

Analysis on the application status and audience acceptance of virtual intelligent hosts in provincial broadcasting institutions

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Abstract: AI technology empowers traditional media and injects vitality into the radio and television field. In this context, provincial broadcasting organizations have entrusted virtual intelligent hosts with the important tasks of alleviating the impact of multiple media, improving program quality, and narrowing the distance between audiences. Unlike central media, provincial broadcasting organizations have limited resource advantages and platform advantages. They can only fully retain the exclusivity of provincial resources, and share major domestic and international news with CCTV. In this process, too much emphasis is placed on the technical advantages of virtual intelligent hosts themselves, while the particularity of provincial platforms is ignored. There is a lack of consideration of whether there is the ability to give full play to the many advantages of virtual intelligent hosts, or whether these advantages are necessary for provincial broadcasting organizations. This paper attempts to understand the audience's acceptance of virtual intelligent hosts through a questionnaire survey. It aims to explore the current application status of virtual intelligent hosts from the aspects of technology, resources, and audiences based on the characteristics of provincial broadcasting organizations.

Keywords: AI Anchor; Virtual Intelligent Host; Provincial Broadcasting Organization; Audience.

1. Introduction

Virtual intelligent hosts are generally considered to have the same role and function as human hosts in programs, but they cannot express and express emotions as naturally as human hosts. However, the current global artificial intelligence hosts are experiencing continuous development from low-level to high-quality applications, from single models to customized production, from "machines replacing people" to "human-machine collaboration", from mechanical communication to emotional interaction, from case experiments to commercial applications. [1] The optimized virtual intelligent hosts are widely used in different fields and are also refined in different jobs. In the radio and television industry, the use of virtual intelligent hosts has gradually extended from mainstream audio-visual media to social media, performing work such as news broadcasting and entertainment program hosting.

Since 2018, a series of "AI synthetic anchors" have appeared. The public and radio and television practitioners have gradually turned from worshipping technology to worrying about it. Faced with the advantages of accuracy and timeliness that real people cannot match, many people have been thinking: Will the anchor be replaced? Do journalists still need to stick to the front line? Will print media decline? When carefully examining the current application of virtual intelligent anchors on various platforms, it is found that the so-called absolute advantages of virtual intelligent anchors cannot be matched one-to-one on every platform. Sometimes the advantages cannot be shown due to factors such as platform attributes, resources and technology, and even have a counter-effect.

2. Current Application Status of Virtual Intelligent Host

2.1. The Application and Promotion Process of Virtual Intelligent Host

From a global perspective, China has a very large number of media. In the early 2010s, the radio and television industry began to explore the application of virtual intelligent hosts. This stage was mainly technical verification and concept verification. The image and function of the virtual host were relatively simple, and they appeared more as auxiliary elements of the program. For example, some TV stations would use virtual hosts for weather forecasts or news broadcasts. With the development of artificial intelligence technology, especially the breakthroughs in natural language processing (NLP) and computer vision technology, the virtual hosts at this stage are no longer just "auxiliary" roles, but can interact with the audience in a basic way, providing a more vivid and personalized broadcasting experience. In 2015, technology companies such as Baidu and Tencent began to invest more resources in the development of intelligent host technology and cooperate with the radio and television industry. After 2018, virtual intelligent hosts began to be commercialized on a large scale. The virtual host technology at this stage is more mature, the image is more realistic, the language is more natural, and the interaction is more flexible. Major TV stations have also launched their own virtual hosts. According to the "List of Provincial Broadcasting Organizations and Channel Frequencies" issued by the State Administration of Radio and Television in 2024, there are 16 provincial broadcasting organizations in China (excluding Hong Kong, Macao and Taiwan) that use virtual intelligent hosts in their programs, as shown below (see Table 1).

Table 1. Application of virtual intelligent hosts in provincial broadcasting organizations

Start application time	Application institutions (provincial level only)	name
2019	Guangdong Radio and Television	Wanjun, Xiaoqiang
2020	Guangxi Radio and Television Station	Xiaoqing
2020	Shanghai Radio and Television	Shen Yiya, Chang Xiaojiao, Dongfang Ai
2021	Jiangxi Radio and Television Station	Xiaoyan
2021	Beijing Radio and Television	Time Girl
2021	Hunan Radio and Television	Little Yang,
2022	Zhejiang TV	Gu Xiaoyu
2022	Anhui Radio and Television Station	Xiaolan, Xiaoyan
2023	Yunnan Radio and Television	Little Colorful Cloud
2023	Hebei Radio and Television	Ji Xiaojia
2023	Sichuan Radio and Television	Beibei
2023	Shandong Radio and Television	Daiqing, Hailan
2024	Inner Mongolia Radio and Television	Xiao Ben, Xiao Teng
2024	Jiangsu Radio and Television	Xiao Ran
2024	Henan Radio and Television	Tang Xiaomei
2024	Gansu TV	Xiaojuan

Compared with central media, major short video platforms, online video media platforms, etc., provincial broadcasting organizations do not have an absolute advantage. Most of the virtual intelligent hosts that have been used or are about to be put into use by various provincial radio and television stations are focused on news and information broadcasting, interacting with the audience, and providing visual data analysis. In the final presentation, most provincial broadcasting organizations output through mobile client, and it is rare for virtual intelligent hosts to appear on TV screens. However, at present, all broadcasting organizations at all levels and platforms involved in the use of virtual intelligent hosts have maintained a high level of development in terms of modeling, voice and scene application worldwide, and can basically be consistent with real people. In terms of the number of applications, provincial broadcasting organizations involved in the use of virtual intelligent hosts have at least one virtual intelligent host image, and an image can be applied to different programs through clothing modeling and scene changes.

From the highly anthropomorphic communication effect to the application scene conversion, from 2D to 3D, and even the improvement of data visualization technology, it fully demonstrates the advantages and development prospects of my country's AI anchor application. So far, the application of virtual intelligent hosts in my country involves TV programs, mobile APPs (such as Xinhua News Agency, CCTV Video, Beijing Time), public accounts, CCTV.com, Guangming.com,

Tencent News and other platforms, most of which are concentrated in news writing and broadcasting. Led by Xinhua News Agency, the world's first virtual intelligent host was launched, and then the transformation from only being able to broadcast in a flat sitting position to multiple scenes, multiple costumes, multiple scenes, and interactive.

2.2. Technical Considerations for Provincial Broadcasting Organizations to Promote Virtual Intelligent Hosts

Combined with the current scale and field characteristics of the application of virtual intelligent hosts by provincial broadcasting organizations, and reconsidering the advantages and limitations of the previous application of virtual intelligent hosts, it can be found that the limitations of virtual intelligent hosts in different aspects should seek improvements from external factors such as the application platform environment, resources, technology, and audience, rather than focusing entirely on the virtual intelligent hosts themselves.

2.2.1. Impact of Resource Differences on Virtual Intelligent Hosts

At present, virtual intelligent hosts are widely used by provincial broadcasting organizations in news broadcasting programs. However, CCTV's news programs have more channels and platforms to obtain first-hand basic information and progress of major national events, and have an absolute advantage in collecting world news materials. Instead of using horizontal news collection, provincial broadcasting organizations should use vertical news interpretation to make up for their shortcomings. At present, virtual intelligent hosts are preferentially used in news information broadcasting by provincial broadcasting organizations. By broadcasting the input existing text, the accuracy of content output is guaranteed, and the audience can receive information accurately, thereby sharing the workload of real anchors and focusing more on content commentary, extension, and interpretation, focusing on "exclusive" news and attracting audiences.

Taking the annual income and annual net profit of the current 37 provincial satellite TV stations as important reference indicators, and ranking them based on the comprehensive influence of the satellite TV stations, it is found that first-tier provincial broadcasting organizations have a certain number of audiences and influence, but some third- and fourth-tier satellite TV stations are facing the crisis of zero ratings. Even if virtual intelligent hosts are used, due to the low popularity of the provincial satellite TV stations or the lack of core competitiveness compared to the same type of programs of the central media, they will still face the problem of low return rate or even loss. If you want to widely use virtual intelligent hosts in provincial broadcasting organizations, you must estimate the possible effects.

2.2.2. Returns of Early Technology R&D Investment in Actual Application Needs

Compared with the "companionship" of virtual digital people, virtual hosts pursue "subjectivity" more, and the application scenarios of virtual hosts are mostly open scenarios. [2] In terms of the types of programs currently used by provincial broadcasting organizations using virtual intelligent hosts, the overall types are relatively simple. A large amount of manpower, material resources and financial resources are spent on research and development and scene

construction in the early stage. However, in actual application, provincial broadcasting organizations only need virtual intelligent hosts to complete the transmission of information, and do not need them to undertake other work content. The character image and scene only need to meet the broadcast standards and content requirements. Some other functions are shelved, resulting in the initial investment being disproportionate to the actual application. Through questionnaire surveys, it was found that most audiences only watch TV series or learn about local news through provincial broadcasting organizations, and will not watch a program because of a virtual intelligent host. They are more inclined to the content itself. Even 36% of the audience have never heard of virtual intelligent hosts, and the audience who only know that they exist but are not particularly familiar with them also accounts for 31%. At the same time, when it comes to the question of whether the audience accepts the long-term use of virtual intelligent hosts, only 26% of the audience accept this decision. It can be seen that there is still a lot of room for development in terms of audience acceptance. At present, the problem of not playing a positive role in the development of subsequent programs is more prominent. (Note: The questionnaire analysis will be analyzed in detail in Part 2 of this article, so we will only mention part of it here)

The virtual intelligent host looks like a virtual character, but behind it is a complex set of algorithms and engineering systems. This set of algorithms covers multimodal fusion algorithms such as vision, speech, and natural language processing, and has relatively strict technical requirements. Provincial broadcasting organizations need to work with technology developers to develop virtual intelligent hosts. The required R&D funds, hardware configuration, and corresponding usage capabilities are all considerable challenges for provincial broadcasting organizations. At present, most provincial broadcasting organizations do not widely use virtual intelligent hosts. They only use them as hosts for special programs in a certain period to attract young audiences to watch, or process traditional regular content into content that the audience likes to watch through virtual intelligent hosts to enhance the fun. Although the use is targeted and purposeful, which alleviates some of the problems, the return on the initial investment cannot be obtained quickly in the future, and at the same time, it also faces the challenges of the Internet and new media.

3. Survey on Audience Acceptance of Virtual Intelligent Hosts in Provincial Broadcasting Institutions

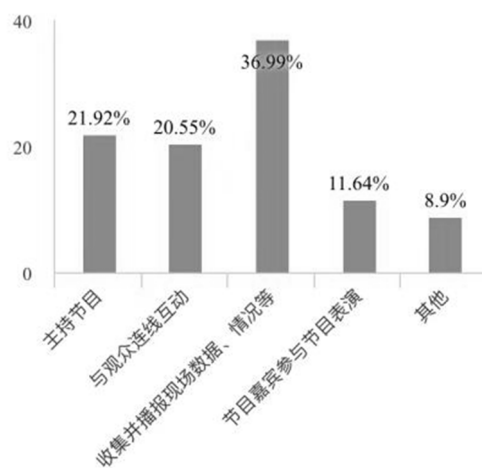
In order to give full play to the advantages of virtual intelligent hosts and apply them in provincial broadcasting institutions, and break through the difficulties of platform development, it is necessary to understand the ultimate goal of program benefits or information transmission - the audience. Therefore, the author uses a questionnaire to try to explore the audience's acceptance of virtual intelligent hosts. Questionnaires are distributed to people of all ages, occupations and genders. The survey content includes "time spent watching TV in a day", "under what circumstances will you watch programs broadcast by local stations", "Have you ever known virtual intelligent hosts", "What jobs can provincial broadcasting institutions use virtual intelligent hosts for?", "Opinions on the use of virtual intelligent hosts in different types of programs", "Overall views on the use of

virtual intelligent hosts by provincial broadcasting institutions" and other 9 items. A total of 146 valid questionnaires were collected.

3.1. How do Audiences View Virtual Intelligent Hosts?

According to the survey, only 5.5% of the audience often watch programs hosted by virtual intelligent hosts and have in-depth understanding and research on them, but most of the audience do not know much about them, and 70% of the audience have reservations about virtual intelligent hosts. When watching a program, the audience pays more attention to the program itself, such as content, value, guests and other factors, and will not choose to watch a program specifically because of the hosting of a virtual intelligent host. At present, various provincial broadcasting organizations will give priority to using virtual intelligent hosts in news programs. Their accuracy is much higher than that of real anchors, and with the support of Internet big data, their knowledge reserves are also higher than those of real anchors. [3] However, as an intelligent host generated by an algorithm, its voice and intonation are still slightly different from those of real people. Compared with accuracy and timeliness, the audience prefers oral expression that sounds natural. They hope that the host can use subjective thinking to think about the news event while conveying information to the audience, convey attitudes through voice and intonation, and get closer to the audience through "emotion".

Table 2. For tasks that require subjective initiative, they still hope that they can be completed by real anchors or assisted by real people



In the entertainment programs of provincial broadcasting organizations, represented by Hunan Satellite TV's "Xiao Yang", intelligent robots have strengthened their connection with the audience by being applied to variety shows or appearing at evening parties. However, 37% of the audience are satisfied with the scope of their application, and most of them focus on objective output. For tasks that require subjective initiative, they still hope that they can be completed by real anchors or assisted by real people (see Table 2).

Virtual intelligent hosts are often seen in news broadcast programs of provincial broadcasting organizations, but less in entertainment programs. Hunan Radio and Television, on the other hand, frequently uses virtual intelligent hosts in variety shows, large-scale entertainment evenings and other programs, while news broadcast programs are still performed by real hosts. Its purpose is to try to inject vitality into

traditional media through emerging industry technologies . The host of entertainment programs must not only have the ability to control the scene, but also have professional skills such as singing, dancing, and acting, and must be flexible in dealing with unexpected situations that may occur during recording . However, current technology cannot fully enable virtual intelligent hosts to have this ability, so when provincial broadcasting organizations use it in entertainment programs, it does not look like a host, but more like a guest in the program to enhance the highlights and attract the audience .

Judging from the current application of virtual intelligent hosts in provincial broadcasting institutions , the audience still focuses on the program itself , but assumes that its advantages are essential skills for the host. If they can do their best, it is harmless if they can't do it, as long as it does not affect the overall effect of the program . The view that the audience cannot accept or temporarily does not want it to be widely used is still common. On the one hand, more consideration is given to the balance between the appropriateness and accuracy of language expression when conveying information as a language worker.

3.2. Changes in Audience Demand for Virtual Intelligent Hosts under the Influence of Different Factors

According to a survey on the time the audience spends watching TV, it was found that 47% of the audience basically do not watch TV, and only 18% watch TV for more than two hours. In addition, 47% of the programs watched by provincial broadcasters are concentrated on TV dramas, and 44% watch special programs in specific time periods. However, most audiences usually choose CCTV channels such as CCTV1 or CCTV13 when watching news programs, and only choose provincial satellite TV when they want to know about regional news events and weather.

The development of traditional media does face many challenges around the time and conditions for the audience to watch TV programs. Radio and television practitioners are constantly reflecting and seeking transformation, focusing on integrating emerging industry technologies with traditional media to promote the development of traditional media. This approach has a positive impact on improving news timeliness, reducing production costs, ensuring low error rates, and realizing intelligent interaction of news viewing. However, the ratings of news programs and entertainment programs in provincial broadcasting institutions are not two parallel program forms . In the questionnaire, 47% of the audience would prefer to watch TV series or movies in provincial broadcasting institutions, and 51% of the audience would choose to watch entertainment variety shows. Based on the use of virtual intelligent hosts in provincial broadcasting institutions, it can be seen that it is not very helpful to enhance the fun of news, attract audiences to switch from mobile terminals to traditional media, or use emerging industry technologies to attract audiences to watch information programs. These advantages are difficult to achieve on the platform of provincial broadcasting institutions. The advantages revealed by virtual intelligent hosts are not based on the development of AI intelligent technology, but are based on various factors such as the construction and development of application platforms, program types, and ratings.

4. The Impact of Virtual Intelligent Hosts on the Radio and Television Landscape

4.1. Guidance and Guarantee of Top-Level Design

The 14th Five-Year Plan points out that China will strive to become a major artificial intelligence innovation center in the world by 2030. The State Administration of Radio, Film and Television has also promoted the development of virtual intelligent hosts from multiple aspects such as policy guidance, technical specifications, and financial support by issuing a number of programmatic documents and strategic plans. The 2023 National Radio and Television Work Conference clearly pointed out that the development of "future television" is an important strategic task, emphasizing the need to promote the construction of a modern audio-visual landscape through technological innovation , and set clear directions and goals for the development of virtual intelligent hosts . The healthy development of technology requires the formulation of technical indicators, content quality standards, and ethical norms to ensure that virtual intelligent hosts can meet industry requirements in actual applications and prevent the emergence of low-quality or non-compliant content. In an industrial collaborative way , encourage cooperation between the radio and television industry and technology companies, universities, and research institutions. Through an integrated innovation system of industry, academia, and research, accelerate the transformation and application of technological achievements and promote the application of virtual intelligent hosts in more scenarios. Only by strengthening the research and development and guidance of the virtual intelligent anchor industry and improving its connotation in the long run can a healthy and sustainable development model be formed . [4]

4.2. Satisfy Audience Needs and Increase Audience Attention

During the questionnaire survey, we got some interesting feedback. Many people asked: I have never seen what a virtual intelligent host looks like, nor have I watched the programs they host, let alone what their shortcomings and advantages are. How can I fill in this questionnaire? Through further interviews , it was found that the audiences engaged in non-technical research and development or non-broadcasting industries knew about virtual intelligent hosts because the "AI synthetic anchor" appeared at the Fifth World Internet Conference in 2018. During that time, many media rushed to report it, which caused a heated discussion in the society for a period of time. Although virtual intelligent hosts " walked " into the lives of thousands of households, people's attention began to focus on more emerging industrial technologies after that, and the crisis faced by the traditional broadcasting industry has not been alleviated . Most audiences still prefer to obtain authoritative news information through CCTV and learn about local news information through provincial broadcasting agencies. However, as for the current application status of virtual intelligent hosts, neither central media nor provincial broadcasting agencies have applied virtual intelligent hosts to programs that audiences often watch, such as the news broadcast or the prime-time news programs of various provincial broadcasting agencies.

The introduction of virtual intelligent hosts into traditional

media has indeed made up for some shortcomings, but it is undeniable that the audience has not changed significantly due to the emergence of virtual intelligent hosts. In the process of application and promotion, virtual intelligent hosts need to make more efforts in technology improvement, content innovation, market promotion and user education to better meet audience needs and increase audience attention.

4.3. Fusion and Innovation Bring Development Opportunities

The "14th Five-Year Plan for the Development of Radio, Television and Online Audiovisual Technology" issued by the State Administration of Radio, Film and Television in 2021 has once again demonstrated the strong vitality of virtual hosts. The traditional radio and television industry, supported by artificial intelligence technology, is providing a broader development space for the reconstruction of the new round of industrial value chain. The functional positioning of virtual digital people has gradually differentiated vertically, evolving from "package" to "precision". [5] In November 2021, CCTV News Channel officially launched an AI sign language anchor to provide year-round services for the hearing-impaired at the 2022 Beijing Winter Olympics, providing event information and dynamics for more than 20 million hearing-impaired people across the country. What is different from the past is that this sign language anchor has changed the previous "small window" mode, with highly intelligible sign language expression ability and accurate and coherent sign language presentation effect, avoiding the sign language host's too fast sign language speed in order to synchronize with the audio news, thus causing information to be transmitted incompletely, reducing the visual fatigue of the hearing-impaired people and enhancing their understanding of the information. Currently, artificial intelligence technology is widely used in various fields and is also being refined into different types to perform targeted and efficient work.

In order to avoid the flaw of "form over content" and prevent virtual intelligent hosts from becoming a gimmick for traditional media to respond to challenges, including CCTV, provincial broadcasting organizations and online video platforms, they actively cooperate with virtual intelligent hosts and real-life anchors to play to their strengths and avoid their weaknesses, give full play to the positive impact of artificial intelligence technology on the radio and television

industry, combine it with human subjective initiative, and deliver information and provide fun to the general audience through major media platforms.

5. Conclusion

Although the application of virtual intelligent hosts in various provincial satellite TV stations has achieved certain results, it also faces some challenges and problems. According to McLuhan's view that "media is an extension of the human body", we can try to regard the application of virtual intelligent hosts in traditional media as a new form of media, which expands the way and efficiency of news and information dissemination. In the future, the development potential of virtual intelligent hosts is huge, and more hosts based on virtual reality (VR) and augmented reality (AR) technology may appear, providing a more immersive viewing experience. At the same time, with the advancement of technology, the cost of creating virtual hosts will gradually decrease, and the scope of application will be further expanded, promoting the digital and intelligent transformation of the entire radio and television industry. By then, I believe that the difficulties of provincial broadcasting institutions in applying virtual intelligent hosts can be broken through.

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