The study of digital collective memory fading from the perspective of media studies

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Abstract: The Internet is regarded as a product of a vast memory capacity that transcends space and time, yet not all memories can actually be retained. With the rapid development of media technology, people's related collective memory is gradually fading. This paper takes the media materiality as the theoretical basis, and uses content analysis and in-depth interview to carry out the research. The result shows that media technology plays an important role in the transformation of individual emotion into collective memory and the internal logic of medium material carrier can be the reason of the fading of collective memory. Finally, this paper analyzes the influence of media technological development on the construction and fading of collective memory under the background of digitalization.

Keywords: collective memory, media technology, Kindle

1 Introduction

At present, the society has entered the post-epidemic era, and the frequency of people's outdoor activities has decreased, making reading one of the important leisure activities for people. At the same time, with the evolutionary of science and technology, the media technology related to reading is also constantly developing. From paper books to e-reading to audiobooks, media products keep updated. Kindle has become a memory of a generation,since its entry into the Chinese market in 2013.However, in 2022, Amazon suddenly announced that Kindle would withdraw from the Chinese one year later, and stopped updating the e-reading system for Chinese users, as well as a series of other services, which caused a large number of users to give up using Kindle. I have observed that even in the Age of Internet with huge memory capacity, people's collective memory gradually disappears when the media products that carry memories fade away.
So I am curious about why collective memory fading occur in the Internet era with its huge memory capacity? What role does media technology play in the construction of collective memory? And what role does media technology play in the fading of collective memory?

2 Literature Review

2.1 Media Materiality Study

In 1986, Joshua Meyrowitz proposed in None Sense of Place that the study of communication should include

the material characteristics of media, the way of use, life practice and so on [1]. It has attracted great attention both from domestic and overseas scholars and makes the study of media gradually turned to materiality that acquire fruitful research results.

In the field of communication studies, Meyrowitz supplemented the material exploration of media theory by studying the specific practice scenarios and factors of media generation and application [1]. Friendrich A. Kittler, in the field of media technology, supplemented the material exploration of media method, and put forward the material view of media history, which is regarded as the pioneer of media archaeology [2]. Since then, Stainforth Elizabeth drew the academic picture and scholarly genealogy of media archaeology by studying the material properties of media, and established the archaeological research direction of media materiality exploration [5].

Since 2010, the study of media materiality has been introduced into China, provoking extensive research by domestic scholars [6]. Huang Dan combining the actual phenomenon of Chinese newspaper history research with media material theory, put forward a new approach to study the Chinese newspapers history [7]. From the perspective of materiality, Zhai Chenxiao pays attention to the loudspeaker, which is not the focus of media research. By studying the practice and characteristics of the loudspeaker in rural information transmission activities, he draws the conclusion that the loudspeaker embodies the multi-level power relationship between the city and the countryside [8]. Hu Yiqing and Chen Jiewen takes children’s games as the object of research, develops an empirical investigation on the path of its medialization from the ephemeral dimension, holding that the reason for the change of the decisive role of media materiality is the logic of digital media existence itself [9].

But, these researches only explored the materiality of a certain specific media, and did not study the collective memory phenomenon from the perspective of media materiality, so they did not answer the question about the influence of media technology on the construction and fading of collective memory.

2.2 in the Digital Age Media and Collective Memory Study

The fading of collective memory has aroused the academic research from many perspectives. With "collective memory", "collective memory construction", "collective memory loss" as the theme of the retrieval in CNKI, the author finally found 4423 foreign and 3561 Chinese related literatures.

Mustafa Hasrina took collective memory as a part of the definition of group label, differentiated the differences of collective memory among Malaysian intergenerational groups through focus group interviews, and defined intergenerational groups according to historical events and collective memory [10]. By exploring the significance of cultural heritage institutions such as museums, libraries, archives and historical societies, Burkey Brant extends the perspective of collective memory into the field of digital memory, reflecting on how digital heritage projects and social media platforms can be better used to connect and interact with communities to create new collective memories [11].

Since the 1970s, collective memory has been concerned by domestic scholars, and the research on collective memory has been gradually deepened. Liu Zhenrui taking the bullet screen culture of Bilibili as the research object, explorshow to correlate the mechanism of bullet screen with the social psychology of "Generation Z" and found that "bullet screen culture" constructs collective memory with positive attitude bias [12]. With the development of the digital era, scholars also began to study digital memory. Cui Jiannan taking rural memory as the theme, uses interview method and grounds theory coding technology to study the influencing factors

of rural digital memory construction led by public libraries, and put forward feasible countermeasures and suggestions [13]. Xu Wendi is commit to the research on the construction of digital memory in China. By analyzing the influence of social media on the construction of social memory and the deconstruction risks brought by social memory, Xu Wendi explores the future development of digital memory in China [14].
These studies mainly focus on the construction of collective memory in the digital era, and discuss the media and the path of collective memory construction, but ignore the role of media materialityin the path of collective memory construction. Therefore, this paper is innovative to study collective memory from the perspective of media materiality theory.

2.3 Questions

Based on the theory of media materiality, this paper attempts to answer the following questions: Why does the fading of collective memory occur? How do media technologies affect the construction of collective memory? How do media technologies affect the fading of collective memory?

3 Method

3.1 Content Analysis

3.1.1 Research Hypothesis

Based on the above questions, corresponding hypotheses are proposed here:
H1: After Amazon announced the withdrawal of Kindle from the Chinese market, the audience's approval rating gradually decreased while the discussion desire gradually increased.
H2: The collective memory of the Kindle is constructed by audience’s discussions about Kindle’s use feeling and function.
H3: After Amazon announced the withdrawal of The Kindle from the Chinese market, the probability of negative blog posts increased.

3.1.2 Method of Sampling

The research object of this hypothesis is the content shared by users after searching “Kindle” on Microblog.
First of all, we make a representative sample of this content to select user-shared Microblog content of Kindle. The reason why Microblog was chosen is its content has strong representativeness. According to Microblog data in 2021, the number of monthly active users reached 530 million, mobile terminal accounted for 94%, and daily active users reached 230 million,which is characterized by concentrated public opinion and discussion.
Secondly, this paper adopts the method of random sampling to search kindle content on Microblog before and after the event from February 1, 2022 to July 1, 2022. In consideration of the periodic change of time in weeks, the composite week sample method is adopted in this study to better reflect the overall situation. The contents from 18:00 to 21:00 were selected as a whole, and a composite week was formed in 8 days to ensure

the balance of sampling distribution.

3.1.3 Coding Schedule

In this study, the variables of Amazon's announcement of kindle's withdrawal from The Chinese market were dimensionally reduced to event nodes, namely before and after the announcement of kindle's withdrawal from the Chinese market. And the audience's collective memory of Kindle is reduced to the dimensions of type of microblog , text length, type of discussion, number of likes, retweets, comments and so on, as shown in Table 1.

Table 1 Coding Schedule

Number	Variable	Assignment
1	type of microblog	1=plaintext; 2=Text and pictures
2	Publisher	1=common users; 2=We media; 3=news media
3	Event nodes	1=before the event; 2=after the event
4	Published time	Digital assignment, like 20220706
5	Text length	1=short text (Less than 70 words);
2=long text (More than 70 words but less than 140 words);		
3=more long text (more than 140 words)		
6	Type of discussion	1= function discussion
2= deal discussion		
3= discussion of reading content		
4= discussion of use feeling		
5= develop discussion		
7	number of likes	1=0-100; 2=101-500; 3=501-2000; 4=more than 2001
8	number of retweets	1=0-100; 2=101-500; 3=501-2000; 4=more than 2001
9	Number of comments	1=0-100; 2=101-500; 3=501-2000; 4=more than 2001
10	Wether the content have topic	1=yes; 2=no
11	Wether the content use cyber-speak	1=yes; 2=no
12	Wether the content use microb-log expression	1=yes; 2=no
13	Emotional tendency	1=positive; 2=neutral; 3=negative

3.2 In-depth Interview

3.2.1 Interview design

The interview questions are mainly divided into three parts. The first part mainly involves the basic information of the interviewees, including age, occupation and times of using Kindle. In the second part, the research questions are dimensionally reduced to interview questions, including the feelings of using Kindle, the memories of using Kindle, the views of Amazon's announcement of kindle's withdrawal from Chinese market which include specific coping strategies and changes in the way of using Kindle, etc. The third part is preparation for the questions that may be dug deep.

3.2.2 Interviewees information

This study conducted 30 minutes semi-structured in-depth interviews with 10 interviewees who had used Kindle. The interviews began in June 2022 and ended in July 2022. The interviewees first included friends around the author, and then collected more research samples through friends. According to the maximum sampling principle of qualitative research method, when the 10th interviewee is recruited, all the interview content is enough to answer the research questions, and the sample collection is due. The interviewees were differed in age, occupation, first degree, kindle use duration and other aspects, showing low degree of homogeneity.

The interview was conducted by text interview on WeChat. The interview results were compiled into a verbatim transcript of 9,905 words. The processing of the interview content was completed by Liao Jiayin. Basic information of the interviewees is shown in Table 2.

Table 2 Interviewee Information

Interviewee	Age	Occupation	First Degree	Kindle Use Duration
S1	20	student	Bachelor's degree	Two years
S2	21	student	Bachelor's degree	Six years
S3	22	student	Graduate degree	Less than one year
S4	22	student	Bachelor's degree	Five years
S5	21	E-commerce platform with cargo anchor	College degree	Three years
S6	24	programmer	Bachelor's degree	Ten years
S7	30	Civil servants	Bachelor's degree	Three years
S8	20	student	Bachelor's degree	Six years
S9	18	student	highschool	Two years
S10	23	student	Graduate degree	Four years

4 Results

4.1 Data filtering

The total sample of 69 coding forms was coded. Since it was coded by one coder, it was not necessary to pass the coder consistency test and the 69 coding forms passed the consistency test.

4.2 Descriptive statistics

After analysis, 63.77 percent of the samples are plain text and 36.23 percent are text and pictures; due to the restrictions of the Weibo platform, 84 percent of microblogs are short. As for the type of discussion, 43.48 percent contents are about feelings of users. Therefore, in the event of the withdrawal of Kindle from the Chinese market, most of the audience is still concerned about the use of The Kindle product itself; while 7.25% of discussion are about development. In terms of publishers, 95 percent are published by common users, and only 4.35 percent are published by "we media".

4.3 Hypothesis analysis

4.3.1 Significant event provokes audience's desire for discussion

The analysis of the data about retweets, likes and comments revealed that after Amazon announced the withdrawal of kindle from The Chinese market, the number of likes dropped obviously, but the number of comments and retweets increased slightly. This shows that the user group has a low degree of agreement with the event and a desire to release and share their opinions. Therefore, hypothesis 1 that after Amazon announced the withdrawal of Kindle from the Chinese market, the audience's approval rating gradually decreased and the discussion desire gradually increased holds true.

4.3.2 Media technology discussions have shaped collective memory

First of all, the analysis of the discussion type data shows that users are most concerned about the use and functions of kindle, and the impression of kindle media technology is continuously strengthened in the discussion, thus building a collective
memory.
Secondly, analyzing the content emotional tendency, after Amazon announced the withdrawal of kindle from Chinese market, the population with neutral attitude dropped from 26.67 percent to 11.11 percent, while the positive attitude rose from 43.33 percent to 55.56 percent and the negative attitude rose from 30.00 percent to 33.33 percent, indicating that the neutral population was diverted to positive attitude or negative attitude. It implies that in the process of discussion, the attitude of a part of the group changed from indifferent to interested about the event, and also proves that there is generates a certain group memory about the event after it happened. Therefore, hypothesis 2 that the collective memory of the Kindle is constructed by audience’s discussions about Kindle’s use feeling and function holds true.

4.3.3 Significant events have changed the audience's attitude

Through the comparative analysis of the content emotional tendency before and after the event, it can be seen that the negative content of deal type blogs increased from 0% to 50% after the event, and the neutral attitude of the blogs no longer existed. However, the positive attitude was higher in the use feeling blogs, which

increased from 33.33% to 66.67%. In the function and development discussion, the number of blogs with a positive attitude dropped from 50 percent to 0 percent, completely disappearing. Therefore, hypothesis 3 that after Amazon announced the withdrawal of The Kindle from the Chinese market, the probability of negative blog posts increased holds true.

5 Discussion and Conclusion

5.1 The role of media technology in the transformation of private emotion into collective memory

This paper finds that media technology is an important private emotional memory for media products, and also acts as the central content of private communication in social communication. For example, interviewees mentioned that “I would search for how to transmit and download books on social platforms and consult some functional questions.” (S2) Secondly, users take the Kindle media technology ink screen as the central clue of memory, so as to launch other memories of Kindle purchase situation, media product impression, future development view and so on. “I started using the Kindle about four or five years ago to experience the ink screen.” (S4) “In my impression, the biggest superiority of Kindle is the ink screen, which simulates paper books and protects eyes.” (S3) “I feel like the Kindle is going to die out because the ink screen feels so slow.” (S5)

Collective memory needs the practice and expression of social rituals to transform the private emotional memory into the remember and recollection of collective memory in public space, forming a ritualized emotional carnival [15]. Similarly, Halbwachs believes that social communication is the prerequisite for the transmission of collective memory, and that people acquire memories through being in society. When the media technology, as the central content of private emotional memory, gradually declines, users' desire to discuss it gradually decreases, and the frequency of social communication also gradually drop, which makes the function of private emotions to be transformed into collective memory ineffective, thus leading to the fading of collective memory. For example, when asked if they had discussed Kindle on social media, the interviewee replied that I had joked about the kindle's slow response on social media. (S2) I won't discuss it now, because I feel that the Kindle itself has lost much of its popularity except the topic of being forgotten. (S8) It is worth noting that the event of Amazon's withdrawal from the Chinese market mentioned in hypothesis 1 arouses the audience's desire for discussion. It is a major event that arouses the audience's attention and stimulates the audience's desire to express the future development of Kindle, rather than the social communication of the users discussed here out of concern for Kindle media technology.

5.2 The fading of collective memory cannot ignore the internal logic of media carrier

Collective expressions related to history and the past are often attached to some material carriers or dwell in specific Spaces and landscapes. Media environment school also believes that media is no longer a zero-load communication medium, but has internal logic and independent power. This paper finds that the audience's collective memory of Kindle is attached to the material carrier of Kindle e-reader, and Kindle e-reader has a

set of internal logic.

Kindle mainly provides reading services, and Amazon has established the logic of internal circulation of paid-reading through e-book store and Kindle e-reader. However this logic is not universally accepted, “The Kindle is troublesome to use, and most books have to be paid for again, unlike many free books that can be found on mobile phones, and even when e-books are available, the process of sending them from the phone to the Kindle is troublesome.” (S3) In addition, importing books in different typesetting forms such as magazines, textbooks and novels into Kindle requires secondary conversion of contents through kindle's own language symbol system, and finally unified display of black and white contents through the ink screen. “I think the disadvantage of a Kindle is that it doesn't have the authenticity of a paper book. I'm a very ceremonial person, and I value the cover, feel, and layout of the inside pages”. (S1) “My professional books can't be read on the Kindle. For some reason, they just don't show up.”□S7□When the audience cannot adapt to the internal logic of e-reader, they will give up and turn to alternative media products. As a large number of users give up using Kindle e-readers and the material carrier attached to the collective memory disappears from view, the collective memory of Kindle gradually fades away.

5.3 under the development of media technology the strength and weakness of collective memory

At present, digital existence has become the norm. Mass media plays an increasingly important role in the storage and transmission of memory. Collective memory is gradually presented and preserved in a digital and mediated way, forming "media memory". This study found that self-deprecating collective memories, such as "Kindle is best for covering instant noodles", formed by users discussions about Kindle on the Internet, can still be searched. For example, the interviewees mentioned that “I would post my feelings on Douban or microblog after reading the book. ”(S6) “I don't think that many people regard Kindle as a cover to lid instant noodles, they just follow the trend.” (S9)

Hu Baijing believes that the arrival of Internet alters time and space makes observation and evaluation of others and “foreign countries” bound into the construction of collective memory in almost all major periods. This study found that when Amazon announced the withdrawal of Kindle from the Chinese market, it triggered the discussion of the audience and thus constructed the collective memory of Kindle. However, this collective memory is somewhat conflicting. For example, when asked what interviewees thought about the incident, they, the Kindle users, reported overall collective memory of nostalgia and rationality. “It does not affect my use, I have free book resources. “(S8) “I feel so pity, because Kindle is something I have been using in highschool and has been with me for a long time.” (S2) However, microblog users, unable to confirm whether they have used a Kindle, showed a different attitudes. When collective memory becomes ambiguous and heterogeneous, it will inevitably weaken its cohesion and appeal, and the audience's collective memory can not be unified and difficult to reconcile, ultimately leading to the disappearance of collective memory .

However, due to sample limitations, this study may bring observation loopholes. In future studies, researchers in the field of media technology may need to pay more attention to the phenomenon of digital collective memory and try more research methods to expand the research and practice on the relationship between media technology and digital memory construction.

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