Research Progress and Trends in Technology Affordances Research: A Knowledge Graph Analysis Based on CiteSpace

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Abstract

Technology affordances are a method for technology users to carry out actions based on the possibilities provided by a certain technology. In order to systematically grasp the research hotspots and evolution of technology affordances at home and abroad, and clarify the characteristics and development direction of technology affordances research in China, we use CiteSpace software to visualize and analyze the research literature on technology affordances at home and abroad. The research results of technology affordances at home and abroad are increasing, and the number of scholars who have researched technology affordances is large, but the cooperation among authors is generally scattered; among foreign research on technology affordances, information technology, knowledge technology, artificial intelligence, digital technology and web 2.0 are the hot spots of research; among domestic research on technology affordances, the connotation of technology affordances, social media, interaction design and user purchase are the hotspots; there are differences in the research frontiers of technology affordances research at home and abroad, but they all focus on the field of social media.

Keywords

Technology Affordances, Evolution Context, Bibliometrics

1. Introduction

With the rapid development and widespread application of digital technologies, such as big data, artificial intelligence and the Internet of Things, the world has ushered in an unprecedented new round of technological revolution and indus-

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trial change. Digital technology is not only a technology, but also a resource. Technology is deeply integrated with usage context, actors and goal orientation to achieve diverse goals for individuals, organizations and even entire industries. For example, different enterprises can use big data analysis technology to achieve different purposes, such as customized services or cost reduction, and enterprises at different stages of development use digital technology to achieve digital product innovation, digital business model innovation, digital entrepreneurship and other different digital transformation goals, which reflects the affordances of digital technology, that is, different actors use the same digital technology to achieve different goals. Although some studies have discussed the connotation and impact of technology affordances, there is no systematic review and summary of technology affordances in the literature.

The term "technological affordances" evolved from the psychological concept of "affordances", which, according to Gibson [1], originally referred to the way in which the natural environment provides or allocates resources to the species in which it is located and the way in which such resources are provided or allocated is not a matter of "good" or "bad" value judgments, but rather the possibility provided by the environment determines the possibility of action. The emphasis on the connection between the individual and the environment is the core of the concept of "affordances". Based on the concept of "affordances", the concept of "technological affordances" was introduced by Gaver [2] in the early 1990s. "Technological affordances" refers to the connection between the actor and the technological environment in which he or she lives. Technological affordances" continue Gibson's basic claim about "affordances", that is, users of technology act on the basis of the possibilities offered by technology, and that technological affordances do not have a natural "good" or "bad" character; it has both positive attributes and possible negative effects.

This study was searched on June 2, 2023, using China National Knowledge Infrastructure (CNKI) and Web of Science (WOS) as data sources. A total of 434 documents were searched in CNKI under the condition of "topic: technology affordances", and 432 documents were obtained after excluding book reviews, newspapers, patents, and documents that were not related to the topic or weakly related. The search criteria in the WOS database were: subject = "technology affordances" or "affordances of technology", literature type = "article" and "review", language = "English", and 2459 documents were selected after screening.

The results of the CNKI search were exported through RefWorks format as the data source for CiteSpace analysis. The time span of this study was set to 2020-2023, and the threshold value was the default value. In Chapter 2, we present the current status of the research, analyze the volume of publications, and analyze the co-occurrence network of authors; in Chapter 3, we analyze co-citation, including literature co-citation, author co-citation, literature co-citation, and co-occurrence network of issuing institutions; in Chapter 4, we explore the hot

spots and frontiers of research through keyword co-occurrence network analysis, keyword clustering analysis, and emergent word analysis; and in Chapter 5, we conclude the paper.

2. Current Status of Research

2.1. Analysis of the Volume of Articles Issued

In terms of the number of publications, the number of publications in the field of technology affordances has slightly fluctuated in the past 23 years, but in general, it shows a rising trend year by year, and can be divided into three development stages. 2000-2015 is the budding period, the number of publications is small and tends to be stable, the number of publications is about 1 - 4 each year; 2016-2019 is the development period, with a large increase in the number of articles published from 2016 to 2019, the number of articles increased from 7 to 20, and the trend of related research became hotter than before; from 2020 to 2022, the period of rapid growth, the number of articles increased steeply from 41 to 97 this year, and the number of articles is likely to continue to expand this year. This indicates that research related to technology affordances is receiving attention from scholars in China and continues to heat up.

The English literature, in terms of the number of articles published, also shows an upward trend year by year in general, although there are periods of relative stability in between, and can be divided into 3 development stages. 2000-2007 was a period of steady rise, with relatively few articles published and a small annual increase, the number of articles published each year was about 10 or less, compared with the number of articles published in China, this period was only relatively few abroad, but it was already close to the level of the last two years in China. In 2008-2017, the stable period, the number of articles doubled, from about 20 to 130, showing the depth of research and the expansion of the width, but the number of articles in this period is relatively stable, and there is no large-scale publication, even a small drop in 2014. There is a small drop; 2018-2022 is a period of rapid growth, with a steep increase in the number of publications, from 130 to 393, which can also be found in the analysis of clustering to incorporate more technology research. At the same time, according to the data trend in Figure 1, we can find that domestic research has a lag compared with foreign research, foreign research began to show a significant growth trend in about 14 years, while domestic research began to show significant growth only in 16 years.

CiteSpace was used to analyze and derive data on the number of national publications in the English language literature, and the ranking by country can be seen as USA (627), UK (243), Australia (196), China (145), Canada (109), Netherlands (89), Sweden (73), Germany (58), Norway (54). The U.S. has a huge advantage in the number of publications, which is 2.6 times higher than that of the U.K. in second place, indicating that the U.S. concentrates a larger portion of research in the area of technology affordances and makes the largest contribution to research

in this area.

2.2. Author Co-Occurrence Network Analysis

According to Price's law in scientometrics, the formula to calculate the minimum number of publications that should be satisfied by core authors is $N = 0.747(N_{max})1/2$, and it is calculated that there are 10 domestic and 32 foreign authors who have published more than or equal to 3 articles as core authors. The author Lingling Luo has 11 publications and is the most published author in the field of technology affordances. The number of nodes, *i.e.* the number of authors, is 231, and the number of connected lines is 146, which indicates that the connection is fragmented, the cooperation between authors is not close, and the cooperation between teams is weak and the mutual communication is lacking, which is the area that needs to be improved. Map the co-occurrence network of foreign authors (Figure 2), the number of nodes, *i.e.* the number of authors, is
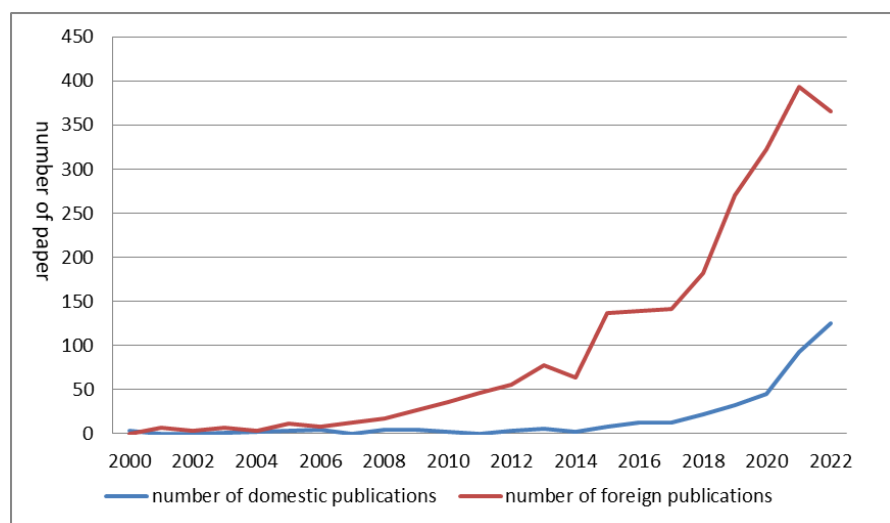
Figure 1. Changes in the number and increment of domestic and foreign technology affordances research literature.
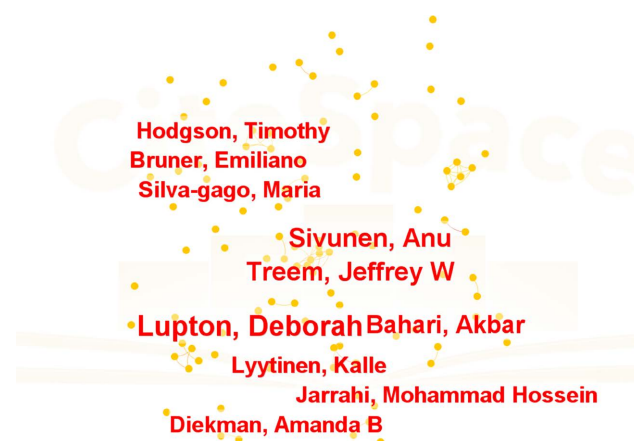
Figure 2. Co-current network of authors in the field of foreign technology affordances research.

463, and the number of links is 194, which indicates that the number of authors is much larger than the number of links, and the links between authors are scattered and the cooperation is not close, so that no standardized research team is formed, and the articles are mostly done by authors independently, and academic communication and cooperation need to be strengthened.

3. Co-Citation Analysis

3.1. Co-Citation Analysis of Literature

The process of mining the co-citation relationship of the literature data collection is the co-citation analysis of the literature, which reflects the knowledge base of a research field. Since co-citation analysis cannot be performed on Chinese literature exported from CNKI, co-citation analysis is only performed on English literature exported from WOS. The CiteSpace node was set to "reference" for co-citation analysis. Table 1 shows the top 10 highly cited documents in terms of citation frequency, among which two documents by Treem *et al.* [3] and Leonardi [4] have a centrality of 0.04 and 0.09, respectively, indicating that these two documents are landmark research results. Through dimensions such as "visibility", "persistence", "engagement", and "connectivity" and "Evans" [5] most frequently cited review article in Journal of Computer-Mediated Communication systematically reviews affordances research in media and behavior and points to future research directions.

3.2. Analysis of Authors' Co-Citations

Author co-citations reflect the close relationship between authors in a research field, and the more frequent author co-citations, the stronger the association of scholars in the research field. By setting the node of CiteSpace to "Cited Author" for author co-citation analysis, the results in Table 2 below show that the authors'

Table 1. Highly cited literature in the field of technology affordances research and its centrality.

Serial number	Number of citations	Centrality	Co-cited authors
1	79	0.02	Evans S.K. *et al.* [5] (2017)
2	48	0.04	Treem J.W. *et al.* [3] (2020)
3	33	0.09	Leonardi P.M. [4] (2011)
4	33	0.01	Leonardi P.M. & Vaast E. [6] (2017)
5	33	0.04	Rice R.E. *et al.* [7] (2017)
6	31	0.01	Majchrzak A. *et al.* [8] (2013)
7	29	0.03	Bygstad B. *et al.* [9] (2016)
8	26	0.01	Strong D.M. *et al.* [10] (2014)
9	25	0.01	KarahannaE. *et al.* [11] (2011)
10	24	0.02	Fox J. & McEwan B. [12] (2017)

centers are low, indicating that they collaborate less and mostly complete their research independently. The top 9 authors (see Table 2) are Leonardi (254), Hutchby (181), Gibson Jerome (179), Gibson (153), Norman (134), Markus (133), Orlikowski (133), Treem (130), Majchrzak (122), and CitedAuthor, Majchrzak (122). The research of highly cited authors covers many fields such as journalism, publishing, and design.

3.3. Analysis of Journal Co-Citations

Journal co-citation analysis can demonstrate the source and distribution of knowledge in the research field, and Table 3 shows the journal co-citation mapping of foreign technology affordances research. Table 3 shows the top 10 journals

Table 2. Highly cited authors in the field of technology affordances research and their centrality.

Serial number	Number of citations	Centrality	Representative person
1	254	0.07	Leonardi (2010)
2	181	0.06	Hutchby (2006)
3	179	0.16	Gibson Jerome (2001)
4	153	0.05	Gibson (2007)
5	134	0.08	Norman (2001)
6	133	0.10	Markus (2010)
7	133	0.09	Orlikowski (2010)
8	130	0.09	Treem (2013)
9	122	0.06	Majchrzak (2013)

Table 3. Highly cited journals in the field of technology affordances research and their centrality.

Serial number	Number of citations	Centrality	Periodicals
1	644	0.14	COMPUT HUM BEHAV
2	581	0.05	COMPUT EDUC
3	564	0.04	MIS QUART
4	449	0.06	J COMPUT-MEDIAT COMM
5	447	0.10	ECOLOGICAL APPROACH
6	426	0.04	NEW MEDIA SOC
7	384	0.03	ORGAN SCI
8	378	0.07	BRIT J EDUC TECHNOL
9	332	0.03	INFORM SYST RES
10	303	0.01	SOCIOLOGY

in terms of citations, among which: Computers in Human Behavior has a total citation frequency of 644 and a centrality of 0.14, all of which are in the top, indicating that this journal is in the core of technology affordances research; Journal of Computers in Education, MIS The Journal of Computers in Education and MIS Quarterly are the second and third most cited journals, which are more authoritative and comprehensive management journals; J COMPUT-MEDIAT COMM, which is the fourth most cited journal, also focuses on the field of computing; and ECOLOGICAL APPROACH, which is dedicated to ecology-related research at the environmental, personal, and technological levels. As can be seen, the research available in technology involves a wide range of fields and disciplines and has a broad development prospect.

3.4. Analysis of Co-Occurrence Network of Issuing Institutions

The distribution of issuing institutions reflects the breadth of research in the subject area. At present, most of the research fields on the affordances of technology in China are concentrated in universities and colleges of journalism and communication, and even those that do not show colleges are mostly new communication colleges. Among them, Tsinghua University School of Journalism and Communication, Beijing Normal University School of Journalism and Communication, Northeastern University Research Center for Philosophy of Science and Technology, and Nanjing University School of Journalism and Communication have large nodes on the knowledge graph, which fully indicates that the academic research achievements of these institutions are more fruitful. However, although there seems to be more related publications in general, from the cross-institutional perspective, only a few highly productive schools have more exchanges and cooperation among research institutions, but most of them are also between different institutions and colleges within the university or between different schools in the same city, with a strong territoriality. The number of links between institutions with less than 4 publications is small, and no obvious clusters are formed, and the sense of exchange and cooperation among several research institutions is weak. Most of the papers are published from different research perspectives by highly productive scholars of the same institution. In essence, there is no complete research team, but only a single institution's research, and the core research strength is weak.

Analyzing the co-occurrence mapping of foreign institutions (Figure 3), we found that the intensity of collaboration is 0.0042, which is obviously low, and also relies more on the collaboration within their own schools or research institutions. The top five institutions in terms of the number of foreign publications are University of California System, University of London, University System of Georgia, State University System of Florida, Nanyang Technological University, with 66, 57, 34, 31, and 31 articles respectively. Although there is a huge difference in the number of articles published domestically and internationally, with a difference of about six times, the same schools are the main force among the

Figure 3. Co-current network of foreign publishers in the field of technology affordances research.

institutions publishing articles in the field of technology affordances, and research institutions have only a smaller number of articles.

4. Research Hotspots and Frontiers

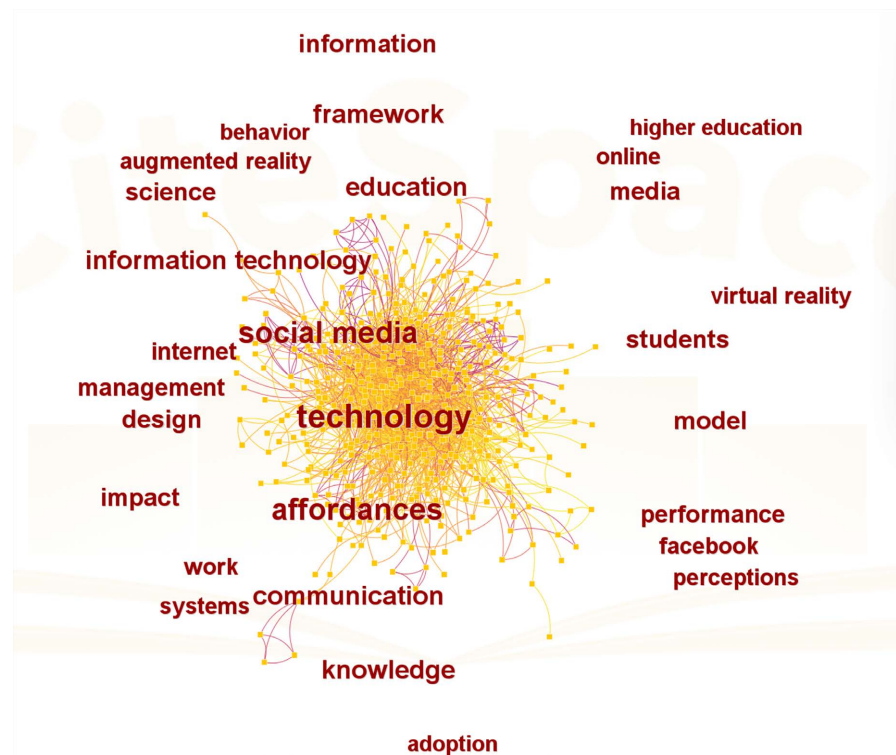### 4.1. Domestic and International Technology Available Research Hotspots

4.1.1. Keyword Co-Occurrence Network Analysis

According to the output results of the knowledge network literature,, N = 335, E = 527, Density = 0.0094, there are 335 keywords in total in the literature indicating technology affordances, and there are 527 co-occurrence relationships between the keywords and they are more closely connected. Among them, the terms short video, visibility, interaction design, mineral resources, digital news, metaverse, social media, media convergence, willingness to buy, and materiality have a high frequency.

According to the output of WOS (Figure 4), N = 510, E = 1862, Density = 0.0143, indicating that the technically available literature has 510 keywords in total, and there are 1862 co-occurrence relationships between the keywords, and they are more closely connected, compared with the domestic literature, the foreign literature has more co-occurrence, more connections, and more closely connected. The top keywords are social media, information technology, communication, knowledge, model, student, framework, education, design, and information, which indicate that both domestic and foreign literature Social media is not only favored by domestic users and researchers, but also the international development is consistent, and there is no discrimination between the invention and creation of each technology to improve the life of human beings around the world.

The keyword co-occurrence reveals that although the domestic research is based on the concepts of foreign scholars, after nearly 20 years of development,

Figure 4. Keyword co-occurrence network in the field of foreign technology affordances research.

there are both similarities and differences in the research hotspots.

1) Similarities between domestic and international technology affordances research hotspots

Firstly, technology affordances are developed from affordances, and the keywords "technology" and "affordances" are ranked at the top of the list. Secondly, domestic and international studies on technology affordances involve public media, and the key words include "social media", "WeChat", "Facebook", "short video", and "online video". Third, both domestic and international technology affordances studies focus on the experience of students, teachers and other users, hoping to develop better designs in the feedback process of human-computer interaction.

2) The differences between domestic and international technology affordances research hotspots

First, through the statistics of the subject of the article, it can be found that in the research object domestic first focus on natural resources such as minerals, and gradually combined with the current hot disciplines or technologies, from other research slowly shift to the study of technology affordances, while foreign since the concept as soon as the emergence of the application of computer and education teaching field, showing the change of this research on other research. Second, domestic research in the development of technology affordances research is more inclined to research on industries with direct benefits, such as: interface design, news communication and social media, while foreign countries

tend to theoretical research, new technology research and development need to realize the cycle and create new research, such as: web 2.0, digital technology, virtual reality and artificial intelligence. Third, the domestic technology available research related disciplines are journalism, design, computer science and business economics, while foreign research related disciplines are journalism, computer science, big data technology, humanities and sociology, management, the most obvious difference is that the domestic focus on journalism and communication this kind of research related to the individual, foreign focus on research for the theory and the practical application of the organizational level.

4.1.2. Keyword Clustering Analysis

To gain insight into the structural features of the current state of technology affordances research, a clustering analysis of keywords in the field of technology affordances was conducted. The path finding approach was used to simplify the network and then highlight the main structural features, and the keyword co-occurrence network mapping was obtained after multiple clustering (Figure 5). The Q-value of 0.6179 > 0.3 in the domestic literature indicates that the association structure is significant, and the S-value is 0.9762 > 0.5 or even greater than 0.7, indicating that the clustering is efficient and convincing. The main clusters in the mapping are: short video, interface design, mineral resources, sales revenue, collection, storage and transportation, methodology, supply structure, information support. The main clusters in foreign literature are Strategy, enterprise social media, mobile apps, social media, digital technologies, experience, accountability, eye-tracking.

After keyword clustering, it can be found that there are certain commonalities among different clusters. By combing the clusters and combining them with the literature, it is found that they share three main research focuses, including mediatization, interaction design and mineral resources.

Figure 5. Keyword clustering map of foreign technology affordances research areas.

1) Mediatization. Various apps not only provide users with the possibility of action in the technology platform, but also have a huge impact on users' perception, awareness and change of the technology environment, presenting their affordances relationship with technology to contemporary people using apps for learning, socializing and working. Most of the topics of research on social media are short videos, visibility, media, and WeChat. The focus of research in this area is on the deep integration of traditional media driven by short videos under the perspective of affordances; family mediatization: a study of the role and function of WeChat in family communication; visibility as mediatization: an ontological exploration of the issue of visibility; factors influencing the social use of WeChat, QQ, and nails by occupational groups Analysis; A study of the role function of WeChat in family communication. Zhang and Zheng [13] point out that contemporary college students' use of apps for English learning presents their affordances relationship with technology, but among them, fatigue and social anxiety about technology make them strongly resist the socialization of English apps, which reflects the problem of contextualization and contextualization of affordances theory, and the study of these issues helps us to deeply understand the interaction between human and media technology. Huang and Luo [14] point out that the concept of affordances, born in perceptual psychology, provides an important cognitive perspective for understanding the relationship between technology and people, emphasizing the relational properties, especially complementarity, between animal/human and environment/technology. Steffi *et al.* [15] analyze data from Twitter and points out that in order to understand the affordances of social media, it is necessary to consider the media and the context it creates contexts and how this increases the range of possible explanations. Baym and Boyd [16] argue that the nature of online public space based on technological availability is shaped by the technical architecture and technological devices of social media platforms, but is also profoundly influenced by the social backgrounds, social identities, and social practices of social media users themselves.

2) Interaction design. It is both the interaction between the user and the device, and the interaction between the designer and the interface. Among them, visual affordances research, *i.e.* exploring the possibility of visual subjects interacting with the environment or objects by using visual data such as images and videos, involves scene recognition as well as object detection and other related technical fields. Furthermore, visual affordances have been applied to drones, scene understanding, VR, and other fields. According to the related research that has been done so far, there are three aspects according to functional affordances, behavioral affordances, and social affordances, among which, functional affordances are the affordances judged based on the nature of the object itself, such as judging using the shape and material of the object; behavioral affordances are the affordances judged based on the usage method of the object, such as judging using the behavior of the human or robot using the object; social affordances are judged based on the relationship between the target affor-

dances are based on the relationship between targets. For example, the relationship between elements of the environment or between individuals is used. The focus of this research is on the ecological basis of interface design; interaction design of exhibits in the perspective of affordances; ecological basis of interface design; and interface design of office facilities based on ecological perception theory. According to Gu *et al.* [17], environmental design based on affordances is a mechanism to foresee the development of human-environment ecological relationship, which is to pre-determine the appropriate natural affordances and social affordances in the environment. Huang [18] pointed out that technology is a set of affordances, there is an intersection of technology affordances between different technologies, technology affordances follow the principle of recursiveness, and combinatorial evolution is the evolutionary mechanism of technology affordances. Jesper Aagaard explains the problem of technology affordances in education through a phenomenological perspective, citing the example of laptops in the classroom that interfere with student learning. New approaches should be proposed to balance the current technological optimism and, more importantly, to continue to explore the shortcomings of current technology. Doebler and Bartnik [19] argue that while technology may have faults, limitations, or erroneous conclusions, technology can also be applied to humans to form better versions that provide more support for technological affordances when people make decisions. ronzhyn, in synthesizing technological and social media affordances knowledge to propose a unified definition of social media affordances. A unified definition of affordances in social media is proposed based on the synthesis of knowledge on affordances in technology and social media [20].

3) Mineral resources. The research in this area is carried out earlier and is also the direction in which the domestic technical affordances research began, and the relevant domestic research was concentrated in this area until 2013. Research on mineral resources affordances demonstration mainly lies in collecting, organizing, compiling and summarizing information on various geological resources, coal and iron ore and mines, geology, exploration, testing, development, production and other technical and economic information, and then providing specific data information for the construction of mineral resources affordances system; in addition, using data models and computer development to build mineral resources affordances-related systems; through evaluation indicators to In addition, we use data modeling and computer development to build a mineral resource affordances system; we use evaluation indicators to determine whether mineral resources are available and to determine the amount of mineral reserves that can be provided to society under certain technical and economic conditions. Other major research directions are the study of the affordances of African copper resources in China; the risk of depletion of iron resources; the analysis of the causes of mineral affordances debate; the study of the affordances of African copper resources in China; and the study of the affordances of important mineral resources in Hubei Province.

4.2. Analysis of Emergent Words

The higher intensity of mutated words indicates the higher attention of the academic community. The top 16 words with the highest research intensity in China were obtained through the mutation detection, and the trend of research themes in the field of technology affordances was analyzed. It can be found that domestic technology affordances research started from the study of resources, which was narrow and limited to the superficial level, and the mutation started in 2008, and gradually shifted from the study of resources to other disciplines. Ma *et al.*'s [21] study analyzed some specific social scenarios that affect users' purchase intention based on the affordances of technology and constructed a theoretical model of what users pay to get support under the explanation of technology. Sheng and Wang's [22] study expands on the theoretical framework of NAF (demand-affordances-function) and proposes the NAFB (demand-experience-function-behavior) model to study the factors influencing user experience under live e-commerce and its impact on consumer purchase behavior. Xu *et al.* [23] construct a direct-chain theoretical model of "technical affordances and anchor characteristics-customer engagement and consumer trust-consumer purchase intention" to answer the question of how platform technical characteristics and anchor characteristics contribute to purchase intention by influencing customers' internal perceptions and emotions in a live webcast.

As can be seen from Figure 6, the hotspot research on technology affordances abroad generally shows a trend of research duration from long to short, with most of the earlier studies above 5 years, while the duration of research in recent years is generally around 2 years, indicating the contribution of the emergence of different new technologies and the participation of scholars from different disciplines to the diversity of research. In 2001, Hutchby [24] introduced the concept of affordances into the sociology of science and technology. Behnagh and Yasrebi [25] examined a class of constructivist learning technologies from the perspective of sociocultural theories of learning and socially shared regulation of learning the Computer-Supported Collaborative Learning (CSCL), and argued that CSCL tools adhered to most of the principles of constructivism and shared learning rules in terms of social outcomes and productive use.

Through comparison, it can be found that the domestic research starts with the affordances of natural resources such as minerals and coal, while the foreign research originates from the application of classroom teaching. The domestic follow-up focuses on the design of interaction, providing new perspectives and methods for the design and evaluation of application software and advertising, and from 2019 the focus is on the study of media such as social media, discovering the role it plays in the work there is also how to dig deeper into the commercial value of technological functions. And foreign research on the application of new media began in 2013, and gradually expanded the research to web 2.0, artificial intelligence, information systems and other directions, focusing more on the application in science and technology and how various groups of people can

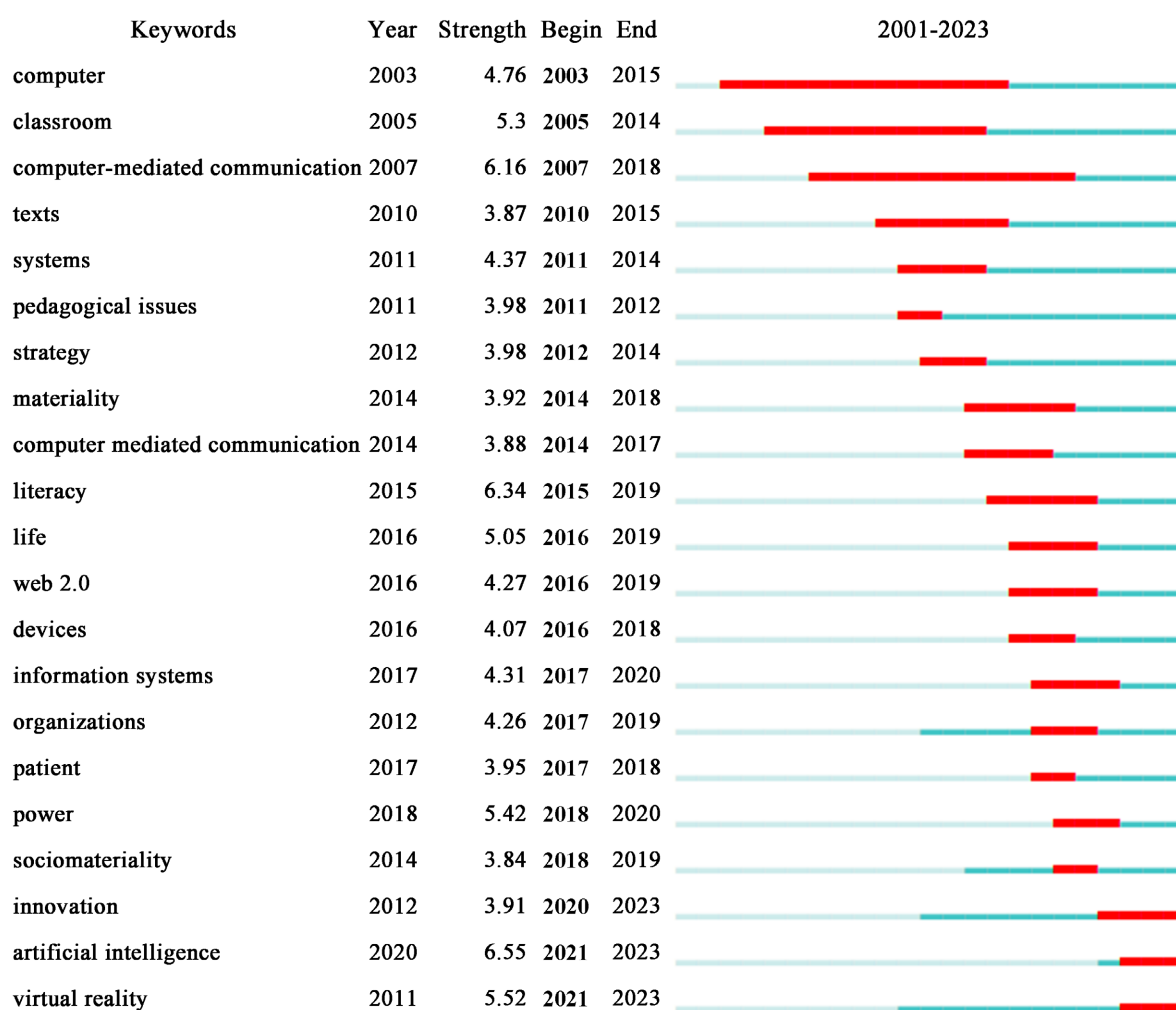## Top 21 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	2001-2023
computer	2003	4.76	2003	2015	
classroom	2005	5.3	2005	2014	
computer-mediated communication	2007	6.16	2007	2018	
texts	2010	3.87	2010	2015	
systems	2011	4.37	2011	2014	
pedagogical issues	2011	3.98	2011	2012	
strategy	2012	3.98	2012	2014	
materiality	2014	3.92	2014	2018	
computer mediated communication	2014	3.88	2014	2017	
literacy	2015	6.34	2015	2019	
life	2016	5.05	2016	2019	
web 2.0	2016	4.27	2016	2019	
devices	2016	4.07	2016	2018	
information systems	2017	4.31	2017	2020	
organizations	2012	4.26	2017	2019	
patient	2017	3.95	2017	2018	
power	2018	5.42	2018	2020	
sociomateriality	2014	3.84	2018	2019	
innovation	2012	3.91	2020	2023	
artificial intelligence	2020	6.55	2021	2023	
virtual reality	2011	5.52	2021	2023	

Figure 6. Map of emergent words in the field of foreign technology affordances research.

better use technology.

5. Discussion

In general, the number of articles published in the field of technology affordances in China tends to increase rapidly in general, while the number of articles published in the field of technology affordances in foreign countries is also in a rapid growth stage after a stable stage. Compared with foreign countries, the number of domestic publications in this field is relatively small, and there is a lack of cooperation among author teams and institutions in China. The thematic analysis reveals that visibility, interaction design, social media, and user socialization are the hot spots of research in the field of technology affordances. Among them, purchase intention represents the cutting-edge research in this area, and further research can be conducted to explore the potential in this area in the future. This paper uses bibliometric methods as a basis to visualize the literature in the field of technology affordances research, and shows the distribution of the

main research forces in this field at home and abroad, as well as the research frontiers, hot spots and development trends in this field, in order to play a role in promoting future research in the field of technology affordances.

This study reveals the basic situation, research hotspots and future development direction of technology affordances research at home and abroad, and provides a reference for the development of technology affordances. However, it also has certain limitations. The literature comes from the WOS database and the China Knowledge Network database, and the language is mainly Chinese and English, although the literature is well collected, other language literature is neglected.

Future research on technology affordances in China is suggested to be carried out in the following aspects: First, strengthen the theoretical support of technology affordances. Based on the development of the discipline in China, we should search for the connotation and influencing factors of technology affordances from multiple perspectives. Second, improve the localization level of technology affordances research. Combining with China's advantageous science and technology development, we explore the development path with China's research characteristics based on advanced technology that is different from foreign science and technology research. Third, expanding the extensiveness of local technology affordances research. Apply Chinese systematic thinking to study technology affordances, continue to deepen what has not been studied abroad, and provide new directions for global technology affordances research.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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