

## Study on News Reporting Patterns Based on AR Technology

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### Abstract

In recent years, AR swept the Chinese market and media academia, setting off a wave of convergence between media industry and AR technology integration. Especially in the aspect of news reports, it has obvious advantages in terms of its Three-dimensional Reporting presentation, Immersion experience, convenient operation and tool neutrality. It has formed a certain impact on the forms, techniques and ideas of news reports, which has an immeasurable development potential. However, the cost of AR news and profit model yet are not resolved, and it has its own limitations. So the media man has new requirements and they must remember. Therefore, this article tries to regard AR news at the center, focuses on the origin and concept of AR news, compares to other media advantages, trends and other aspects of analysis. In the meantime, it also makes a brief statement on the hidden danger of AR news, with a comprehensive and fair perspective to understand and analyze this new era of the new products comprehensively.

**Key words:** AR technology; Three-dimensional reporting; Immersion; Communicator's tool diversification; Traditional media reform; New media

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### INTRODUCTION

At the end of January 2017, Alipay launched an activity called "Scan to Get Red Envelope", which used AR technology to achieve timely positioning of the user and it combines the virtual red envelopes with the user's real environment. Users reacted enthusiastically, almost more than half of China's Internet users had been attracted and participated in this activity. However, this is not the first show of AR technology in China, as early as in 2012, *Chengdu Business Daily* has already combined newspaper with AR technology. Only a scan away a three-dimensional character and scenes will appear in front of you.

2016 is known as the first year and also a booming year of the virtual reality. Many famous corporations like Google, Samsung and other technology companies have invested a lot on VR/AR technology, then applied it to many fields like tourism, game, shopping, real estate and other industries, thus triggering a high demand of people in human-computer interaction. And due to this fact, news audiences are increasingly in favor of the first hand news, the first distance in space, so the emergence of AR technology also caters to the psychological needs of the audience without losing the enjoyment, authenticity, importance of news. Although the knowledge of the domestic paper media and television media as well as other media on the AR news is still in the exploration and preliminary stage, how to combine better the advantage of AR technology with traditional media has become a media academia and industry focus. For the sake of the current condition, this paper aims to focus on news reporting patterns and its future development trend based on AR technology.

### 1. AR TECHNOLOGY AND AR NEWS

With the diversification of Internet + and media development, Professor Yu Guoming, a communication

scholar, has pointed out that in the new environment, if we want to generate good media products, three aspects of media integration need to be achieved: good content, good technology and good user. This is not only because of technological changes, but also because the audience's media consumption habits have changed, so integration of AR technology and traditional media comes as a natural end.

AR (Augment Reality) technology, referring to the Augmented Reality Technology, is a new computer applications and human-computer interaction technology based on the virtual reality technology (Cheng, Wang, Guo, & Liu, 2010). AR technology consists of computer system, GIS positioning system, high-definition scenes and portrait recognition system, which will combine the realistic scenes and virtual scenes to form a mimicry scene. When AR technology first domestically used, users need to use the relevant glasses helmet and other devices as assistance to see the screen, but now users only need a cell phone, a high-speed network signal to access to the picture instantly while triggering human's vision, auditory, tactile and behavioral systems, so as to achieve the immersion effect.

China's first newspaper that can move is from *Hefei Evening News*. It promoted a newspaper with sound in 2006, this innovation led to the domestic turmoil, so all kinds of media have tempted to start the investment. *Chengdu Business Daily* in 2012 released a mobile terminal APP called "Beating Move". With a mobile phone scan on the pictures of the newspaper, you can not only let the newspaper speak, but also enjoy an immediate 3D effect, which is the first attempt of AR technology in mobile terminal APP. It uncovered an opportunity for the paper media and television media to enhance the sense of virtual reality, meanwhile it brought a new form of newspaper advertising. It also increased advertising profit of *Chengdu Business Daily* in the same year, which became a historic node of newspaper reform. In September 2016, China's Central Television Station actively explored a new TV technology, it is the first time that we use the computer to generate a realistic visual virtual environment, making a full application of the AR technology to the news broadcast on G20 summit. It realized the success of the human-computer interaction, and enable audience in the real environment to experience "immersive effect", which is praised by the China's National Press and Publication Administration.

The application of AR technology in the media industry is in full swing. The discussion of AR technology in academia is also very fierce. The discussion mainly focuses on the definition of AR technology and the realization of AR technology in all walks of life. However. The comments on spreading effect of AR technology are mixed. Chen Jing and other scholars discussed about the use of technology on the smart phone and the future of AR technology in 2010

from the principle of computer movement and operation principle of perception system of AR technology. Xie Huawei and other scholars carried a comparative study about two different forms of "scan code" AR technology from five dimensions: market, content, products, user experience and demand in 2014, and they post some suggestions on applications of AR technology in mobile digital reading.

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## 2. AR TECHNOLOGY'S ADVANTAGES AND BREAKTHROUGHS IN THE NEWS REPORT

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The history of communication tells us that no matter what the future of news structure is, the old technology will not disappear. However, the old technology will change, become increasingly insignificant and play a completely different role (de Botton, 2005). AR news mainly consists of two aspects: on the one hand, it needs media workers to collect, input, organize, edit the spot scene data and then combine virtual object with real scene to form a specious scene; on the other hand, the audience must have corresponding devices to receive the scene, the general equipment is a special APP on smart phone. Technological development of nearly five years promotes the progress of these two aspects of technological equipment, and promotes the AR news reporting patterns' maturity. AR news reporting pattern is essentially a combination of AR technology and traditional news reporting pattern. It is a new communication tool and a new way of communication between the audience and the communicator under the Internet + trend, but it has its obvious advantages and breakthroughs.

### 2.1 Three-Dimensional Reporting: Information Transmission: From Static to Dynamic

New York Times, which is at the forefront of media innovation, worked with Aurasma earlier to set up a cloud database named "IDOL", including text, pictures, video and other types of communication symbols from news existed. When the users first open the APP, and then scan the special pictures or texts on newspaper with a camera, a three-dimensional sound or video will appear on the screen.

And now in the Chinese market, paper products mostly center on texts information supplemented by pictures or charts to illustrate. But with the rapid development of the Internet, short video era begins, the audience has not been satisfied with the traditional paper products, but has been in pursuit of more detailed and diversified information content, which requires our media workers to produce more specific, intuitive, reliable, news with real image. So the AR-based paper products meet this demand, with a new form of expression to create fresh and creative

news content. Not only can this retain the presentation of text, but also it can be dynamic with additional sound, animation, images and other multimedia elements, turning plane to three-dimension, so that paper news can be more on-site attractive with the characteristic of visualization and enjoyment. An ordinary newspaper can also have functions same as TV and network. McLuhan media theory believes that “media is an extension of people”. AR news products break the traditional paper media’s limits of plane presentation, bringing to the audience a deeper level of experience.

## **2.2 Immersion: Shorten the Psychological Distance Between the Audience and the Communicator**

Compared with the traditional TV news, AR news products allow the audience to truly understand the product content and generate an immersion experience. Before an audience fully accepts mass media products, there is a meaningful interpretation process where the audience will unconsciously combine their own situation with the product content, and use personal perspective to decode the content. So when interpreting news products, audience often misreads and misunderstand the information due to incomplete information transmission. AR news products can make the distant image in terms of audience closer, or even fit in the audience’s situation, resulting in an immersion experience. The so-called immersion is to allow users to produce their own feelings of immersion and be able to control objects in VR and can take the initiative to participate in a variety of events with a real feeling (Hang & Sun, 2007). At the G20 summit in September 2016, China Central Television adopted AR technology to do live report, transforming the spot information into digital information when logging data into machines and software for real-time management. So the audience is capable of obtaining first-time information, feeling the atmosphere of the scene, turning audience’s identity to the witness’s identity, and this will enhance the sense of reality of news reports.

When AR news products bring audience immersion experience, they also bring innovative ways to interact, so that the ways of interaction change from interface interaction to space interaction. Multimedia news reports and AR news have something in common in the form of communication. Even some scholars believe that AR news should be a part of the multimedia news reports. I believe that AR news is an extension of multimedia news reports. Multimedia report is a selective use of a variety of media to report, inclined to a variety of media to accumulation, and AR news tends to put all the elements together, so audience has the right to choose and determine the best combination of media.

In 1999, Columbia University has produced a situation documentary, of which the basic technology

is the AR technology. Users wore a perspective device which automatically corresponds with GIS geographic information system. When walking on the campus, scanning every building via the perspective device, users had access to all the information about the building like pictures, text materials, videos and so on. This enables human-computer interaction, and the physical and psychological distance between users and users as well as users and the communicators is gradually shortened, and the realistic feeling of the user’s precise experience from the first person perspective is enhanced.

## **2.3 Convenience: No Special Glasses and No Vertigo Compared With VR**

VR technology is another virtual reality technology which is often mentioned with AR technology. VR news is also very popular these days. 360° perspective is the biggest feature of VR technology, which mainly includes the collection of information, transformation of information into a story, formation of virtual environment with Unity game engine. Most of the VR works are mainly “image”, which is a bit similar to shooting a film. The scene can be taken from the reality, such as a collection named *You are in the News Spot* made by Xinhua News Agency, all of which are taken from the real spot. There are also some scenes deriving from the modeling based on the virtual environment.

And AR products are similar to a “mirror”, suggesting that the process is like looking into a mirror: He looks like what you are. But some illusory objects will be fitted into the real scene. The use of AR and VR is very different (such as Table 1), there is a non-negligible difference: if there is no VR head-wear device and glasses, then users can not enjoy the 360° virtual scene, but without AR glasses, users can have the feeling of real environment.

However, the low popularity of VR glasses and the fact that most people do not own VR glasses resulting in a condition that 360° scene acts like ordinary flat scene. And if we wear VR glasses for a long time, we may have a sense of vertigo. In addition, VR news can not solve the difficulties of myopia and hyperopia users and other groups of patients to wear VR glasses. And AR news only need a smart phone with a camera and related APP installed to open the door of AR news. This approach greatly improves the communication convenience of AR news. Moreover, compared to the characteristic that VR news transforms the virtual world to the real world, AR news transforms the real world to the virtual world to form of a simple surface narration and automation combination. So that VR news entrance on the market now often exists as URL link or two-dimensional code, while AR news entrance is the objects beside the audience. After scanning those objects, we get information and this model contains a distinctive sense of fun.

**Table 1**  
**The Common Application Field of AR and VR**

| Field             | AR   | VR   |
|-------------------|--|--|
| Industry          | Exchange learning, diagnose field devices and check parts.           | Design product and test experimental .                           |
| Traffic           | Optimize vehicle system and mobile phone intelligent system.         | Rail traffic simulation system and test traffic program.         |
| Travel            | Introduce scene and play the role of intelligent tour guide.         | Interactive experience in advance of tourism.                    |
| Education         | Virtual teaching, such as funny painted app.                         | Restore historical scenes, star scenes and other special scenes. |
| Business          | Show fantasy products.   | Experience Virtual shopping.                                     |
| Medical treatment | Patient virtual information, surgical simulation training and so on. | 3D laparoscopic surgery, psychotherapy etc.                      |

**2.4 Neutrality: Communicator’s Tool Diversification**

With the development of high-tech Internet, audience may rely on only a mobile phone or ipad to get all the information they needs, but as a communicator, if only one relies on one way, one tool, or one application to collect raw materials, it is far from enough. And this will limit the audience’s perspective and thought.

Different communication tools have different effect. Pictures can present a sense of space, audios can improve the credibility, data in the graphics can play a role as interpretation, animations and videos can demonstrate the process of action. Using a single tool is inevitably and cause inclination of communication. So the communicator requires a variety of communication tools to thoroughly convey the complete information. That means “tool neutrality”. The tool neutrality of AR

news includes two elements. One of them is to emphasize the diversity of tools. AR news is based on a variety of communication tools and it can weaken the inclination brought by communication tools. Keeping the tool neutral gives the right of choosing to the hands of audience. The second one is to emphasize the value of neutrality of managers or producers. In particular, value neutrality is based on the basic facts, advocated in the removal of individual subjective judgments and value factors, and also gave the news of the most objective analysis and description. That means that managers or producers only do the cause of the news analysis, and do not make news value judgments. Along with the communication interaction brought by the AR news, the audience has the opportunity to help the communicator to be more consistent when providing verifiable information with a more diverse perspective.

**Table 2**  
**Comparison of Media Characteristics**

| Media/characteristics | Voice | Word | Flash/video | Carrier            | Simplicity | Timeliness  |
|-----------------------|-------|------|-------------|--------------------|------------|-------------|
| Newspaper             | No    | Yes  | No          | Paper material     | Yes        | Slow        |
| TV                    | Yes   | Yes  | Yes         | TV set             | No         | The fastest |
| Broadcast             | Yes   | No   | No          | Radio              | No         | The fastest |
| VR nws                | Yes   | Yes  | Yes         | APP and VR glasses | No         | The fastest |
| AR news               | Yes   | Yes  | Yes         | APP and scene data | Yes        | Faster      |

**3. THE APPLICATION PROSPECT OF AR TECHNOLOGY IN NEWS REPORTING AND ITS REVELATION TO TRADITIONAL MEDIA**

AR news creation and dissemination are still in a starting stage, and it still needs constant self-improvement and repair. Professor Peng Lan has pointed out that the information presentation in the future will no longer rely entirely on today’s physical screen. Because the screen

is expanding in the form of virtualization. The news manifestations will be affected by all these trends (Peng, 2016). From the current situation, we can see that AR technology’s perspective in news reporting is very positive and optimistic.

With the Internet thinking being put forward, the media industry has kinds of different controversy. But there is one thing recognized by public: User experience is constantly being valued and optimized. In the traditional news reporting model, the news agency usually explores information resources and processes the materials through

journalists then spread information to public, satisfying audience's need maximally. Throughout the process, news agencies and journalists play a role as gatekeeper while the audience is in a semi-passive and semi-active position. In the AR news, the audience is not limited to "I know", but also extended to "I see", which greatly meets the expectations of the audience in favor of a close look at the scene. Early AR news is unlike VR news in that it weakened the role of intermediary, but it still retains the role of middleman, often performed by the host or journalist.

But in 2017, during the two sessions of China, the People's Network has launched a 2-minute AR creative video—Spoilers for 2017 National Conference. The daily click rate is very high: People's Daily client's reading quantity is up to 53 million; Sina microblog has a click rate of about 50 million; reading quantity to Today's Headlines and other clients is over 5 million. It uses the first perspective of users to briefly introduce the supply side of the structural reform, the program for tackling the poverty, the general draft of the Civil Code and other hot issues during the two sessions. Some users commented that it has a "full sense of immersion". People's Network uses AR news to take the audience to the real scene and in the future, we will have more real immersion AR news works.

Throughout the domestic and foreign AR news works, design themes are mostly politics, science, education, culture, and law, and all of these belong to non-event news, which is a comprehensive response to one subject, such as two sessions and G20 summit. The time cycle is about one week. AR news reporting during G20 summit makes the host and animation complement each other, bringing a new communication effect, and meanwhile the use of AE dynamic tracking system combines the shooting screen and the design elements perfectly, but the depth of its news reports is not sufficient. How to improve the AR news production efficiency and how to deepen the theme has become breakthroughs to be achieved in the future of AR news. The overall effect of the AR news is very vivid and obvious with bright cooperation prospects among other types of news, especially in the data journalism visualization. In the past, the data journalism uses data, text, image to report the news, and if it can be combined with AR news with the characteristic of three-dimensional presentation, multi-sensory integration, real and virtual interaction, even the unpopular data journalism can become active so that the audience could really understand the meaning of these data.

AR technology can also be used in media marketing. AR interactive marketing must be more memorable, which compared to the traditional way of media marketing. US Warner Brothers film company held a "join the army brave fearless" AR transfiguration activities for the movie "green light" propaganda. This activity uses D'

fusion enhancing the reality of identification technology, and the main content is to identify the face and the map. First of all, the system will change the 3D mask and make the audience clothing military uniform. Secondly it gives the delicious green light military cadence number, and the audiences are turned to take pictures, and are sent photos by the system. Although this is only a media marketing and AR technology combined attempt, it has achieved a more obvious effect. But the interaction with the audience is still not obvious. I believe that with the technical means to enhance, the full interactive AR media marketing will eventually come in the future.

"No matter from what point of view, the development of human-computer communication reflects the increasing emphasis on the body factors" (Chen, 2005). With the microblog and WeChat era following, WeChat communication has become an indispensable part of our lives. Communication has become the theme of the time. And for AR news, the degree of participation wins the most attention. By computer technology, three-dimensional images, AR news achieves the three-dimension of products and human-computer interaction and this creative idea provides traditional media reform with an innovative way. News media client on mobile phones, WeChat official accounts and WeChat small programs spring like mushrooms in recent years with distinctions. So how can each of them stand out? How can they get closer to readers?

The media comes up with a lot of measures from the point of view of "content is king" such as the use of crowdsourcing news, which is an UGC-based news reporting model to let audience act as both the audience and the communicator. And another method is a marketing strategy by distributing welfare. In addition, AR news can also be integrated into their own client, so it will no longer rely on third-party platform to develop and push AR news, which would avoid traffic loss. This requires the media institutions to develop their own clients first, then set up AR news columns such as the *Upstream News* on Chongqing Morning News APP recently, it opened a VR news section for users to choose what they like, which helps to increase the user's dependence on the news media and increase the adhesion between the two parts, thus expanding the news media's influence and communication ability.

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## CONCLUSION

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Technology is a double-edged sword, when enjoying convenience and fun AR news brought, both the communicator and the audience should also be objective about AR news. The "trueness" that AR News brings is a combination of reality and virtue, so how does this "trueness" ensure the real "trueness"? News is a form of information reported, thus information comes first

followed by the reporting. And information is objectively existed, so the truth is the basis of news reports and the basis of the news media. AR news' high imitation to a large extent can easily lead to what Baudrillard referred to as "simulacra" and "super real" crisis, and the high imitation reality is likely to cause empathy effect upon audience, thus ignoring hidden symbols and master of ideology under the works. Moreover, AR news production has a high cost, long cycle. So the media companies able to do AR news must be well-capitalized, as for small media organizations, how to get money is a big problem. How to use AR news to profit is a problem worth more consideration. Relying on the original capital to consume and the experiment is not a long-term plan. Finally, if we can produce the "Situation Documentary" same as what Columbia University did with revealing of related information of buildings and people, will this violate other people's privacy? How to protect the privacy of others is still a questionable subject.

There are still a lot of problems to be solved in terms of AR news, but it is believed that these problems can be effectively solved with the continuous progress of technology and with the accumulation of practical experience. This is a challenge for media workers and media organizations, and this makes a new request for news reporting philosophy of media workers in a new era.

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