https://doi.org/10.37420/j.eeer.2022.009

Application of Artificial Intelligence in Educational Publishing, Problems and Countermeasures

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Abstract

Nowadays, stepping into the intelligent era, big data, artificial intelligence, the Internet of Things and other emerging technologies, as well as new communication methods represented by fragmented communication continue to impact the traditional educational publishing industry, in the face of the impact of technology, the educational publishing industry in the country under the guidance of the relevant policy documents, but also actively seek to integrate with new technologies, such as artificial intelligence and other new technologies, to the publication of the 3.0 era of progress, which brings about a number of changes, including the publishing process. This has brought about changes in many aspects, including the publishing process, product forms, and so on. Based on the theory of compensatory media and the technical path of AI-enabled educational publishing, the article explores the application of AI in educational publishing from the perspectives of perception, interaction, and anthropomorphism, analyzes its problems, and provides corresponding countermeasures for its future development.

Keywords

Artificial intelligence, Education publishing, Compensatory media, Technology

1. Introduction

Accompanied by the booming rise of big data, artificial intelligence, 5G, cloud computing and other technologies, mankind is striding towards the age of intelligence. Among them, AI technology, as a new force that cannot be ignored, has gradually stepped into our field of vision, and is widely used in various industries such as finance, transportation, medical care, education, etc., providing a new engine of economic growth for traditional industries. As a pillar of the cultural industry, the traditional publishing industry, which has both commodity and cultural attributes, is also facing the need for digital transformation under the impact of new technologies. Among them, educational publishing has become the largest category in China's book publishing market and the pillar of the publishing industry and the main source of profit due to its huge student population base.

2. Compensatory Media Perspectives on Artificial Intelligence in Educational Publishing

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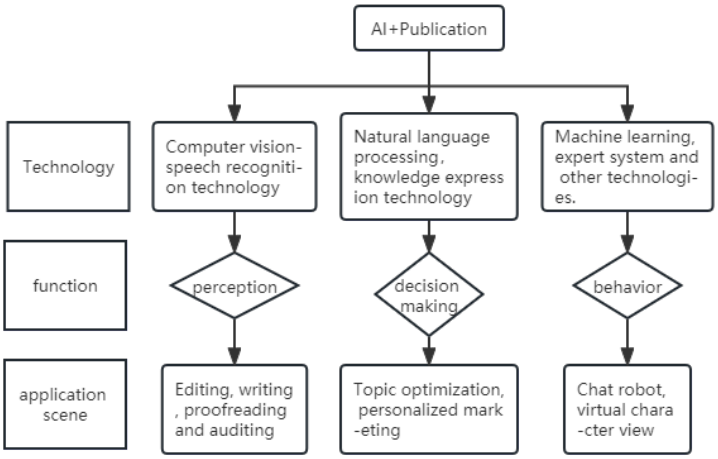
"Compensatory media" was first proposed by Paul Levinson, who believed that human beings are constantly making rational choices in the process of media evolution. Any kind of succeeding media is a kind of remedial measure, it is a remedy and compensation for a kind of inherently insufficient function in the past, and the evolution of media is the result of human choice. At the same time, there is also inheritance and coherence between the old and new media, and the old media will continue to evolve with the assistance of the new media in order to adapt to the new information needs of human beings. In terms of theoretical contributions, the theory of "compensatory media" provides a persuasive explanation for the progress of media technology, and believes that human beings determine the direction of media evolution; it is proposed that we can refine and control media technology, and conserve and develop our preferred media environment.

Artificial Intelligence, as a new technology with strong vitality, and its application in the field of educational publishing, injects new energy into traditional educational publishing and makes up for the shortcomings of traditional educational publishing in terms of efficiency, feedback, and user experience.

With the gradual maturation of AI-related technologies based on data, algorithms, and arithmetic power, AI also has the conditions for large-scale application in the field of educational publishing. Computer visual language recognition, natural language processing, machine learning, deep learning and other technologies make the three prominent functions of artificial intelligence: perception, decision-making, and action, which have been specifically applied in the publishing industry.

Among them, the perception function of large-scale accurate identification of pictures, language, etc. with the help of computer visual language recognition technology is applied to editorial writing and robot automatic proofreading and auditing; the decision-making function of intelligent recommendation through the technology of natural language processing, knowledge expression, and adaptive analysis system is applied to the optimization of publishing selection and personalized marketing; and the action function based on machine learning, deep learning, expert system The action function based on machine learning, deep learning, expert system and other technologies to perform various activities is reflected in the application of



chatbot and virtual character video development.

Figure 1. The technological path of AI-enabled publishing

At present, the scope of application of artificial intelligence in educational publishing mainly includes content selection, volume formation system, intelligent proofreading, online education, online marketing,

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intelligent automatic production and other fields, which greatly improves the service capacity and service efficiency of educational publishing.

2.1. Sensory function compensation: application of perceptual function based on computer vision speech recognition technology

Due to the strong specialization of traditional auxiliary teaching materials, children's books and other educational publications, their preparation and proofreading are time-consuming and labor-intensive, while AI technology based on the computer vision speech recognition system can not only improve the efficiency of writing and reviewing manuscripts through image recognition and voice entry, but also enrich the form of the content of the educational publications, and realize the secondary processing of the content of traditional educational publications. For example, intelligent AI voice lectures, one-on-one question practice, 24/7 online Q&A, etc., mainly through voice recognition technology to students, parents or teachers voice entry and comparison, and database keywords to match, and information processing to extract the corresponding features, you can complete the one-on-one voice answer, so as to more conveniently solve the student's confusions or difficult questions, so that educational publications with the aid of artificial intelligence technology can not only improve the efficiency of writing and reviewing, but also enrich the content form of the traditional educational publications. publications have more possibilities with the aid of AI technology.

In addition, there is also the Big Eye Deer Intelligent Companion Reader published by the Foreign Studies Society, which uses image recognition and voice recognition technology to process paper content twice, making traditional paper books "listenable, watchable and interactive", enriching the expression of traditional educational publications, and making it possible to study anytime and anywhere with the help of intelligent terminals, greatly enhancing the convenience of learning. The convenience of learning has been greatly improved. In addition to improving the editing efficiency and enriching the content of educational publications in addition to the form of expression, computer vision speech recognition technology has also been applied to the development of new intelligent educational hardware, such as Tencent education launched AILA intelligent homework lamp, mainly for elementary school students homework tutoring, support for voice wake-up call, AI lectures and photographs to correct homework and so on.

2.2. Interactive compensation: decision-making function application based on natural language processing and knowledge expression

Traditional educational publications are written with the editor in the lead, lack of interaction with readers in the selection of topics, and it is difficult to know the effect of the use of publications and feedback, and it is difficult to provide high-quality publications that better meet the needs of users. Relying on natural language processing, adaptive analysis system, knowledge expression and other artificial intelligence technologies can help solve the above problems. For example, with the help of artificial intelligence technology, KDDI Group has processed its language books and publications, making its teaching materials "intelligent" and truly realizing the integration of "editing, learning, and feedback"; in addition, its voice recognition technology not only enables readers to recite the content they want to learn, but also provides them with a better understanding of the content they want to learn. In addition, its speech recognition technology not only enables readers to recite and play the content they want to learn, but also provides timely feedback on pronunciation problems to readers, and this part of the data is also transmitted to the back-end database and fed back to the publisher, who will improve and optimize the teaching materials based on the analysis of these data. Koala Reading, relying on artificial intelligence machine learning technology, has created the first set of quantitative Chinese graded reading standards (ER Framework) in China to provide personalized reading solutions for K12 student groups, processing a total of 13 million words of unbalanced corpus and

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200 million words of balanced corpus. The unbalanced corpus is mainly from various versions of elementary school textbooks and their teaching aids, while the balanced corpus refers to the corpus that a child needs to be exposed to in his/her daily life, e.g., the corpus is distributed according to the ratio that a 10-year-old child needs to read 20% of famous novels, 50% of texts, and 20% of comics.

In addition, the "Modern Paper Book" model created by the Key Laboratory of Publishing Convergence Development (Wuhan) of the State Press and Publication Administration, through printing QR codes on paper books, allows students to read a paper textbook, but also through online scanning codes to access the master teacher live, online classroom and other online services, effectively supplementing the book knowledge. Book knowledge, in addition to relying on artificial intelligence technology to help analyze students' personalized preferences in a timely manner, to understand the various types of knowledge blind spots in the process of reading paper books for each reader, and to deliver more accurate online content for them to realize the online and offline knowledge linkage, and to check for gaps in time, so as to meet the personalized and precise learning needs of students.

2.3. Anthropomorphic compensation: behavioral function application based on machine learning expert system and other technologies

As the core of artificial intelligence, machine learning mainly studies how to use computers to simulate or implement human learning behaviors in order to acquire new knowledge and skills, and continuously improve their own performance. The field of education and publishing with the help of machine learning, expert systems and other artificial intelligence technology to develop chatbots, avatars and images, and through this to carry out accurate marketing of books and provide personalized service for readers. The U.S. Intellogo (Intellogo) company through machine learning to master the book theme, style, emotion, and so on, and readers related to behavioral data research, analysis of readers' preferences and bias, and 24 hours non-stop targeted to readers for accurate book recommendations. Its innovation lies in the natural dialog between the user and the machine, in which the reader can ask questions to the robot, and the robot will ask further questions based on its own understanding and dialog scenarios. In the end, the robot will give the reader feedback on the most suitable and only book, and tell the reason for recommending the book, and if the user is still not satisfied, the robot will repeatedly have a dialog with the user to improve the reason for recommending the book.

Another example is "Xueyou", the latest research result of HILL, an intelligent learning lab set up by HUJIANG Education, which builds a copyrighted knowledge base based on its purchased courseware and a huge amount of high-quality Q&A resources from users, and pushes accurate answers to the questioners through its in-depth understanding of students' learning behavior habits and preferences. In addition, Xueyou can also sense users' learning interests and motivations, and establish learning communities for them to share knowledge with each other.

"As two intelligent products of Beishi Publishing Group, the former can help students to check and fill in the gaps of minor knowledge points, and at the same time generate a diagnostic report of students' learning with the help of big data technology, so that teachers can adjust the lectures and give targeted counseling. The latter provides online educational resources, and teachers and students interact with each other through the client. This AI-enabled education publishing model creates a combination of online and offline teaching from scenarios, which not only enables teachers to fully understand and master students' learning from digital teaching materials and student learning diagnostic reports derived from data analysis. And it transforms the one-to-many mode of traditional teaching into a one-to-one mode, which is conducive to teachers' tar-

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geted tutoring of students and meets students' personalized learning needs.

In addition, along with the rise of concepts such as meta-universe in the post-epidemic era, the tracking and supervision of learning behaviors in virtual teaching scenarios will be a major trend in the future development of the integration of educational publishing. Foreign Meta (formerly Facebook) launched the main virtual reality meta-universe platform Horizon Worlds at the end of last year. as the world's first publicly traded meta-universe company Roblox, is also a UGC game creation platform compatible with virtual worlds, casual games and self-built content, which allows players to create and develop 3D, VR and other digital It allows players to create and develop 3D, VR, and other digital content , and is currently being developed as a "game + education" platform. Domestic Internet technology companies have also developed meta-universe related products, such as Baidu launched the first domestic meta-universe product "Xiyang", based on its leading artificial intelligence technology, to create a virtual world across the virtual and real, with the identity of the multiplayer interactive virtual world. Baidu's Smart Classroom is an AI smart education platform that deeply integrates AI technology with education and learning scenarios, and there is hope that a meta-universe school will be built in the space of "Xiyang" in the future, which also provides an imaginative space for education publishing under the concept of meta-universe.

3.Dilemmas and Issues in the Application of Artificial Intelligence in Educational Publishing

Along with the wave of "Artificial Intelligence Fever", the education publishing field has been trying to apply AI technology to the production of education content and services, resulting in the birth of a variety of education and learning hardware devices and smarter teaching modes, but there are still a number of problems that need urgent attention and solution. For example, among the many educational publishing enterprises that hold the qualification of publishing domestic teaching aids and teaching materials, a considerable part of them have not yet paid attention to artificial intelligence and other related technologies, and their layout of the digital and intelligent education field is a bit slow.

As can be seen from the above table, in addition to the traditional paper publishing business, nearly half of the listed companies in the educational publishing industry have not yet developed digital education, digital content business, which also reveals that some educational publishing enterprises do not yet have a sensitive sense of smell in the face of new technologies represented by artificial intelligence. In addition, in the specific use of artificial intelligence technology for educational publishing empowerment has also revealed some hidden problems, educational publishing enterprises should face these problems.

Table 1. The business scope of artificial intelligence application in education publishing listed enterprises

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corporate name	'AI + Education Publishing ' business
China Science and Technology Publishing Media Co., Ltd.	For the field of higher education, ' Zhongke cloud education platform ', for primary and secondary school K12 education, ' champion sharing classroom ' and so on.
phoenix media	The subject network (providing ' online test paper ', ' famous teacher resources ' application and content support, online school communication platform for Tencent Smart Campus), ' Phoenix Cloud Classroom ', Phoenix Easy Education, Phoenix Chuangyi (providing technical services for education informatization 4.0), etc.
china south publishing & media group	Tianwen digital media AI classroom, shell network (smart campus products and smart learning products), school neighborhood APP, etc.
anhui new media	Cooperate with Tencent to build a smart book city, build a ' smart education ' cloud platform project, etc.
winshare	'Wen Xuan fun learning 'teaching auxiliary APP, ' Wen Xuan teach together 'interactive homework APP, mobile teaching platform, ' geography inquiry classroom 'teaching integration solution, etc.
changjiang media	Love Cube Education, Wisdom Education Application Data Platform
times publishing	Smart campus, dolphin baby kindergarten electronic courseware (the first set of kindergarten all-media electronic teaching materials based on touch sensing and intelligent interaction technology in China), etc.
city media	Layout virtual reality digital education, develop VR education and VR science popularization, and create ' Qingyun online intelligent education ecosystem ' : ' Qingyun Education Assistant ', ' AI Composition Review ', ' Digital Textbook ', ' Qingyun Guoxue Museum ', ' Qingyun Ladder Online ', ' Qingyun Title ' and other products.
Central Plains Media	" Elephant Examination and Teaching Evaluation Service System, " " Smart Classroom for Secondary Education, " " Manual Non-genetic Inheritance and Publishing Integration Platform in Primary and Secondary School Labor Education " provide intelligent solutions for the integration of research practice, labor education and after-school delay service work in relevant areas of Henan Province.
Tianzhou culture	Independent research and development of AI education system, AI adaptive course
Chinese online	Primary and secondary school digital textbook teaching comprehensive service platform, primary and secondary school students ' autonomous learning platform, digital books and listening resources, AI video teaching, etc.
Palm reading technology	Focus on the K12 field of youth reading products palm reading extracurricular books, relying on ' palm reading digital library ' to create a scholarly campus wisdom solutions, etc.

3.1.Insufficient Innovation in Educational Publishing Concepts in the Smart Era

Heidegger once said that technology has become the historical destiny of modern man. The development of technology has changed everything in the world, including publishing. The freedom, deconstruction, equalization, pluralism and creativity brought by the emerging media have changed the original thinking

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characteristics of the relevant subjects such as publishers and content creators. Although under the impact of the new round of technological revolution, traditional educational publishing enterprises are seeking transformation, exploring the integration of artificial intelligence technology and educational publishing, but a considerable portion of the enterprise's publishing concept is still lagging behind the development of artificial intelligence technology, and only stays in the stage of simple digitization of traditional educational publishing content resources, which makes it difficult to adapt to the transformation and upgrading of traditional publishing under the background of technological impact and the need for survival. It is difficult to adapt to the transformation and upgrading of traditional publishing and the need for survival under the background of technological impact, and the publisher's concept remains to be innovative.

3.2. Publishing technology and content to be deeply integrated

Although artificial intelligence technologies such as computer vision and speech recognition, machine learning, natural language processing, adaptive analysis and so on have been widely used in the publishing field, there is also the problem of blindly pursuing the use of technology and ignoring the adaptability of technology and publishing content, which makes it difficult for some educational publications to truly capture and retain users. In addition, some educational publications are superficial in combining with AI technology, merely presenting the content in a different way, lacking in-depth thinking on the combination of technology and content, making it difficult to produce truly high-quality and innovative educational publishing products.

Take "English Starting Line" and "Word Intelligence Learning" as an example, both of them only wear relevant reading tapes, which are not related to AI technology, but have the publicity gimmick of artificial intelligence . In addition, some educational publications are only a combination of text and speech and presented on electronic devices, and the content resources of educational publications are simply electronic, this product is superficial, not really intelligent, not to mention the depth of the combination of content and technology.

3.3. Dehumanizing elements of the publishing process require vigilance

The application and continuous improvement of artificial intelligence technology has enabled some machine-generated content to achieve results comparable to the fruits of human brainpower, and it is even difficult to distinguish whether the subject of creation is a human or a machine. But automated content production that relies entirely on machines without supervision is something we need to be wary of. Especially for educational publishing, which spreads knowledge and aims to cultivate the pillars of our country, we need to think about whether the selected topics are important and valuable, and whether they can truly cut into the needs of students, teachers, and parents, and the production of content for educational publications still requires human intervention until we can't put our trust entirely in technology.

The short story "When a Computer Writes a Novel One Day", a collaboration between AI and human beings, was successfully hidden from the judges of Nihon Keizai Shimbun's "Hoshin Literary Prize" and passed the preliminary round; Microsoft's intelligent robot "Microsoft Xiaobing" spent one hundred hours composing "Sunshine Lost Glass", a novel by Microsoft's intelligent robot "Microsoft Xiaobing". Microsoft's intelligent robot "Microsoft Xiaobing" spent one hundred hours to create the "Sunshine Lost Glass Window" was officially published in 2017, which is also the first collection of poems created entirely by artificial intelligence, the automated production of machine content in the publishing field has been recognized and has been used on a considerable scale, but this kind of fast and convenient machine production

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is actually contrary to the precipitation of culture and the accumulation of knowledge. The educational publishing process is more professional, serious and complex, and the pitfalls of one-sided pursuit of economies of scale, homogenization of content, and lack of flexibility in the use of words that exist under the dominance of machines are problems that educational publishers should not ignore.

3.4. Emotional elements need attention with machine intelligence

Image recognition, voice recognition, machine learning, expert systems and other artificial intelligence technologies, through algorithms to mine and analyze the massive amount of data collected, can help the educational publishing industry to better understand the needs of students, teachers, etc., but can not establish an emotional bond between students and publishers. In addition, cold intelligent robots can not replace parents to become a companion on the road of children's learning and growth, although artificial intelligence technology can be constantly upgraded and improved, robots can be more and more human characteristics, but in front of the emotional temperature of the machine will never replace human beings. This means that in the face of machine intelligence we should not be overly dependent and overly excited, and its potential emotional relationship problems still need our attention.

Some AI educational products, such as an artificial intelligence robot Alpha Egg-S launched by KDDI for children, although it has been praised for its ability to break the boundaries of space, to make up for the regrets of children's lonely growth, and to help children learn English better, from the parents' point of view, this product is indeed beneficial for solving the contradiction of the difficulty of parents' work and family to make both ends meet, but the emotional connection between parents and children is a cold machine that is difficult to be replaced. However, the emotional connection between parents and children is difficult to be replaced by a cold machine, and over time, it may be difficult to bridge the gap between parents and children, which is an issue that we should be careful about.

3.5. Lack of innovative talent in the education and publishing industry

The integration of the educational publishing industry and the application of artificial intelligence technology means that publishing practitioners need to have both professional publishing knowledge and computer science knowledge related to artificial intelligence technology. However, at present, due to the late start of artificial intelligence in China, the basic education publications on artificial intelligence related to talent training are not systematic, lack of systematicity and pertinence, and it is difficult to adapt to the needs of the current training of innovative talents in the education and publishing industry, so that the education and publishing industry lacks a team of composite talents familiar with the publishing process but also proficient in the computer science such as AI technology and other computer science, and it is difficult to transform and upgrade the education and publishing industry. It is difficult to inject fresh blood into the transformation and upgrading of educational publishing. In addition, major universities have been committed to promoting STEAM education (i.e. Science, Technology, Engineering, Arts, Mathematics), that the future interdisciplinary, three-dimensional teaching mode is the general trend, the use of artificial intelligence technology for the integration of online and offline scenarios of educational publishing provides more possibilities. Comprehensive talents trained for educational publishing should not only be the purveyors of educational content, but also the designers and leaders of intelligent education.

3.6.Laws and regulations in the educational publishing industry need to be improved

The use of a new technology will also promote the establishment and improvement of laws and regula-

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tions in the field. At present, the application of AI technology in educational publishing is still in the developing stage, and with the further development of AI technology, the use of norms and new types of disputes related to it will gradually increase, and the law has not yet been able to make a timely response. Domestic has appeared a number of artificial intelligence publishing works copyright dispute cases, such as tencent v. "home loan" in the case of artificial intelligence generation of copyright attribution, etc., educational publishing in the search for the depth of fusion with artificial intelligence, must pay attention to the issue of copyright management. The copyright infringement issue in the production of educational publishing content, as well as the problem of balancing the utilization and protection of consumer data privacy that exists in the marketing segment, are the focus of the industry's attention in the future. How to resolve dispute disputes and create a favorable development environment for educational publishing requires legal improvement and guidance.

4. Conclusions

The educational publishing industry should reflect and take action on the problems of AI application in educational publishing covered in the previous section.

4.1.Idea-led: revolutionizing the concept of educational publishing in the age of intelligence

The educational publishing industry should be guided by a brand new publishing concept and dare to innovate and accept new technologies. It is important to know that any emerging technology that brings about changes or subversive changes, its generation, development and application have to go through a long process of being accepted and recognized by the market. As a pillar of the cultural industry, the traditional publishing industry, represented by educational publishing, stands at the crossroads of history, and should make the right choice, strive to revolutionize the concept of educational publishing, arm themselves with new ideas, embrace new technologies, and not be abandoned by the tide of history, so as to enable themselves to take their place in the future market competition.

4.2.Technology First: Driving the Pace of the Educational Publishing Industry with Technology

Although the current educational publishing in the combination of artificial intelligence technology has had good results, but still need to have a qualitative breakthrough in the field of computer speech recognition, natural language processing, machine learning and other artificial intelligence. For example, in the field of online education publishing, student essay marking and correction, automatic translation, one-on-one answers and other voice recognition, intelligent dialog and other technologies can not achieve a high degree of accuracy, the significance and value of the publishing product itself is not so great, and it is difficult to get a wide range of applications in terms of breadth and depth. Therefore, the educational publishing industry should still pay attention to the deep cultivation of technology, and strive to seek breakthroughs in technology bottlenecks or seek cooperation with other technology companies, in short, technology as the driving force to promote the transformation of the educational publishing industry.

4.3. Content is king: mining valuable publishing content

In the final analysis, the mission of the educational publishing industry is to disseminate valuable knowl-

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edge content and services through technology. Therefore, while introducing technology, promoting technological upgrading and improving the adaptability of technology and content, educational publishing should not put the cart before the horse by "emphasizing technology and neglecting content", and should carry out the guideline of "content is king", and strive to explore valuable content and produce market-favorite content on the basis of a full understanding of the needs of students and other readers. On the basis of a full understanding of the needs of students and other readers, efforts to explore valuable publishing content, the production of educational publishing products that the market loves and needs, and furthermore, should seize the advantages of their own content resources, as far as possible, under the packaging of technology to create new demand to open up new markets. Traditional educational publishing enterprises should seize the leading role of digital teaching materials, take the content as the core, create a content product system, and continuously improve and perfect educational publishing services.

4.4.Ethics as a lesson: focus on human ethical emotions under machine intelligence

Objectively speaking, technology itself has no values and can do evil or good, but once the human factor is taken into account, complex ethical issues will arise . On the one hand, we need to understand that artificial intelligence cannot completely replace human intelligence, and on the other hand, we also need to realize that the emotional bond of communication and connection between people is also difficult to reach by the production of non-humanized machines itself. The field of educational publishing should take this as a lesson and face up to the many problems that exist in artificial intelligence technology at the moment, such as the utilitarianization of selected topics, the modalization of reviewing manuscripts, and the homogenization of pushing, so that we can neither over-exaggerate and rely on the machine intelligence, but also avoid the problem of the lack of emotional temperature that may occur due to the overuse of artificial intelligence robots.

This requires the return of the editor's main position, the cultural taste and discernment that educational publishers have and the seriousness and rigor of their work cannot be replaced by machines. Adhering to the cultural leadership, building the public's ethical trust in educational publishing is the fundamental choice of self-help for editors in the era of artificial intelligence .

4.5. Talent-oriented: cultivating interdisciplinary composite talents

The integration of artificial intelligence technology and the application of the publishing industry has put forward brand-new requirements for the knowledge structure and ability of publishing industry practitioners. The current development of educational publishing lacks the construction of interdisciplinary composite talent team, and the cultivation of talents is particularly important when artificial intelligence can still only be used as a supplementary tool. Therefore, under the premise of science and technology to guide the development of society, the educational publishing industry should bear in mind the talent-oriented, and strive to cultivate a team of talents who have professional publishing knowledge, but also be able to be proficient in and master the ability to think and use artificial intelligence technology, so as to provide a steady stream of fresh blood for the integration of the field of educational publishing and the application of artificial intelligence technology research.

4.6. Law as a guide: legal guidelines to regulate the development of the industry

"Without rules, nothing can be accomplished", any industry needs to be regulated and guided by laws, and educational publishing is no exception. The collection and use of user data and personal privacy infor-

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mation under machine intelligence will also involve the balance between the safe protection and utilization of user data privacy, which is also a major forbidden area for the use of AI technology. In the face of the introduction of AI technology may bring many problems such as privacy protection, copyright disputes, etc., educational publishing urgently needs to improve the relevant laws to regulate the application of AI technology, so as to create a positive and friendly environment for the intelligent transformation of educational publishing and build a vibrant publishing ecosystem. Under the guidance of publishing laws and regulations, we should strive to magnify the good side of technology and grasp the advantages of technology in order to produce excellent educational publishing products with more value and lasting vitality.

At present, there are no specific legal provisions to clearly define the use of artificial intelligence related issues, the EU's latest artificial intelligence regulations can provide reference for the improvement of the domestic application of artificial intelligence technology related laws. The new EU regulations are based on the development trend of AI and categorized according to the level of risk, including unacceptable risk, high risk, especially all remote biometric identification (remote biometric identification) systems, limited risk, minimal risk, and according to the risk level of the use of AI technology to carry out the corresponding restrictions. In terms of regulation, the European Commission proposes that national market surveillance authorities take the initiative to cooperate with the new regulation and will set up a European Artificial Intelligence Board to facilitate its implementation and promote the development of AI standards. In addition, a spontaneous code of conduct is proposed for non-high-risk AI systems, and a regulatory sandbox is proposed to promote innovation.

Any emerging technology that brings about transformative or disruptive changes, its creation, development, and application have to go through a long process of acceptance and recognition by the market. [12] In the future, the education publishing industry should still pay attention to the deep cultivation of technology, and strive to seek breakthroughs in technological bottlenecks or seek cooperation with other technology companies, in short, to use technology as a driving force to promote the transformation of the education publishing industry.

Funding

[1]school level project of Beijing Institute of Graphic Communication (Grant No. Ed202212), the National Social Science Foundation of China Social Science Academic Group theme academic activities (Grant No. 21STA058).

References

[1] Zhang Yue. Talking with editors: the evolution of digital journalism from the New York Times' news chatbot - based on a compensatory media theory perspective[J]. Science and Technology Communication,2022,14(14):111-113.

[2] Hu Yaqiong. Artificial Intelligence in Educational Publishing and its Development Prospects[J]. Media Forum,2021,4(06):13-14.

[3] Bacardi. Virtual tutor please home: big eye deer intelligent companion reading treasure [EB/OL]. http://baijiahao.baidu.com/s?id=1574335832033288&wfr=spider&for=pc,2017-07-30/2022-12-20.

[4] Lu Minfeng,Wang Zugang. Current Situation, Problems and Countermeasures of the Application of Artificial Intelligence in the Financial Industry--A Sample Analysis Based on the Use of Digital Robots in Commercial Banks[J]. FinTech Times,2021,29(01):14-22.

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[5] Zhang Li. Looking back at 2018, these 6 AI+ education companies shine! | AI Best Nuggets Case List | Lei Feng [EB/OL]. https://www.leiphone.com/category/industrynews/nQziSp6Lunu3QWyw.html,2018-12-21/2022-12-20.

[6] China News Publishing and Radio Network. Promoting the deep integration of traditional publishing and online education [EB/OL]. http://data.chinaxwcb.com/epaper2018/epaper/d6901/d3b/201812/93984.html,2018-12-24/2022-12-20.

[7] Liu Yindi. From experience to algorithm:Research on the innovation of publishing mode driven by artificial intelligence[J]. Technology and Publishing,2018(02):45-49.

[8] Zhou Jing,Zhang Xiaoqiang. Mechanism characteristics and innovative application of artificial intelligence-enabled educational publishing[J]. Technology and Publishing,2019(8):65-70.

[9] Liu Tianqi. Research on the application of artificial intelligence technology in the publishing process[D]. Suzhou University,2020.

[10] Xue Donghai. Exploration of the integration development of artificial intelligence and educational publishing[J]. China Publishing,2022,(14):46-49.

[11] HU Yuraze,XIANG Yongsheng,PAN Jiani. Research on blockchain and digital economy innovation in meta-universe industry[J]. Business Economics.2022(06):36-38.

[12] Fifi Wu. Convergence application of artificial intelligence technology and publishing industry[J]. Publishing wide angle,2018(01):26-28.

[13] Zhang Jiong. Publishing ethical game and editorial ethical values in the era of artificial intelligence[J]. China Edit,2019(02):24-28.

[14] WANG Futao,SHI Yongqin. A preliminary study on the integration and development of artificial intelligence and educational publishing[J]. Communication and Copyright,2020(11):106-108+112.

[15] XIAO Rui,XIAO Haiming,SHANG Junjie. Artificial Intelligence and Educational Change: Prospects, Difficulties and Strategies[J]. China Electrified Education,2020(04):75-86.

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