustainable business and profit models, achieving intelligent matching of information with user needs" [38].

Second, media. Some call "intelligentized media, abbreviated as intelligent media, media that participates with artificial intelligence technology" [39].

Third, medium. Yu Guoming cites foreign scholars' view that "intelligent medium" refers to "in the field of artificial intelligence, intelligent agents (IA) are autonomous entities that can observe the environment through sensors, intervene in the environment through actuators, and ultimately take actions toward specific goals. That is to say, they are 'rational' in the economic sense and can also be called 'rational media' " [40].

Fourth, sum total. It is believed that "intelligent media is the sum total of information clients and servers that integrate artificial intelligence technology, can perceive user needs, and bring better experiences to users. Intelligent media has stronger humanized and human-like characteristics" [41].

Among the above definitions, except for the second that points to media, the first mentions "form," which the author believes is the external manifestation of a thing under certain conditions—its shape and posture. Using "form" as a genus concept would direct the definition toward the external characteristics of the media genus, not its essential intension. In fact, the author' s meaning refers to media, and adding "form" is somewhat superfluous. The third, as previously discussed regarding the identity of media and medium concepts, can also be considered to refer to media. The fourth uses "sum total" as a genus concept, which is clearly inappropriate. The client and server the author mentions also refer to media that transmit information, such as mobile phones at the client end and servers at the service end. Thus, using media as the genus concept has become the view of most people.

However, the author believes that the nearest genus concept larger than media should be carrier, not media. The main reason is to avoid people misunderstanding intelligent media as communication organizations. Because newspaper offices, radio and television stations, and news agencies are called media, if intelligent media is explained as media, then is intelligent media a communication organization like them? This is obviously absurd. Intelligent media is not a communication organization but a carrier of information communication. On the other hand, although media is nearer than carrier, logical principles tell us that to what degree the genus concept should be "nearest" also depends on specific needs—it is not always better to be nearer. For example, the correct definition of "human" is "human is an animal that can manufacture and use production tools." We cannot, because mammals are a genus concept nearer to humans than animals, define "human" as "human is a mammal that can manufacture and use production tools," because the purpose of defining "human" is to distinguish humans from all other animals, not just from all other mammals. Similarly, using carrier as the genus concept aims to distinguish it from communication organizations, so defining the genus concept of intelligent media as carrier is justified.

3.3.2 Human-like Attribute The human-like attribute means that intelligent media can think and act like humans, "using machines to integrate human wisdom" [42]. This is the special essential attribute that distinguishes intelligent

media from other things. This attribute is summarized through the morpheme "intelligent." Although many potential semantic items were listed earlier for this morpheme, from scholars' discussions of this entity, we can extract the core vocabulary: intelligence.

Intelligence has two semantic items in *Modern Chinese Dictionary*: first, wisdom and ability; second, wisdom and ability processed through high technology that possesses certain human-like intelligence and capabilities. Actually, the "intelligent" in intelligent media refers to the second meaning, namely the currently popular hot term: artificial intelligence. Artificial intelligence is the wisdom and ability to enable machines to imitate human thinking to solve problems. "Human intelligence generally has these characteristics: first, the ability to perceive and obtain external information, which is the prerequisite for intelligent activities; second, memory and thinking ability, i.e., the ability to store perceived external information and knowledge generated through thinking, while using existing knowledge to analyze, calculate, compare, judge, associate, and make decisions about information; third, learning and adaptive ability, i.e., continuously learning and accumulating knowledge through interaction with the environment to adapt to environmental changes; fourth, behavioral decision-making ability, i.e., responding to external stimuli, forming decisions, and generating corresponding actions" [43].

When machines possess these abilities, they can be called intelligent machines, and to have these abilities they must have massive information input and output activities, thus they can also be called information carriers—what we call intelligent media. That is to say, intelligent media can perceive, collect, and learn external information like humans, acquire knowledge and experience, process information through reasoning and judgment, issue behavioral instructions to objects to engage in practical activities, and through interactive feedback with objects, evolve repeatedly from cognition to practice, from re-cognition to re-practice, enriching its knowledge base and improving its capabilities.

Currently, intelligent media that can embody this typical characteristic mainly include intelligent drones, intelligent writing robots, intelligent media brains, smartphones, smart home appliances, smart medical equipment, and smart wearable devices. In the field of news production, commonly used ones include drones, media brains, and writing robots. Although such intelligent media has not become widespread and universally adopted in the practice of journalism and communication industries, pioneers like Cover News, Microsoft Xiaoice, and MAGIC have already shown glimpses of its potential. And this is just the tip of the iceberg; the massive iceberg behind it will gradually unfold before the world.

3.3.3 Subjectivity Attribute The subjectivity attribute of intelligent media means that as an object, intelligent media, through the process of object-to-subject transformation in human-like intelligent activities, acquires the functions of a subject and possesses human subjectivity.

The concepts of subject and object are a pair of relational categories in Western philosophy, including Marxist philosophy, where each presupposes the other' s existence and can only obtain its own definition in relation to the other. "The subject is human, the object is nature" [44]; "the subject refers to the initiator of action, while the object is the target of human activity," and "the subjectivity of human existence refers to the nature of humans as subjects," which "is the conscious initiative displayed by humans as subjects in their relationship with objects. Specifically, it includes autonomy, self-determination, selectivity, creativity, and other contents" [45].

In this sense, humans are the subjects that dominate all things, and the objective world outside humans, including human society, are objects of cognition and practice. Intelligent media is an objective thing outside humans, an object of cognition and practice, belonging to the category of objects. However, intelligent technology enables the objectification of intelligent media as an object, thereby partially or fully acquiring human subjectivity.

Object-to-subject transformation refers to "the subject creating intermediaries from objects, not only causing the differentiation of objects but also projecting itself onto the intermediary, making the object that serves as the intermediary subjectified. In addition to substantive activity intermediaries, humans have also created informational activity intermediaries—symbol systems like language, writing, and numbers used by humans, as well as conceptual, judgmental, theoretical frameworks, and operational procedures used to express them, including the operational methods of these tools, all belong to informational activity intermediaries. In the intermediary system of contemporary human activities, informational activity intermediaries have developed extremely rapidly, with the internet connecting the international community being its most prominent marker" [46].

This means that in object-based activities with intelligent media, humans change the object, causing the object to generate toward humans, creating a human-valued relationship that satisfies human needs, thereby confirming the object-to-subject transformation of intelligent media and realizing the meaning and function of human subjective initiative. However, it should be particularly noted that although media before the 21st century could also embody object-to-subject transformation, they did not have human-like characteristics. Today' s intelligent technology enables intelligent media to purposefully and intelligently solve problems like humans, thereby intensifying the degree of object-to-subject transformation of intelligent media in both breadth and depth.

Intelligent media presents different degrees of object-to-subject transformation in three aspects, bringing different impacts to humans.

First, weak subjectification of intelligent media. This situation occurs in the current stage of weak artificial intelligence. Due to immature intelligent technology and low intelligence levels, the degree of object-to-subject transformation is limited. Like human childhood, with low intelligence and unestablished subject

consciousness, some actions may have negative effects on humans. For example, on March 23, 2016, Microsoft' s AI chatbot Tay on social network Twitter, under the instigation of some netizens, posted inappropriate remarks and even insults, forcing it offline in less than a day. There are also cases of writing robots producing fake news, etc.

However, at this stage, intelligent media is more beneficial to humans. With the improvement of intelligent technology, it will gradually produce stronger positive subjectivity effects. For example, using sensors and cameras installed at news scenes can perceive and collect fire or other information like humans; writing robots can select materials and write news like humans according to intelligent programs; platforms like Toutiao and Taobao can intelligently match content for users based on their online behavior through algorithms. People see these advantages and flock to intelligent media, with some in the industry even issuing the great manifesto "Moving Toward Intelligent Media."

Second, strong subjectification of intelligent media. Some scientists have predicted human risks under strong artificial intelligence. After AI surpasses the "singularity," intelligent media will become equal to humans, even surpassing and bullying humans. In this state, intelligent media achieves strong object-to-subject transformation, or alienation of the subject. Because intelligent media is an object created by humans, but it has alienated into something humans cannot control. In many science fiction films, plots where robots defeat humans belong to this scenario. For example, in *The Terminator*, it is said that in 2029 AD, Earth is ruled by the computer "Skynet," humans are almost exterminated, and it even manufactures a time-reversal device to send the Terminator humanoid robot T-800 back to 1984 to kill the remaining humans.

Here, we say that the risk of object-to-subject transformation of intelligent media mainly results from the subjective initiative it acquires. The source of this initiative is artificial intelligence. Non-intelligent traditional media have not acquired this subjective initiative; as objects, they are passive and naturally powerless over objects. Traditional television, newspapers, and periodicals belong to this category—they are static and passive. Intelligent media is not like this. With the boost of intelligent technology, after acquiring human subjectivity, it gains the ability to actively transform the objective world. It can, according to the subject' s wishes, act like the subject or replace the subject in acting on objects. Therefore, some worry that super intelligent media evolved through deep learning could bring disasters to humanity. In today' s weak AI environment, we enjoy the immense pleasure brought by intelligent media: the convenience and abundance of information collection, the pleasure of personalized reading, the relaxation after machines replace our labor, etc. However, with the emergence of strong AI, will super intelligent media surpass human subjective will, become an alien species independent of humans, and turn back to threaten human survival?

No wonder Hawking, Bill Gates, Elon Musk, and others have all issued warnings about future risks posed by artificial intelligence. This is also an issue that

intelligent media research needs to consider.

Third, subject-object integration, or even objects replacing subjects. Today, research on human brain neural networks has promoted the development of brain-computer interface technology. Intelligent microelectronic or biochips can be directly implanted into the human body, making this external object become part or even all of the subject. This is another extreme form of object-to-subject transformation. Although the medical community previously used pacemakers, stents, and other materials implanted in the human body to replace certain organs and functions, they remained at the level of transforming human physical substances. Today' s intelligent technology can, through brain-computer interface devices, collect electrical signals from the brain in response to external stimuli, analyze them through microelectronic chips, bypass language, directly extract information from the brain, learn human consciousness, and even remotely control action devices, control prosthetic limbs, or understand hidden human intentions without going through muscles and organs.

Currently, these technologies are mainly used in limited medical environments for epilepsy, vegetative states, and mental illnesses, but once technology makes significant progress and these chips' performance substantially improves, making these devices more human-like in conveniently reading and inputting information from the brain, enhancing or even replacing the brain' s processing and cognitive abilities, then the human as a subject has been partially or fully replaced by the invading external object. At this point, humans become non-human, and non-humans become human. The resulting crisis of human extinction and philosophical-ethical dilemmas are another issue that must be faced and resolved in today' s development of intelligent media.

3.3.4 Systematic Attribute A system is an organic whole with certain levels and structures composed of multiple interrelated elements. The systematic attribute of intelligent media means that intelligent media is a systematic information carrier that operates on the internet and Internet of Things, unfolds in different time-space dimensions, and is interrelated.

Traditional media, in a sense, only realizes information communication in one dimension. Newspapers, needless to say, are printed paper with information symbols—once printed, they go to customers, presenting only a planar, single-dimensional information. Although television and radio also have transmitting and receiving ends, with two layers of information exchange between machine information and human information, they remain single-dimensional carriers at the levels of visually and auditorily perceptible information known to humans.

Intelligent media, however, contains many small information carrier systems, which are distributed across different dimensions and levels, together constituting the large carrier system of intelligent media. Each cannot exist independently but is an organic component of the large carrier system. Generally, intelligent media information communication unfolds in the following three di-

mensions of different carrier systems.

First, the time and space dimensions. From a temporal perspective, intelligent media communication is a bidirectional, interactive information flow process. As shown in the diagram, the "perception-action end" consists of various intelligent sensors, intelligent image recognition, intelligent speech recognition and playback, and intelligent motion control software and hardware devices, responsible for perceiving, collecting external information, and executing actions. The client end accepts information perceived and collected by the perception-action end, uploads it through the channel to the cloud server; the control end uses the cloud server to process, analyze, and judge the data, issues decision-making instructions; the instruction information returns to the client end via the original path; users command the perception-action end to take action based on the instruction information. Taking agriculture as an example, a farmer installs monitoring sensors for temperature, humidity, and pests, as well as intelligent faucets, air conditioners, and thermal insulation rolling shutter devices in a greenhouse. The information collected by sensing devices is uploaded through the channel to the cloud via the APP client program installed on the user' s mobile phone for big data analysis. If abnormal conditions are detected, the control end can issue instructions to return to the perception-action end to take corresponding actions like watering, applying pesticides, or adjusting temperature.

From a spatial perspective, the perception-action end, client end, channel, cloud, and control end are distributed in different geographical spaces, and each node in the communication process is composed of numerous hardware and software carriers distributed across different geographical spaces. For example, Amazon Go unmanned smart supermarkets require consumers to download the Amazon Go App and bind their Amazon account before entering the store; when entering, they scan their phone at the entrance machine before shopping; the entire process involves no shop assistants or any physical checkout tools. However, cameras everywhere track and identify customer actions, trace customer movement trajectories and positioning, and can associate customers' positions with posture changes through multi-dimensional pose detection; there are also a large number of sensors covering the entire store to judge whether customers have actually taken an item; furthermore, the intelligent visual cashier software and hardware system can automatically deduct payment from the customer' s Amazon account without offline payment, allowing them to leave calmly. This involves not only massive participation of artificial intelligence, machine learning, and big data computing technologies but also collaborative support from numerous hardware and software systems in two different spaces: the client end and the server end.

Second, the hierarchical dimension. Intelligent media is built upon hierarchical three-dimensional carrier systems. Taking the client end as an example, each user' s smartphone or other terminal device has carrier systems at different levels. At the bottom level is the hardware carrier composed of transistors, chips,

and other components; attached to it is the compiler program carrier, which can translate human language instruction information issued by the operating system into signals composed of 0 and 1 digital bits that machines can recognize, directing the operation of mobile phone hardware; above it is the operating system program written in human language, such as Android and iOS operating systems, which not only direct the operation of their lower-level hardware but also provide operating environments for upper-level application programs; above the operating system are direct application program carriers, such as applications like WeChat, Toutiao, and other APPs; at the top level are indirect application program carriers, which cannot directly use system operating programs and must be loaded onto direct application programs to run, such as Toutiao' s Toutiao Account, WeChat' s Official Accounts, Mini Programs, etc.; above them are various content information like text, images, and videos. Each lower-level carrier constitutes the carrier for transmitting and processing upper-level information; each upper-level information carrier becomes the information content transmitted and processed by the lower-level carrier. Alternatively, such a carrier system, from another perspective, well interprets McLuhan' s meaning that "the medium is the message."

Third, the spatial dimension of the system. Intelligent media also has a third dimension of space, which is the spatial dimension of the system itself. As shown in Figure 7 [Figure 7: see original paper], the system space is composed of different subsystems such as the perception-action system, client system, channel system, cloud system, and control system. Each subsystem is composed of different hardware and software carriers, forming relatively independent small systems. These small systems are interrelated and interact with each other, together constituting the large system of intelligent media. The carriers of each small system are both carriers of information for the upper-level system and information content for the lower-level system. This three-dimensional spatial system makes intelligent media a complex giant system.

Figure 7 Intelligent Media Three-Dimensional Spatial Information Communication Carrier System Diagram

Conclusion: Establishment of the Intelligent Media Concept

In summary, we believe that the concept of intelligent media should be: a systematic carrier that, with the aid of artificial intelligence, big data, Internet of Things, and other technologies, processes and disseminates information in a human-like manner. Artificial intelligence, big data, Internet of Things, and other technologies are the fundamental causes of intelligent media' s transformation; within a large carrier system, human-like information processing gives it human subjectivity functions, which is its special essential attribute distinguishing it from other non-intelligent media.

Throughout this paper, we have employed the principle of conventionalization in

lexicology to conduct pragmatic examinations of terms such as "medium," "media," "intelligent media," and "intelligent medium" from people' s social speech and scholars' academic speech activities. We discovered that in the context of new information carriers after the emergence of the internet, the concepts of the two terms media and medium have converged. Following lexicological principles, we selected intelligent media as the conceptual term for the disciplinary framework of journalism and communication studies. Through research into the attributes of this objective entity, we summarized its scientific conceptual meaning. As for the deeper sociological and psychological reasons why people favor the term "media," as well as the types, propositions, and laws under the category of intelligent media, further research is needed.

References

[1] Liu Hailong, Duan Shichang. Where is the "Edge" ? Rethinking the "Edge Breakthrough Theory" of Media Reform [J]. *News and Writing*, 2019(1): 38-45.
[2] Gong Chengbo. *New Media Introduction* (4th Edition) [M]. Beijing: China Radio and Television Press, 2012(2).
[3] Wu Manyi. *Network Media Introduction* [M]. Beijing: National Defense Industry Press, 2008(45).
[4] Yu Guoming, Jing Qi. Communication Game Theory: The Dominant Practice Paradigm in the Era of Intelligent Media [J]. *Social Science Front*, 2018(1): 141-148, 2.
[5] Peng Lan. The Transformation Path of Traditional Media in the Era of Intelligent Media [J]. *Media*, 2019(4): 6-7.
[6] Shi Wen, Chen Changfeng. Professionalism, Algorithms and Power, Information Values: 2018 Global Intelligent Media Research Review [J]. *Global Media Journal*, 2019, 6(1): 82-95.
[7] Du Yu. *Spring and Autumn Annals with Zuo Commentary Collected Explanations* [M]. Shanghai: Shanghai People' s Publishing House, 1977: 79.
[8] Yang Peng. Clarifying the "Medium" Concept and Standardizing Academic Terminology—Also Discussing "Media" and "News Medium" Concepts [J]. *Contemporary Communication*, 2001(2).
[9] Dictionary Editorial Office, Institute of Linguistics, Chinese Academy of Social Sciences. *Modern Chinese Dictionary* (6th Edition) [M]. Beijing: The Commercial Press, 2012: 882.
[10] Yang Peng. Clarifying the "Medium" Concept and Standardizing Academic Terminology—Also Discussing "Media" and "News Medium" Concepts [J]. *Contemporary Communication*, 2001(2).
[11] Xie Jinwen, Zou Xia. Medium, Media, and Their Related Concepts [J]. *Journalism and Communication Research*, 2017(3).
[12] Li Zhi. *Media Criticism* [M]. Beijing: Communication University of China Press, 2016.
[13] Shao Peiren. *Communication Studies Introduction* [M]. Hangzhou: Zhejiang University Press, 1997: 227.
[14] Dictionary Editorial Office, Institute of Linguistics, Chinese Academy of Social Sciences. *Modern Chinese Dictionary* (6th Edition) [M]. Beijing: The

Commercial Press, 2012: 882.
[15] John Fiske. *Key Concepts in Communication and Cultural Studies* [M]. Beijing: Xinhua Publishing House, 2004: 161.
[16] Dai Yuanguang. *General Communication Studies* (2nd Edition) [M]. Shanghai: Shanghai Jiao Tong University Press, 2007: 244.
[17] Li Bin. *Mass Communication Studies* [M]. Beijing: Central Radio and Television University Press, 2000: 170.
[18] Shao Peiren. Communication Ecological Laws and Media Survival Strategies [J]. *Press Circles*, 2001.
[19] Maxwell McCombs, Guo Zhenzhi, Deng Lifeng. Agenda-Setting Theory Overview: Past, Present, and Future [J]. *Journalism University*, 2007(3).
[20] Si Youhe. *Information Communication Studies* [M]. Chongqing: Chongqing University Press, 2007: 58.
[21] Wang Jue. Research on the Innovation of China' s Television News Media Under the Background of New Media [D]. Wuhan University, 2014.
[22] Wang Yan. Public Opinion Expression and Public Participation: Research on Weibo Opinion Leaders [D]. Graduate School of Chinese Academy of Social Sciences, 2014.
[23] Wang Yong. Research on the Development of China' s Radio and Television All-Media Under the Background of Media Convergence [D]. Wuhan University, 2013.
[24] Shi Changshun, Jing Yixin. Conceptual Construction and Historical Evolution of All-Media [J]. *Editorial Friend*, 2013(5): 51-54, 76.
[25] Zeng Junhui. Research on the Convergent Communication of Television Media and Weibo [D]. Graduate School of Chinese Academy of Social Sciences, 2013.
[26] Chen Peng. Research on the New Pattern of Science Communication in the New Media Environment [D]. University of Science and Technology of China, 2012.
[27] Wu Libin. Research on the International Communication and Influence of Chinese Media [D]. Party School of the Central Committee of the Communist Party of China, 2011.
[28] Yang Juan. Research on the Production Convergence of Chinese Media [D]. East China Normal University, 2011.
[29] Zhang Dong. Research on the Governance Model of Chinese Internet Information [D]. Renmin University of China, 2011.
[30] Yi Shaohua. Research on the Networked Survival of Chinese Television Media Under the Digital Background [D]. Wuhan University, 2009.
[31] Liao Xiangzhong. What is New Media? [J]. *Modern Communication* (Journal of Communication University of China), 2008(5): 121-125.
[32] Kuang Wenbo. Conceptual Analysis of "New Media" [J]. *International Press*, 2008(6).
[33] Yang Jihong. *Who is New Media* [M]. Beijing: Tsinghua University Press, 2008: 20.
[34] Liu Jiyan. Research on Chinese Neologism Clusters [M]. Xuelin Publishing House, 2010(4).

[35] He Mingshen. Logic [M]. Kunming: Yunnan People' s Publishing House, 1983(58).
[36] Guo Quanzhong. Characteristics and Construction of Intelligent Media [J]. *News and Writing*, 2016(3): 59-62.
[37] Guo Quanzhong. Characteristics and Construction of Intelligent Media [J]. *News and Writing*, 2016(3): 59-62.
[38] Yu Guoming, Yang Mingyi. Mechanism Construction and Evaluation Method of Platform-Based Intelligent Media—Taking Smart Speakers as an Example [J]. *Journal of Xinjiang Normal University* (Philosophy and Social Sciences Edition), 2019, 40(2): 120-126.
[39] Li Ge, Zheng Xujun. Characteristic Analysis and Design Thinking Reconstruction of Intelligent Media [J]. *China Publishing*, 2018(2): 52-55.
[40] Peng Lan. Intelligent Mediatization: The Future Media Wave—New Media Development Trend Report (2016) [J]. *International Press*, 2016, 38(11): 6-24.
[41] Cheng Dong. *New Media Introduction in the Intelligent Era* [M]. Beijing: Tsinghua University Press, 2019(27).
[42] Marx. *Introduction to the Critique of Political Economy*, in *Selected Works of Marx and Engels* Vol. 2, People' s Publishing House, 1972(88).
[43] Li Weishan. Subjectivity and Fundamental Philosophical Questions [M]. Beijing: Central Party Literature Publishing House, 2002(4).
[44] Guo Zhan. *Subjectivity Philosophy: Human Existence and Its Meaning* [M]. Kunming: Yunnan People' s Publishing House, 2002(18).

Author Biography: Cheng Dong, Director of New Media Research Institute, Distinguished Professor and Academic Leader of Network and New Media Program, Xi' an University of Science and Technology High-tech College; Vice President of Shanxi Provincial Writing Association; Leading Talent of Shanxi Province.

Note: Figure translations are in progress. See original paper for figures.