

# Research on the Relationship between Audiences in Algorithm Platform

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**Abstract**— Nowadays, algorithms have been deeply integrated into people's life, and play an increasingly important role in the process of information production and distribution. Audience has become a more complex concept on the algorithm platform, which can no longer be judged simply by some basis. Therefore, audience research needs to be carried out from a new perspective. This paper attempts to analyze the new performance of the audience relationship on the algorithm platform from three levels: between the audience individuals, between individuals and groups, and between groups. And then focus on the remodeling of the audience relationship in the era of algorithm.

**Keywords**— Algorithm; Audience relationship; Weak ties; User portraits; Co-clustering for recommendation.

## I. INTRODUCTION

For a long time, audience research is the core field of communication research. Some scholars even think that the development history of communication research can be regarded as the change history of "audience view". Through the efforts of scholars all over the world, audience research has gone through many stages and formed many paradigms. The cognition of the audience has gone through three stages: the audience as the public, the audience as the group and the audience as the individual. Denis McQuail divided "audience research" into three categories: "structural research", "behavioral research" and "social and cultural research".<sup>1</sup> But if researchers can't take the development of media technology and the change of the times into account, audience research will lose its complex and changeable connotation of the times. Nowadays, algorithms have a more and more profound influence on all aspects of peoples' live. In the era of intelligent media with high correlation between algorithm technology and individual life, "audience" is no longer a subject or object that can be distinguished and judged simply according to some standards. In the new era of algorithmic media, researchers need to seek a new breakthrough point from the audience itself. This paper bases on the in-depth investigation of various relationships between audiences (the relationship between the individual audience, the relationship between the individuals and the group, the relationship between the group and the group), to explore the evolution of the relationship between audiences in the algorithm platform.

<sup>1</sup> Li Qingyu, Wang Chenyuan: The Practical Turn of "New Audience Research" in the Context of New Media, *Social Science Front*, Issue 11, 2018, page 267.

## II. RESHAPING THE RELATIONSHIP BETWEEN THE INDIVIDUAL AUDIENCE: RECOMMENDATION ALGORITHMS CONNECT WEAK TIES

In the era of mass media before the emergence of the Internet, there was a clear boundary between the communicator and the audience. Media practitioners as communicators hold the discourse power of social life, and the audience could only passively accept the information. In addition, due to time and space barriers, individuals were unable to provide timely feedback to the media, and also unable to effectively interact with other individuals. Generally speaking, audiences are in an isolated and dispersed state, and it is difficult for individuals to form a dynamic and stable relationship. In the early era of network media, when algorithm technology was not yet mature, individual audiences would interact with other individuals on websites or platforms by thumb up, comment and forwarding, and establish a relatively stable connection with others by adding contacts or following them. At that time, the relationship between the individual and individual had been significantly changed, getting rid of the past isolated, scattered situation. However, there were still certain limitations that it difficult for individuals to relate to other individuals with weak ties.

With the maturity of big data technology and the popularization of smart wearable devices in modern life, algorithms have gradually been involved in every link of information circulation and social life, especially hidden in all aspects of cyberspace. Therefore, in the current network media, the relationship between the individual audience will inevitably be changed by the algorithm technology. Specifically, the algorithm platform can utilize the recommendation algorithm to dig out possible new connections based on the users' explicit and implicit social relationships, so as to enable individuals to be in a dynamic interactive relationship with other individuals with weak ties. Algorithm recommendation usually makes user recommendation based on the user's social information, social relations and real-time status, combined with big data technology and statistical methods after the user relinquish part of privacy right.<sup>2</sup> Thus the individual user has the opportunity to connect with other weakly connected individuals. For example, after the application of the

<sup>2</sup> Jing Nan, Wang Jianxia, Xu Hao, Bian Yiwen: Research on Friend Recommendation Algorithm of Social Network Based on User Social Relationship, *Chinese Journal of Management Science*, Issue 03, 2017, page 166.

recommendation algorithm in Weibo, the individual audience can not only use the address book to find friend users with strong ties, but also can be recommended to users with weak ties who have similar interests, similar distances or more mutual friends through association rules. Such weak ties may have great interpersonal value. In recent years, stranger social networking platforms represented by "Soul" apps in China have taken "weak ties" as their main feature. "Soul" app uses big data and LBS to create features such as "Soul matching" and "love bell". It also can recommend people that they may like to users through "chemical matching algorithm". "Soul" is very popular among young people in China. In the scene of platform rules construction, these young users discover more connectable weak ties, and then freely matching. That greatly meets their social needs. To sum up, social relationship networks based on recommendation algorithms begin to reshape the relationship between individual audiences. Individuals in the algorithm platform can be in a dynamic connection of constant interaction with other individuals, and the social network can be expanded through weak ties to meet the emotional needs.

### III. RESHAPING THE RELATIONSHIP BETWEEN THE INDIVIDUAL AND THE GROUP: USER PORTRAITS ACHIEVE EFFECTIVE MATCHING

In the media era before the advent of algorithms, the world was in a media environment of "people looking for information". The emergence of the Internet brought a huge amount of information, but the audience was unable to filter and process information in the huge information flow, which eventually led to information overload. The information needs of individuals could not be met. It was also difficult for individuals to find the group that can meet their own needs, especially small groups with a small number of people. Groups were also difficult to be stable due to the lack of sufficient number of individuals. In short, it is difficult to get reasonable allocation between individuals and groups. However, the widespread application of recommendation algorithms has changed this situation. With individuals as the center, the algorithm can draw detailed user portraits based on the user's personal data, browsing behavior, interests and real-time status and other information to achieve accurate push. The audience is no longer the "the majority of silence", nor the "Crowd". Individuals can accurately obtain and use information according to their own needs, and can also be accurately pushed to a like-minded circle.

In the era of intelligent media, it is not only the content and form of text that attracts the audience, but also the connection between the group members who participate together.<sup>3</sup> The success of Bilibili (a popular video website in China) proves this point. Many users of Bilibili are both audiences and communicators. Different from other video websites, most of the content of Bilibili media is uploaded by users themselves. So these users are also called "uploaders". After users submit

<sup>3</sup> Hu Yiqing: Beyond the Audience as Entity and the Audience as Discourse -- On the Rise of the Audience View Based on the Technology Perspective, Journal of Nanjing Normal University(Social Science Edition), Issue 05, 2018, page 120.

their works, Bilibili will classify them, attach corresponding labels, and eventually form corresponding channels and partitions. At present, there are more than 2700 channels in Bilibili, and these channels have gradually formed a number of network communities covering many fields. Recommendation algorithms rely on user portraits depicted by big data to accurately push individuals to different groups. In the community, the sense of media ritual is created through interaction in the form of "barrage" and comment, so as to deepen the interaction and identity of individuals to their groups. For example, during the COVID-19, the student population of Bilibili users still needed to study while at home. Bilibili set up online learning Spaces such as "review room for postgraduate entrance examination" and "self-study room for college entrance examination". Through algorithm recommendation, students in need are found and have channels to enter these groups, which meets the realistic needs of specific users and realizes the effective matching between individuals and groups.<sup>4</sup> At the same time, the "uploader" of the Bilibili could also organize different user groups through the algorithm recommendation mechanism by relying on the excellent content produced by themselves, which connect the audiences with common/similar needs into different groups. The top 100 most influential "uploaders" of Bilibili are called "100 UP". Their video content covers all fields of life, study, entertainment and so on. They gather users with different needs and act as opinion leaders in their groups.

To sum up, in the era of algorithms, platforms could effectively matched between individuals and groups through detailed user portraits. Individuals can be pushed into groups that meet their own needs and have the opportunity to connect a disordered and scattered network group into a tightly ordered whole with their own influence.

### IV. RESHAPING THE RELATIONSHIP BETWEEN GROUPS: SUBDIVIDED GROUPS HAVE DIFFERENT PERFORMANCE

After the emergence of mass media, due to the change of media technology environment, the audience has experienced the process of de-communalization, re-communalization and network communalization. In the early Internet era, the emergence of social platforms transformed the audience group from a simple aggregate without structure into a systematic whole with organization and interaction. The algorithm platform further expands various types of groups such as interest and industry, making the audience more diverse and forming numerous network communities. In a sense, the algorithm technology is to push the audience to a certain circle or a certain relationship through big data technology. Therefore, the audience groups on the algorithm platform generally hold more similar views and common meanings than the general realistic groups, and the groups formed are relatively stable and stronger stickiness. However, this situation also makes it difficult for the group to accept different voices and is more prone to group polarization. At the same time, groups on the algorithm platform usually have

<sup>4</sup> Lin Ling, Du Wenhui, Wenxin: Research on Video Transmission of Epidemic in Bilibili, Editorial Journal, Issue 04, 2020, page 41.

certain barriers to entry, which leads to the fact that there is no chance for contact between different groups under normal circumstances. Each group operates in its own cyber space, which is often described on the Internet as "self-appreciation in its own space". A typical example is the "Soul Planet" of Soul App. The "planet" groups formed according to various different factors such as interests and personalities are relatively closed, and the groups do not interact with each other.

However, from some aspects, the method of expanding the audience of the algorithm platform is to subdivide the large audience groups again by using big data technology. In addition, the same user may exist in different groups, so some groups inevitably have some explicit or implicit associations. In some special situations, this may create confrontation or collaboration between these groups, creating a storm of public opinion that even traditional media cannot achieve. Take the representative "Tik Tok" as an example, it shapes the audience into different groups by recommending similar contents to them in a certain period of time. Normally, there is no contact between these groups, and members interact in the cyber space constructed by their groups to deepen their sense of identity and belonging to the group. However, Tik Tok recommends users based not only on user information and interests, but also on the Co-clustering for recommendation of "traffic pool". The evaluation standard of Co-clustering for recommendation is based on the comprehensive weight of the content. The key indexes of the comprehensive weight include completion rate, thumb up amount, comment amount and forwarding amount. When it reaches a certain level, the platform will continuously recommend the content through the mechanism combining algorithm and manual operation.<sup>5</sup> In some situations, due to the above algorithmic mechanism, irregular connections will be generated between the audience groups, especially among the fans. In the algorithm platform, the flow pool brings an obvious "Matthew effect". For the purpose of making their idols more popular, fans will be more keen to communicate with other groups to improve their idols' the comprehensive weight of Co-clustering for recommendation. When the idols supported by different groups are in contact with each other, it will be easier for different fan groups to have linkage or confrontation under the recommendation of the platform algorithm. For example, in today's talent shows, the full value of contestants is digitized, and traffic is the key to their success. Different players' fans groups are easier to connect with each other under the control of the algorithm, and the relationship between the groups is also more variable.

To sum up, the audience groups in the context of the algorithm show different performances. Some groups are isolated from each other, and usually do not interact with each other, represented by many interesting groups. There are also linkage or confrontation between some groups due to the algorithm mechanism, represented by the fans groups.

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<sup>5</sup> Zhao Chenwei, Liu Tao, Du Haihon: Research on Video Recommendation Mode of Tik Tok Short Video Platform from the Perspective of Algorithm, View on Publishing, Issue 10, 2019, page 78.

## V. THE IMPACT OF THE RESHAPING OF AUDIENCE RELATIONS ON THE MEDIA INDUSTRY

In the era before the maturity of recommendation algorithms, audiences, the relationship between audiences and the cognition of the media industry on them are all in a process of constant change, changing with the integration and development of new media technologies. After the emergence of the algorithm platform, the relationship between the audiences has undergone the above changes, and these changes have further forced the media industry to reform and innovate.

The weak ties between individual audiences expands the social network of users and makes the media industry realize the potential value of exploring this relationship. The social media based on strong relationship has become mature before the era of algorithm. On this basis, the algorithm makes the personal user portrait gradually clear through the mining and analysis of the user's personal data, which changes the situation of simplifying the audience and realizes that there are "one thousand faces for one thousand people". Algorithmic platforms also begin to construct scenes based on their own rules, forming a human-media-scene interaction mechanism to help users communicate with others with weak ties. The exploration of weak ties by the platform not only meets the different social needs of the audiences, but also turns more potential users of the platform into actual users. Thus finding a breakthrough to expand new users when the advantage of demographic dividend is no longer there. In terms of industrial practice, stranger social platform applications based on weak ties are rising rapidly at present in China. A large amount of capital has poured into the field of stranger social platform, and platforms featuring character matching and emotional communication such as "Soul" and "Yi Guan" have achieved excellent results in the market.

The reshaping of the relationship between the individual audiences and the groups has greatly changed the industry form, especially the intelligent development of content distribution mode. The application of algorithm technology enhances the connection between individual users and groups. The number of user groups increased greatly, and the sense of belonging of the group members has also been significantly improved. This has led the current algorithm platform to focus on building vertical areas and expanding the audience by doing "subtraction". The platform's intensive cultivation of vertical areas facilitates the division of users into different groups. While enhancing their sense of belonging of the group, users unknowingly become more dependent on the algorithm platform. In his book "Being Digital", American scholar Nicholas Negroponte imagined that an interface agent would appear in the digital age, which could read all materials and then combine them into personalized summaries. This kind of newspaper would only produce one unique edition for individuals every day, becoming "My Daily". In the algorithm platform, personalized algorithm enhances this exclusive customized intelligent content distribution model. The platform can even make real-time adjustments to meet users' emotional needs according to their emotional and physical state changes. However, in the relationship between

individuals and groups, individuals can also play the role of opinion leaders in groups by using algorithm recommendation. Based on this, the algorithm platform began to focus on training excellent content producers to become "head users", and used "head users" to actively stimulate new demands of group members. These "header users" are then selected by the platform as "My Daily" in their groups, distributing information to group members. In addition, different from the past, these groups are all built by algorithm technology, and their members are accurately pushed to their respective groups by the algorithm. Therefore, group members are more closely connected with opinion leaders, and opinion leaders can play a greater role during communication. In today's industry, the algorithm platform can push advertisements in the group through these head users, which can obtain more effective income and enrich the way to make profits.

The reshaping of the relationship between audience groups makes the media industry trapped by frequent group polarization. Since the opinions of the group members in the algorithm platform are very similar, it is easy to produce the self-solidifying "island effect", which develops into the phenomenon of "Information Cocoons" mentioned by Sunstein. In media industry, platforms or medias often gather different groups with potential conflicts into a scene based on this principle to trigger quarrels between groups, so as to achieve the purpose of attracting wars and earning traffic and interests. In some situations, platforms or medias will also connect groups with common goals and needs to gain benefits through collaboration. But in general, due to the invisibility and virtuality of algorithmic technology, the audience is hardly aware of its impact. Platforms can use the algorithm "black box" to secretly manipulate the audience to achieve its own goals. On the other hand, when the bad media on the algorithm platform intentionally stimulate the contradictions between groups, the mainstream media will face the arduous task of guiding public opinion and maintaining the order of the network environment. However, due to lack of experience and technology, it is difficult for mainstream media to deal with it effectively.

## VI. SUMMARY AND DISCUSSION

At present, algorithm technology has become mature, closely intertwined with human life, and its influence on human society has become more and more complex. The relationship between human and society has also been shaped and changed by algorithm to some extent. In this context, researchers need to have a new perspective on the study of audiences, and combined with the characteristics of algorithmic media data, to conduct a comprehensive investigation on audiences themselves. The audience has a more complex connotation on the algorithm platform, and the relationship between the audiences has been reshaped. Individuals can connect with other weakly related individuals through algorithm, and can also be pushed more effectively to groups that can meet their own needs by the algorithm. Conversely, individuals can also use recommendation algorithms to build their own groups as opinion leaders. And

groups are connected or isolated from each other, depending on the characteristics of different groups. However, it is worth noting that audiences of the algorithm platform always gives up their part of privacy in exchange for services. And the complexity and invisibility of the algorithm technology make algorithm platform a "black box" that is exempt from regulation. In the absence of legal and ethical constraints, the algorithm platform's control over the audience will exceed the limit, and the relationship between the audience and the audience will also be manipulated by the platform, causing incalculable dangers. So in the age of algorithms, embracing new technologies is inevitable. However, platforms also need to improve their transparency and openness in order that public can understand information, and pursue a balance between public interests and commercial interests. The society and the government should also carry out corresponding supervision and restraint on them.

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