Research on the Application of Mobile Communication Technology in TV Broadcast

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Abstract. In recent years, with the development of 4G technology, it has affected the development of all life in our country, especially the TV industry has been widely used. In this industry background, how to use mobile communication technology to promote the return of video signals is a hot topic in college students' innovation practice. Based on this, this article discussed the university TV station of the present status of the development, and the application of mobile technology in television video returns to the reliability analysis, and finally to summarize its application effect.

Preface

With the development of television technology, TV stations exist not only in cities but also in universities. In order to further improve the quality of video signal transmission in campus program production, it is necessary to adopt video signal, change of edit, collection and playing.

The Current Situation Analysis for University of TV Station

The Basic Equipment is not Perfect.

As an internal TV station, the professional level of university TV station is not high, which is the main reason for the low quality of TV programs in universities. The main function of universities is teaching and research, and TV propaganda is not the main task. Universities have not paid enough attention to the construction of TV stations, and the declining influence of campus has further led to insufficient investment in TV stations. At present, the staff of university TV stations mostly have 3~5 people, and someone have only 1 person, and very few people in this professional body, most of them have professional education technicians and staff members of the publicity department work in part-time. The TV program production equipment of university are far behind the local TV station, quantity is less, show quality is uneven, which in turn affect the spread of television effect, hindered the further development of university TV station.

Single Audience

The audiences of the university TV stations are mainly teachers and students, and the majority of audiences are students, and in mass communication, the university of students are different from the general audience, mass communication has a large audience and a complex audience, and the students are small in size, and this is composed of a single group. College television simply defines the audience motivation as the function of spreading education, it is easy to ignore the acceptance range of the student's audience, and easily control the content of communication, so that students can watch the program relatively single. For instance, some universities in the campus TV program, simply according to the demand of teaching and education, restricted to push some fixed program content, the transmission effect is very limited [1].

Communication Mode Hysteresis

In most campus programs, it is still traditional for me to play what type of program students are watching, and the audience can't participate in the program interactive process.
The application of communication technology in the production of TV programs lags behind, and With the development of the times, webcast has become an irresistible trend, and more and more university of students have adopted it. However, due to the reasons of equipment and technology, many universities have not yet realized the live broadcast in TV programs.

The Application of 4G Wireless Network in Campus TV Station.

Definition of 4G Technology

4G technology refers to the fourth generation of mobile communication technology, which integrates 3 G and WLAN, and can transmit video images with the same quality as high definition TV [3]. 4G technology has two conditions: One is that the data transmission speed reaches 1 Gbps in the fixed state, and the second is that the download speed can reach 100 Mbps when the data is transmitted in the mobile state, the upload speed can also reach 20 Mbp, and can have the requirements of almost all users for wireless service [4]. With 4G technology, users can watch high-definition, multi-channel TV [5].

The Unique Advantages of 4G Technology in University TV Stations

The network transmission speed is faster. Theoretically speaking, the communication speed can reach 100 M per second. Data released today show that 4G speeds are about 10 times faster than 3G networks. It is the acceleration of this speed that enables 4G to transmit multimedia data files in real time, while the communication quality is high, so that high and clear video can be transmitted. The second is the high intelligence, which can be used for real-time processing and transmission of video image with the help of the mobile phone high-tech hardware platform.

The communication quality is high, so the fourth generation mobile communication is also called multimedia mobile communication. The fourth generation mobile communication technology can accommodate the large number of users in the market and improve the existing communication quality, and also meet the requirements of high-speed multimedia data transmission. With the help of 4G technology, university TV stations can shorten the production time of the TV program, carry out the data transmission in real time, and ensure the timeliness of program content.

The cost is cheap, because 4G communication not only solves the compatibility problem with 3G communication technology, so that more existing communication users can easily upgrade to 4G communication technology, and 4G communication technology introduces a lot of sophisticated communication technologies, which ensure that 4G communication technology can provide a very flexible system operation mode, as a result, 4G communication technology is much easier to deploy than other technologies. At the same time, in constructing the 4G communication network system, the communication operators are directly on the infrastructure of the 3g communication network., Adopt a step-by-step approach, which effectively reduces the cost of both the runner and the user. However, there are insufficient funds in the university TV station itself, and the introduction of 4G communication will help to alleviate the shortage of funds.

Construction of 4G Technology in University TV Stations

The Hardware Construction of 4G Technology in University TV Stations.

As can be seen from the picture above, the camera or high definition smartphone will take the video on site. and through the Mobile Communications Operator carrier the program of video to the
mobile gateway and server of campus TV station, the servers will process the received audio and video of signal into the Serial Digital Interface signal and transmit it to the switchboard. Video Switcher outputs the synthesis signal which from outputs the signal of external signal and the broadcasting room of campus TV station to the video recorder and video receiving end of the school, meanwhile, the program signal is also transmitted to the mobile cloud platform, for teachers and students to use mobile phones or mobile terminals to watch TV programs of university.

The structure of the 4G LIVE system of university TV station.

AUDIO AND VIDEO COLLECTION: The mobile APP constitute a visual audio acquisition terminal, which integrates the audio collection, audio coding, network transmission, historical storage and other functions, and forms a video-audio acquisition terminal. Compared to traditional way of live acquisition, We use 4G instead of the transmission function for the Satellite News Gathering, at the same time the encoder and the function of the camera and App instead of mobile phone use, integrated the collection and transmission.

LIVE MEDIA SYSTEM: Network broadcast service platform, using the third-party network broadcast service platform for audio transmission. On the basis of traditional LIVE system, we modified the current situation of university TV station, by adopting the third party network broadcast platform to replace its own APP development and server, at the same time, the system can be expanded according to its own needs.

LIVE PLAY SYSTERM: The live play server provides the playback software support module for video users, the function is to receive video information from the media server, and streaming media server USES formats and protocols to encode and publish video streams, because any mobile terminal can live on the platform to live on campus TV programs.

Analysis of the Application Effect of 4G Technology in University TV Stations.

Strong Applicability
In the TV of news broadcast, 4G technology can quickly realize the real-time return of visual audio, and can also set the APP parameters according to the production standards in the TV station to make specific responses. Based on the geographical environment and the live environment, the corresponding data is calculated and fed back to the users, so that the corresponding technicians of the TV station can complete the equipment debugging and maintenance work in the station.

The Real Time of Image Return is Strong.
The 4G technology in TV news broadcast can quickly realize the real-time return of visual audio, and can also set the APP parameters according to the production standards in the TV station to make specific responses. The biggest feature of 4G communication technology is that it can transmit audio and video in real time without the restriction of the site, and the timing synchronization is the first feeling of live audience to live broadcast. The live release of the program.
It is Conducive to The Two-way Interaction of Live Broadcasting.

In traditional TV transmission, its mode of communication is intentional, and it has the characteristics of delay and interconnectedness. On campus TV, the introduction of 4G communication technology, the appearance of the program broke the boundaries of time and space, and made the program communicate with the audience. At the same time, with the application of interactive media upgrading VR and AR, the immersion and participation of the TV program are more exciting to the audience. The application of some 4G communication technologies in TV stations will change the broadcast mode of the program.

Conclusion

4G communication technologies applied in the campus television station, has broken the traditional focus on the traditional TV, let the teachers and students can anytime, anywhere access to the campus information at the same time, also let us know to school campus public opinion direction, more conducive to our television itself should play the role of public opinion guide colleges and universities.

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