The Construction of China's Media Literacy Education System in the Context of the Algorithmic Era

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Abstract. Following the media literacy education, a more targeted and systematic algorithmic literacy education is urgently needed to be put on the agenda. The study summarizes and analyzes previous research results, discusses the current algorithmic literacy education in China based on the comparison of the current situation of media literacy education in China and the West, and tries to propose a feasible algorithmic education system with wide coverage in light of the development trend of the times. In future research, in addition to learning from others' experience, we can also start from the algorithm itself to improve users' algorithmic literacy. Perhaps the huge social changes brought by algorithms cannot be resisted, but people can adopt a positive attitude to use algorithmic media reasonably with an awareness of the essence of algorithms, and be fully prepared to embrace the algorithmic era.

Keywords: Algorithm; Algorithmic Education; Media Literacy; Education System; Comparative Study.

1. Introduction

As the Internet becomes increasingly popular, the media environment changes rapidly and algorithmic technologies become more widely used. The media environment view considers the media as our living environment. As the trend of cyborgization spreads to most Internet users, the real and virtual spaces begin to overlap, where the intelligent media shape almost everyone's world view. However, research shows that most new media users have little knowledge of whether and how our thoughts and ideas are being controlled.

That phenomenon was common in the radio and television media era. But in the smart media era, unlike the tangible electronic media with only fixed time slots in the past, [1] the untouchable "algorithms" invisibly shape our understanding of society at all times. Therefore, algorithmic education, a further step in media literacy education, has been proposed.

Compared with media literacy education, algorithmic education faces greater difficulties, because it is easy to tell audiences that the TV landscape you see and the news you hear are selected and organized by media workers, but it is difficult to explain how an invisible force can make you see what you want to see more and control your thoughts, decisions and behaviors. To make it worse, this invisible force is not at the discretion of the audience, who can turn off the TV and radio, but cannot reject the algorithm at all once they turn on their phones, a necessary tool that they cannot get rid of in this era.

The paper is expected to explore and answer the question: In the era of algorithm, how should we establish our algorithmic literacy education system in light of the current situation of media literacy education development in China?

2. The Development of Media Literacy Education in China and the West

2.1 Media Literacy Education in Britain and the United States: Theory and Practice

To make everyone truly master the media instead of being controlled, media literacy education has gradually emerged and developed in countries such as the UK, the US and Canada. As the representative of developed countries, the UK and the US have established a mature media literacy education system with unique characteristics in terms of theoretical framework and practical model.

2.1.1 Theoretical Construction

Media literacy education in Britain starts from an overall understanding of the media, and transitions from resisting the mass media to recognizing and appreciating the pop culture it conveys, and then to decoding the ideology of the content. The theoretical system is constantly updated and improved.

The US Center for Media Literacy defines media literacy as an educational orientation for the 21st century that provides a framework for accessing, analyzing, evaluating, and creating information in all forms. Media literacy offers a perception of how the media works in society and the basic skills of questioning and expressing that are necessary for citizens in a democratic society. [2] Meanwhile, with the support of the U.S. Department of Education and some state governments, media literacy education has gradually become an independent and mature discipline. Many academic studies have made important contributions to building a theoretical framework for media literacy education worldwide.

2.1.2 Practical Application

The practice of media literacy education in the UK does not only emphasize the operational skills and abilities, but also aims to understand the mechanism of media use, improve citizens' media literacy, and help them achieve lifelong learning. [3] The British government has integrated media literacy education into the curriculum of primary and secondary schools, as well as trained a team of teachers specializing in that, forming a complete chain of media literacy education.

Like the UK, the US media literacy education attaches importance to the systematization of specialized teacher training, establishing specialized training institutions and designing rich training courses. In addition to schools, many influential non-profit social organizations such as the Center for Media Literacy and the National Association for Media Literacy Education have been formed in the United States, which have made great contributions to the improvement of public media literacy.

According to the analysis above, it is clear that media literacy education has been widely valued by the government and the society in the developed countries, represented by the UK and the US. They keep updating the theoretical system and practical methods in real time based on the changes of the connotation, trying to form an integrated and up-to-date media literacy education chain, and setting an excellent example for the world.

However, although their media literacy education system has been generally developed, the content of algorithmic education remains in its infancy. Through empirical investigation of students' algorithmic awareness, the British and American academia found that students' knowledge of media literacy does not positively correlate with their algorithmic awareness. Therefore, it is necessary to include algorithmic literacy education in the media literacy system. [4]

2.2 Media Literacy Education in China: Disadvantages and Prospects

2.2.1 Disadvantages: Late-started and Unsystematic

In China, media literacy education entered into the public eye in 1997, slightly later than that of the UK and the US. The first International Forum on Media Literacy Education in China was held at the Communication University of China on October 8, 2004, which conducted an extensive and in-depth study on the perspective, theory, and value of media literacy education.[5]

According to relevant studies, compared with developed countries such as the UK and the US, China has not established a sound theoretical framework for media literacy education. There is no quality and professional teacher team, nor is there a solid practical foundation that can adapt to the changing media environment.

2.2.2 Prospects: New Changes in Media Literacy Education in the Algorithmic Era

In recent years, algorithmic technology, as a new media technology, has been widely used in the new media field. It boosts the audience's initiative in communication activities, but problems, such as a narrowed communication result and information cocoon, are brought as well. Though still

lagging behind the UK and the US, China is more positive to algorithmic governance, and the Chinese government has introduced a series of policies for algorithms. For example, the Personal Information Protection Law was passed in August 2021, effectively elevating the personal information rights to the citizens' basic rights; many platforms have also launched relevant privacy protection policies, like offering the option for users to turn off algorithms on their own.

However, it is not enough to regulate platforms at the policy level to help users avoid the risks brought by algorithms at every moment. Facing the “indiscriminate” personalized recommendations and data capturing, users need to raise their awareness, teach their algorithms, and protect their privacy. Therefore, given the new requirements for today's media literacy education, algorithmic literacy and its education have emerged.

Regarding the current situation in China, algorithms have actually gradually gained attention. In primary and secondary education, there are already a number of schools offering programming courses. However, even though these courses help children establish a basic knowledge of algorithms, they fail to cover the impact on various aspects of life. In terms of the experience of the UK and the US, algorithmic literacy education still needs a mature theoretical system and practical methods, integrating algorithmic literacy as an important part of media literacy into the educational outlines and curriculum.

3. Overall Objectives and Ideas of Algorithmic Literacy Education System

3.1 Overall Goal: The Grasp of Cognition, Thinking and Operation

Coping with algorithms, we cannot simply turn it off or do not use it. Just like media literacy education, algorithmic literacy education also needs to go beyond "protection" thinking and empower users to to gradually learn to master algorithms maintain human dignity and value while coexisting with various types of algorithms.

To realize that, we should, on the one hand, improve people's initiative through the social education function. On the other hand, instead of banning algorithms, we can use the algorithm mechanism and develop its educational function to implicitly teach people. In the meantime, during the educational process of both aspects, we cannot only focus on explaining the technical logic of algorithms, but also involve the social values in them.

Therefore, the overall goal of algorithmic literacy education is to learn about the existence of algorithms at the cognitive level, to understand their ubiquitous impact on society and life at the thinking level, and to know how to control and use them more efficiently at the operational level, making them more valuable. These three aspects are necessary and need to be complemented with specific forms and contents. Centered around the general goal, the following paper will discuss algorithmic literacy education for people from all walks of life.

3.2 Overall Ideas: Equal Emphasis on Technical Value and Humanistic Value

Currently, the academia mainly classifies the targets of algorithm literacy education into algorithm users and algorithm engineers. The former has a wide coverage and a large social impact, while the latter stands at the top of the “algorithmic food chain”. The algorithmic literacy education for the two is different but equally important, which will be discussed in the next section.

With regard to educational content, there are two main themes: new thinking development and risk management. The paper starts with the existing ideas and refines the algorithmic education system for the whole society, trying to analyze the algorithmic education beyond the general sense of teacher education. In this process, the technical and humanistic values of algorithms need to be reflected at the same time.

To sum up, algorithm users only need to master the various skills and techniques coexisting with algorithms, while algorithm engineers should understand their social attributes, review their algorithms beyond the technical level, and take social responsibility in the writing process to reduce algorithmic hegemony and algorithmic discrimination.

4. Specific Contents of the Algorithmic Literacy Education System Construction

4.1 Education Subject: Professional Team and Social Force

In terms of teachers, few graduates who can understand and clearly explain the logic of algorithms join the education industry, which makes algorithm education hindered when entering the classroom. Therefore, in addition to professional teachers, other kinds of "teacher" are needed.

Three main subjects were found to achieve universal algorithmic literacy education (1) education and news communication bloggers; (2) mainstream media; and (3) official platform accounts. For example, the little assistant of TikTok on will send out reminders when the screen is used for a long time. For this reason, the platform can make educational mini-videos and timely send out these educational reminders when users spend a long time browsing the same kind of videos, helping the audience to develop an active awareness of breaking the algorithm limitation.

4.2 Educational Object: Creator and User

4.2.1 Algorithm Engineer

As most programmers graduate from colleges and universities, it is easy to educate algorithmic engineers on prospective algorithmic literacy. Therefore, we should first focus on the algorithmic literacy education of students majoring in computer programming. A social responsibility course should be set up in the college curriculum, and technical rationality should not be overemphasized in the teaching process. In addition, to prevent students from neglecting the "useless course" and focusing on their majors, universities and teachers should ensure that this kind of course, which emphasizes value rationality, have a rich and useful content.

4.2.2 Algorithm User

Users of algorithmic media platforms have a dual identity, both the recipients of algorithmic recommendations and the distributors of the information.

Different measures should be taken to deal with users of different age groups. Cartoons can be used to influence preschoolers imperceptibly in the preschool education. As for the middle group consisting of school-age children and young people, it enjoys the largest number and can be divided into school students and social members in general. Thus, approaches can be adopted by both schools and media to help them understand the impact of personal media behaviors on themselves and others.

Given the popularity of algorithms in society, human beings have become inseparable from the algorithm-controlled social media and short video platforms. Therefore, we might change the media content ecology at an algorithmic level to improve people's knowledge of algorithms.

4.3 Educational Content

First, the existence of cognitive algorithms and their impact on society. The external environment we now live in has changed from a mimetic environment to an "algorithmic environment". While in the past, audiences in the same community or media were able to know a similar external environment, everyone's mimetic environment is different in the algorithmic society. Algorithms have played a major role in shaping the online agenda. For Weibo, hot trends used to be determined by the interaction volume of netizens, but now it depends more on direct background manipulation of Weibo. It is beneficial for the guidance of mainstream values on the one hand, but it also allows capital to hold absolute control over some topics, such as withdrawing celebrity scandals and raising the ranking of traffic stars promoted by capital.

Second, learning to think about the media phenomenon from the perspective of algorithmic control. The biggest impact of algorithms on people's information reception is the formation of "filter bubbles", like news pushed by algorithms and short videos distributed by algorithms. The algorithm era requires that people involved in the creation and use of algorithms should not only understand the production, but also the distribution of media information. In addition, they should review the

recommended information based on their information needs at all times, so as to prevent the "information cocoon" formed by homogeneous content reception.

Finally, the use of appropriate means to reduce the algorithmic erosion of society. Faced with these difficulties, there are actually many methods. Algorithm creators can increase the diversity of algorithm distribution from code writing; users can enlarge the information channels, through certain measures and platform settings, to reduce the probability of homogeneous information recommended by algorithms.

4.4 Education Model

For college students who have received higher education, it is difficult to visualize the abstract process of the code writing and running, let alone for those without a higher or secondary education in society. The digital divide makes people from different backgrounds have completely different perceptions of algorithms. some actively use various ways to control and utilize algorithms, some passively accept the algorithmic "feeding", some are unconsciously leaking their privacy, and some are completely trapped in the cage of algorithmic power. Even worse, the information cocoon formed by algorithms has intensified this knowledge gap.

It should be noted that setting algorithmic literacy as a specific course is likely to arouse students' rebelliousness, making the education more mechanical. Besides, algorithm users will remain trapped in the information cocoon of entertainment, superficiality and fragmentation.

5. Conclusion

As algorithmic era comes, algorithmic literacy education has not been carried out systematically around the world. China, like other countries, should include algorithmic technology into the media literacy education framework without delay. The paper proposes a general goal of making social members aware of the existence of algorithms, understanding the process of media use with algorithmic thinking, and learning to control and apply algorithms at three levels: cognition, thinking, and operation, to initially build an algorithmic literacy education system. The authors divide the algorithm subjects into two categories: algorithm producers and algorithm users, with the main idea of defeating algorithms with algorithms, to let all kinds of people shoulder their social responsibilities. Moreover, the exploration of algorithmic literacy goes far beyond this. The ability of users to understand, use and control algorithms also affects all aspects of people's political and economic life, which is not only a personal literacy, but also an ethical responsibility. In the algorithmic era, the future algorithmic literacy education system will certainly be more perfect and richer with the expansion of algorithmic technology. Last, there will be an increasing number of educators joining the professional team of algorithmic education, ushering in a new stage of harmonious coexistence between human and machine.

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