

Online Identity Characteristics and Digital Footprints of Social Reading Subjects: Analysis and Implications (Postprint)

Authors: Liu Yan

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Abstract

[Purpose/Significance] Under the trend of social reading, this study integrates the network identity of social reading subjects with future digital reading services of libraries, clarifies the rationale for libraries to develop social reading services, explores construction channels for social reading platforms, aiming to provide relevant recommendations for future library reading services. [Method/Process] Through philosophical speculation on network identity, it identifies the characteristics of social reading subjects' network identities and the attendant reading problems; distinguishes the types of digital footprints left by social reading subjects in cyberspace, and elaborates in detail on the impacts of social reading on the reading environment, readers' reading behaviors, and readers' reading capabilities. Finally, it proposes recommendations for libraries to construct social reading services from three perspectives: why to construct social reading, how to construct social reading, and how to circumvent risks. [Results/Conclusion] The network identity of social reading subjects is characterized by the absence of real identity presence and the virtual presence of digital identity. The "disembodied" and "anonymous" nature of network identity grants modern readers broad discursive space, facilitating the generation of digital footprints and the formation of social reading. To address issues such as the superficiality of reading methods, intellectual laziness in reading reflection, homogenization of information push, and gamification of information texts, libraries may in future services construct channels for social reading through online websites, retrieval platforms, mobile reading applications, and third-party software; optimize information push through data aggregation; and circumvent risks in social reading by signing data usage agreements, strengthening supervision of online published content, conducting offline reading activities, implementing digital literacy training, and setting upper limits on recommended information quantities.

Full Text

Preamble

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Title: Analysis of Online Identity Characteristics and Digital Footprints of Social Reading Subjects

Affiliation: Jiangxi Provincial Library, Nanchang 330077

Abstract

[Purpose/Significance] In the context of the growing trend toward social reading, this study integrates the online identity of social reading subjects with future digital reading services in libraries. It clarifies the rationale for libraries to develop social reading services, explores potential channels for constructing social reading platforms, and offers recommendations for future library reading services. **[Method/Process]** Through philosophical reflection on online identity, the paper identifies the characteristics of social reading subjects' online identities and the resulting reading problems. It distinguishes between types of digital footprints left by social reading subjects in cyberspace and discusses in detail how social reading influences the reading environment, reader behavior, and reading abilities. Finally, it proposes recommendations for libraries to build social reading services from three perspectives: why to construct social reading, how to construct it, and how to avoid associated risks. **[Result/Conclusion]** The online identity of social reading subjects features the physical absence of real identity alongside the virtual presence of digital identity. This “disembodied” and anonymous online identity grants modern readers expansive discursive space, facilitating the generation of digital footprints and the formation of social reading. To address problems such as superficial reading, intellectual laziness, homogenized information 推送, and the gamification of texts, libraries can build social reading channels through online websites, retrieval platforms, mobile reading apps, and third-party software. They can optimize information 推送 through data aggregation, and mitigate social reading risks by signing data usage agreements, strengthening supervision of online content, organizing offline reading activities, implementing digital literacy training, and setting upper limits on recommended information quantities.

Keywords: social reading; online identity; presence; absence; digital footprint

2. Online Identity of Social Reading Subjects

Social reading differs from the individual knowledge acquisition behavior of readers in the print media era. Instead, it is built upon the sharing and interaction of reading cognition between two or more readers, with value extending beyond individual knowledge expansion to include mutual profit among multiple readers and the appreciation of reading value. The author argues that social reading is essentially a behavior in which reading subjects generate their own

content, share and interact with other readers, disseminate information, and achieve common profit. In the Web 3.0 era, where the internet understands and provides for user needs, social reading platforms are intelligently mediated. Through data aggregation technology, these platforms capture user information to achieve personalized content customization and precise dissemination. Figure 1 [Figure 1: see original paper] illustrates the characteristics of social reading from the perspective of reading subjects and platforms.

Social reading platforms provide modern readers with an intelligently mediated, cross-screen, rich-media, and massive information world, while also offering interactive spaces for self-expression. The social turn in modern reading has become prominent and permeates people's daily lives. In internet space, social reading subjects differ from the "corporeal" self in real society, transforming into a digitized, symbolic self in virtual cyberspace—a digital ID, an avatar image, an "online identity" representing the real self in physical life.

2.1 Definition of Social Reading Subjects' Online Identity

The *Report* states that online identity, also known as digital identity, is a concept wherein all interactions in the digital domain possess or acquire a set of inherent and variable data or attributes that can serve as unique identifiers for online individuals or entities. In its most common form, online identity manifests as an ID number or username in cyberspace. For example, on self-media platforms that enable social reading, social reading subjects' WeChat or Weibo accounts represent their digital identities in the online society; on mobile reading apps and news platforms, the phone numbers and usernames used for registration constitute their digital identities in the internet environment; when social reading subjects browse and interact on any PC website, their digital identity as "tourists" appears as an IP address. Such IDs and IP numbers virtualize readers from real life, allowing them to freely browse, participate in interactions, and disseminate information in digital reading spaces.

2.2 Characteristics of Social Reading Subjects' Online Identity

The emergence of the internet and rich social media has changed the spatiotemporal structure required for face-to-face co-presence in modern communication, making physical space no longer the only optional space for conversation. Modern people have migrated en masse to the online society, completing activities such as socializing, shopping, information acquisition, and book reading in cyberspace. It must be acknowledged that cyberspace and digitalization have granted modern people new online identities, making social reading subjects exhibit the characteristics of real identity absence and digital identity presence.

2.2.1 Physical Identity Absence In real society, attributes such as gender, age, and voice are explicit and easily subjectively judged and identified by strangers through facial observation; among acquaintances, identity characteristics, personality traits, and preferences can be more intuitively revealed through

social practice. In the traditional physical world, a person's body and identity were integrated and inseparable. However, under the spatiotemporal structure of cyberspace, being "online" has become the basic existential state for modern people in the online society, where their real social identities can be hidden in cyberspace, presenting only a digital ID number visible to others.

Presence and absence are binary oppositional concepts with different theoretical contexts and specific connotations in philosophy and other disciplines. "Presence" most 通俗ly means being within a field or space; "absence" means "not being present," referring to being outside a field or space. In the digital virtual space, the "corporeal" body of social reading subjects is absent within the internet field. The physical body's absence is the first mechanism of online social movement, achieving to some extent the concealment and absence of netizens' real social identities in physical society, such as age, gender, race, religion, and power. The presence absence of real social identity is the second mechanism of online social movement. The concealment of real identity removes the constraints of physical body and real identity on reading subjects' free commentary and participation in interactions, which is more conducive to the formation of social reading.

In social reading practice, we can observe that in the interactive comments on news platforms, there exist improper expressions, spoofs, gamified language, and even vulgar remarks, causing a decline in the overall reading environment. On mobile reading apps such as iReader, interactive book reviews also include readers expressing different opinions and dissenting attitudes. The absence of social reading subjects' real identities in the internet field, the "disembodied" characteristic of online identity, and the "anonymous" online status grant social reading subjects more discursive space.

2.2.2 Digital Identity Presence Digital identity has become the only identity for modern people in online society, replacing physical persons to conduct various activities in cyberspace. In network spacetime, people's physical bodies in real life are virtualized into a digital identity, becoming a "symbolic" existence in online society. People's digital identities are present in the virtual digital environment. Netizens' physical bodies achieve presence in cyberspace through the multimedia symbolization of their self-representation. Symbolic presence is the third mechanism of online social movement.

In the Web 3.0 paradigm of social reading, reading subjects leave various behavioral traces in cyberspace through the presence of their digital identities. These digital traces do not disappear with netizens' "offline" status but are permanently retained in the internet field, further facilitating the continued presence of social reading subjects' digital identities even when they are offline. In social reading practice, the presence of digital identities and behavioral traces provides data sources for data aggregation on social reading platforms. Through browsing keyword capture and web logs, platforms calculate readers' "reading portraits" and push reading groups with similar tastes to readers, promoting interaction

and communication among reading subjects in cyberspace. This reflects the re-contextualization of social reading subjects' social relationships in cyberspace and facilitates the formation of new social relationships based on reading.

3. Digital Footprints of Social Reading Subjects' Online Identity

Due to the absence of social reading subjects' real identities in online society, reading subjects freed from identity constraints are granted convenient channels for communication and interaction, stimulating their enthusiasm for participation to freely write and disseminate in cyberspace, generating behavioral traces. The behavioral traces left by social reading subjects in online society can be collectively termed "digital footprints." The concept of digital footprints first appeared in Nicholas Negroponte' s work *Being Digital*. The *Report* adopts the definition by researchers from Savitribai Phule Pune University in India: "meta-data (data about data)" left when people search or use online services. The author argues that in the Web 3.0 era, the digital footprints of social reading subjects' online identity refer to the relevant digital traces or information generated when reading subjects use digital devices to access the internet for reading, searching, browsing, commenting, and interacting. The permanent presence of digital identities and digital traces provides data sources and computational foundations for social reading platforms to implement precise content 推送. Digital footprints can be divided into two types: active digital footprints and passive digital footprints, as shown in Figure 2 [Figure 2: see original paper].

3.1 Active Digital Footprints

Active digital footprints refer to content explicitly generated by users when uploading content to public cyberspace, i.e., personal data published by users on internet platforms. For example, creating a personal Weibo account and posting relevant content. In the Web 3.0 paradigm of social reading, active digital footprints of reading subjects' online identity include content they create or forward from third parties on self-media platforms, as well as data generated when users log into their exclusive accounts on online reading websites to browse, read, participate in comments, and generate content.

Modern information technology has catalyzed the generation of active digital footprints by social reading subjects, granting network users broad discursive space and accelerating the integration of reading and social interaction. The absence of real identity and presence of digital identity for social reading subjects in cyberspace removes embarrassment and shyness when generating active footprints, greatly stimulating network users' enthusiasm for participating in interactive comments and further shaping the social character of reading. The generation of active digital footprints and the highlighting of reading' s social attributes result from the combined effects of modern information technology, reading subjects' cognitive surplus, free expression environments, and willingness

to share, but they also bring certain problems:

3.1.1 Reading Behavior Reshaping: Superficialization and Fragmentation Mobile internet and social media technology have brought about the revival of social reading, and the concealment of social reading subjects' real identities has increased their enthusiasm for discourse and interaction. In the Web 3.0 era where everyone is a portal, social reading subjects no longer merely play the role of information recipients but become creators and disseminators of information. Cai Qi argues that social reading originates from a production revolution against the backdrop of cognitive surplus. Everyone contributes their cognitive surplus and generates active digital footprints, which also leads to the massive accumulation of reading information, constructing a huge information territory in cyberspace. Faced with geometrically explosive information volume, readers are forced to browse quickly or adopt skimming methods to capture key information, obtaining maximum information with minimal time cost. The immersive, deep reading characterized by deep attention has gradually declined, while browsing-style, superficial reading characterized by hyper attention has become prevalent. Unlike individual reading, social reading' s shared aesthetic experience and perceptual experience dismantle and 放逐 other readers' opportunities for deep thinking and text participation. Meanwhile, the massive amount of information overwhelms readers, leaving them no time for value and meaning consideration, reducing them to browsing-style, superficial reading. Additionally, facing 海量 information, modern people have lost reading patience and cannot focus on longer texts. Intellectual classics and literary masterpieces have become options that modern people "cannot finish reading." "Text flooding," information overload, and useless discourse accumulation are scenarios readers face in the online reading era. Pursuing speed is the most basic reading characteristic of this era. Micro-text narratives and micro-reading are flourishing, which, while fitting modern people' s fragmented time, also make modern reading fragmented.

3.1.2 Reading Environment Decline: Gamification and Entertainment Cheng Manli believes that social reading, without undergoing review, makes content control difficult to achieve and may generate discourse that impacts people's traditional cognition, forming a misplaced public opinion field. In online society, social reading subjects, freed from the constraints of real identity, freely write and disseminate in a relaxed online environment with their virtual online identities, greatly fostering improper expressions, vulgar language, and unhealthy values. Some information publishers release vulgar content to pursue popularity and attract public attention, reducing cultural narratives to sensory narratives and literary ideals to bodies of desire, polluting the overall online reading environment and causing its decline. The freedom of the internet and virtual identity grant modern readers broad discursive space. Cognitive surplus allows users to produce knowledge, rapidly transferring discourse power from "elites" to "grassroots." Unorthodox and unserious information texts emerge endlessly,

with collage and parody gamified language being popular and 恶搞-style entertainment expressions common. In the social reading context, the liberation of modern readers' discourse power has to some extent deconstructed traditional, serious expression. Information texts tend toward simplification and entertainment, bearing obvious characteristics of "consumer culture," causing information text quality to decline and adversely affecting the overall reading environment. Additionally, social reading platforms themselves are subjects that generate textual information. In the media era where traffic is king, some WeChat public accounts or news reading apps pursue click rates, adopting "clickbait" practices in information production. Not only do titles mismatch content, but there is also false information, which misleads readers, reduces the effectiveness of information reception, and causes reading waste.

3.2 Passive Digital Footprints

Passive digital footprints refer to data generated when users interact with internet and mobile device infrastructure, often without basic awareness that data is being collected, such as when users browse websites. In the Web 3.0 paradigm of social reading, passive footprints of reading subjects' online identity mainly include browsing web content through search engines, reading duration, and the total number of hyperlinks opened at page ends after entering the internet. Websites conduct big data processing and precise calculations on these passive footprints to provide relevant content 推送 for browsers. Although precise content 推送 can help readers obtain content of interest from 海量 information and save time in information searching, it also faces certain problems:

3.2.1 Reading Interest Lock-in: Solidification and Enclosure Web 3.0 social reading platforms achieve personalized content customization and 推送 for readers by capturing and calculating their digital footprints. While social reading subjects are monitored by platform big data technology, they are also surrounded and deeply immersed in platform-pushed information. Poster, in *The Second Media Age*, points out that computerized databases represent a discourse of the "super-panopticon" ; Deleuze believes that cyberspace is a holographic code, a society of instantaneous, pervasive information control that colonizes our daily life on a massive scale. In the Web 3.0 paradigm of social reading, readers' browsing traces and duration in cyberspace are recorded and monitored by computers. Through data mining and precise algorithms, readers are labeled with "interest tags" reflecting different reading tastes. The system delineates reading segments for readers based on these tags and 推送 reading content with similar themes. Information 推送 based on readers' interests and orientations does not extend readers' reading interests but locks their reading scope. From the perspective of "intertextuality" indicated in Figure 1, intertextuality is a key academic concept in Western postmodern theory. French critic Kristeva points out that intertextuality is the relationship between one text and other texts; every text is the absorption and transformation of other texts. Another manifestation of intertextuality in social reading is that at the

end of readers' reading interfaces, social reading platforms push reading texts with similar content through "hyperlinks," forming an intertextual relationship between the current webpage and the "hyperlinks." When readers open hyperlinks, new hyperlinks appear, creating a cyclical information 推送 method that not only causes readers' information disorientation but also further encloses readers' reading tastes. Another manifestation of social reading intertextuality is that content read on the PC 端 can be shared and forwarded to self-media platforms, and mobile reading app platforms also support third-party forwarding, making social reading cross-screen and cross-platform. The convenient functions of sharing, copying, and forwarding promote the emergence of 大量 content-similar (intertextual) texts. The presentation of such a large volume of homogenized content not only encloses and solidifies readers' reading classes and tastes, forming a personal reading "information cocoon," but also easily makes modern people overly immersed in the online information field.

3.2.2 Thinking Ability Decline: Laziness and Convergence French sociologist Pierre Lévy believes that the "massive information" of global interconnection and electronic networks makes it an unburnable library and Babel Tower. Readers face a constantly flowing "information flood," with image reading being more favored by modern readers than text reading. In social reading practice, whether on social reading platforms, news platforms, or self-media platforms, information texts are presented through multimedia combinations of images, text, and pictures, making social reading content rich-media. This has led readers from the traditional text-reading era to the image-reading era. Intuitive pictures and videos easily enter readers' minds first, with fleeting images or audio leaving readers no time for deep meaning exploration, requiring no intimate contact or deep dialogue with text, which is not conducive to readers' immersion and careful, in-depth reading. The intuitive presentation of multimedia information texts gives readers the pleasure of rapid information acquisition but also creates a breeding ground for thinking laziness. This laziness easily breeds a "herd mentality" in readers during reading, damaging the cultivation of readers' thinking abilities. Social reading platforms aggregate readers' passive digital footprints to organize and push content that matches their reading tastes, bringing immediate benefits to readers from the perspective of efficient information acquisition. However, in the long run, over-reliance on information 推送 reduces opportunities for readers to conduct systematic logical construction work such as collecting, organizing, and analyzing reading texts, which is not conducive to cultivating readers' associative logical thinking and contradicts the construction of readers' reading abilities. Reading is for human development. If people do not think deeply, entertain themselves with superficial reading, and internalize it as their habit, it may undermine the cultivation of reading aesthetic abilities such as questioning spirit, critical thinking, and creative ability built upon deep reading, causing an overall decline in thinking ability.

4. Implications for Future Library Reading Services

Reading has always been an important service content of libraries and a crucial means for national civilization inheritance and development. The media revolution has brought changes to the reading environment and readers' reading behavior, while also prompting the transformation from traditional libraries to digital libraries. From the print media era to the electronic media era, traditional libraries have just caught their breath in the first wave of informatization and now face the era of mobile internet and the Internet of Things. How future library reading services should transform and better meet the reading behavior needs of modern readers deserves further consideration by contemporary librarians. The *Report* first connects online identity with future library services. For academic or research libraries, online identity means tracking open scholars' academic trajectories. For public libraries, online identity means attention to digital reading readers. Currently, digital reading is showing a social turn. Therefore, the author believes that the integration of future library reading services with "online identity" can take social reading as a breakthrough point, as shown in Figure 3 [Figure 3: see original paper].

4.1 Why Develop Social Reading Services

4.1.1 An Important Proposition for Future Library Services In 2011, Zhong Xiong, co-founder of MTC (Mobile Talk Club), pointed out that social reading is the next outlet for digital reading and the future direction of reading. Terminals such as computers, mobile phones, and e-readers, along with applications like self-media platforms, mobile reading clients, and news clients, are all entry points for social reading. Today, social reading is evolving into a lifestyle for modern people and has become the main platform for them to obtain information instantly. The *15th National National Reading Survey Report* points out that in 2017, the comprehensive reading rate of various media for Chinese adult nationals maintained a growth momentum, reaching 80.3%, with mobile phones and the internet becoming the main media that Chinese adult nationals contact daily. Currently, we face the major trend of digital reading, with an output value reaching 15.2 billion yuan and digital reading users reaching 400 million. Additionally, the popularization of social media has changed modern people's reading patterns. Brian Solis, an American social media marketing expert, points out in his new book that social media is becoming an important part of people's daily lives. It not only changes the way people search for and share information and how they connect and cooperate with each other but also influences various other behaviors. The trend of digital reading and the popularization of social media have facilitated the social turn in modern people's reading, forming a new reading pattern—social reading, which is also an important proposition for the future reading services of Chinese libraries.

4.1.2 Essential for Overcoming Current Shortcomings Currently, Chinese libraries still have certain shortcomings in digital reading services. From

the platform perspective, Chinese public libraries' digital mobile reading platforms mainly use the "Mobile Library" app developed by Chaoxing Company. The software comes with more than 30,000 e-books and 87 million newspaper articles, updated regularly. Readers need to scan QR codes on Chaoxing's reading integrated machines and download them to their own e-reading devices before they can read, which is not convenient enough for readers and provides a poor reading experience. At the same time, the reading software does not have entry points for social reading, cannot form collaborative learning and reading, and does not conform well to the social trend of modern readers' reading. From the resource perspective, in print book retrieval, readers only obtain the most basic copyright information and content introduction from the retrieval system; they cannot see other readers' ratings and evaluations of books on the book retrieval page. Regarding digital resources, under the major trend of library digitalization construction, many libraries have merely transferred literature resources from "paper" to "disk." Although the volume of digital resource construction continues to increase, actual utilization by readers is very limited. From the functional perspective, the most frequently used reading channels mentioned above all lack entry points for achieving social reading. In comparison, readers are more willing to choose mobile reading platforms such as "iReader" or "Douban Reading," where they can select the most suitable books through other readers' annotations and ratings. From these perspectives, public library reading services remain at the primary stage of digital reading, leaving the library's digital reading readers in the Web 1.0 state of one-way information reception. Modern library digitalization construction is closely related to digital reading services; therefore, solving this current puzzle is also essential.

4.1.3 The Inevitable Path for Libraries to Shoulder Their Mission

The innovation of reading methods and the emergence of reading problems go hand in hand in the media revolution. The online scene of social reading includes not only online reading platforms and mobile reading apps but also self-media platforms and numerous news platforms, which have become the main information acquisition venues for most readers. However, mobile media platforms and self-media platforms have become disaster areas for vulgar content and fake news. In the era of the attention economy, information text publishers cater to the market's low-level taste needs, completely becoming slaves to the market economy. Catering to the market leads to declining text quality, which is not conducive to national cultural development and ultimately harms the overall national cultural quality. The era where everyone is a media outlet should not be about information producers catering to audiences but about good content prompting readers to pursue media. From this perspective, public libraries are national public welfare units, not profit-oriented, with national policy support and financial support. Public libraries developing social reading services need not place advertisements on reading platforms for profit at the expense of readers' reading experience, nor will they pollute the reading environment by catering to vulgar reading needs. Their content 推送 will be more professional and ethical,

following national guidelines for online content publishing and firmly 守住 moral 底线, 守护 reading 净土. Cai Qi believes that in the network environment, social reading harbors some crises: fragmented time and space promote superficial reading, and excessive immersion in virtual space makes cultural interaction in real society scarce. If superficial reading becomes internalized as people's reading habit, it will not be conducive to national progress and development. Huang Xiaoxin believes that in the current network environment, problems such as information overload, information interference, and information pollution easily cause reading waste. Especially for adolescents growing up in the network environment whose minds are not yet mature, they are easily influenced by online 不良言论 and wrong values, which requires certain digital literacy. Meanwhile, the *Report* points out that digital literacy is one of the challenges that libraries can solve. From this perspective, public libraries, compared to network reading platforms, have tangible physical spaces. First, they can embed online reading interactions into real social networks through offline reading activities. Second, they can leverage their social education functions to conduct digital literacy training and lectures. Although purifying the reading environment requires joint efforts from the whole society, for public libraries, 守好 reading positions, 做好 guardians of the reading environment, and strengthening reading behavior guidance are also contributions to building a nationwide reading society and the inevitable path for public libraries to shoulder their cultural construction mission.

4.2 How to Construct Social Reading Services

The construction of social reading services should be based on readers' feelings, creating good reading scenarios and fully understanding readers. It can be said that scenario and user (reader) are the fundamental footholds for developing social reading services. Under the trend of social reading, constructing good reading scenarios means establishing reading platforms that fit readers' reading habits. Better understanding users means fully portraying readers' reading portraits, optimizing resource 推送 matching, adjusting literature resource construction and reading activity planning, and effectively connecting with readers' reading needs.

4.2.1 Building Diversified Social Reading Channels Without sufficient financial resources to develop or purchase smart library platforms or next-generation library platforms, libraries can build social reading channels through the following four channels:

- (1) **Portal Websites.** Libraries can build online reading platforms through portal websites, mainly targeting self-built or purchased digital resources. First, they should improve the construction of the library's digital resource database, achieve unified retrieval and revelation of digital resources in various formats, and establish a digital resource tag system through semantic computing to support deep matching between digital resources and read-

ers. Second, libraries can build online forums on portal websites. Drawing on the “Douban Reading” model, they can set up various topic groups on portal websites, initiate discussion topics to drive reader participation, and establish incentive measures to stimulate readers’ enthusiasm for online discussions, building collaborative reading and learning communities to promote knowledge sharing and mutual benefit among readers. Third, libraries can develop a “Reader Reading Cloud” on portal websites, similar to integrated reading and writing platforms like Hongxiu Tianxiang, setting up sections such as “My Retrieval,” “My Bookshelf,” “My Book Reviews,” “My Recommendations,” “My Book Friends,” and “My Sharing” to provide readers with one-stop convenient services for retrieval, reading, collection, rating, sharing, socializing, and creation, facilitating the realization of online reading socialization.

- (2) **Retrieval Platforms.** Libraries can draw on the Douban Reading online reading website model to purchase or develop catalog query systems with functions such as book recommendation star ratings, reader reviews, reader sharing, and back-end reader reading data mining and calculation. At the same time, libraries can also join Douban Reading’s library cooperation project. Currently participating public libraries include Shanghai Library, Jiangyin Library, Jilin Library, Capital Library, Wenzhou Library, Guangzhou Library, Guangdong Provincial Sun Yat-sen Library, Chongqing Library, and Shaoxing Library. Through cooperation, Douban Reading users can see which public libraries own a book on the book introduction page and enter the retrieval platform through the cooperative library’s link to check the book’s specific location for borrowing or reservation; readers of cooperative libraries can check Douban Reading users’ evaluations of the book on the book details page in their library’s retrieval platform, share the book to social platforms such as WeChat and Weibo, and add tags to the book.
- (3) **Reading Applications.** To address the problems in current public libraries’ mobile reading platforms, first, social entry points should be set up in current mobile reading platforms, enabling readers to conduct social interaction functions such as text annotation, note-taking, sharing, rating, and commenting during full-text reading, which is conducive to the formation of social reading. Second, optimize the display interface. Under the situation of massive information volume and superficial reading, libraries should abandon the current social reading platforms’ practice of pushing large amounts of information and draw on the practice of the “One” reading app, selecting the highest quality content for users in the fast era, recommending a daily passage from a book that can resonate with users, recommending a beautiful article, a chapter from a serialized book, pushing a photography picture, raising a question, recommending a song, a movie clip, or a radio station, completing daily recommendations in the form of content aggregation. Third, lead value reading. Under the superficial and fragmented forms of digital reading, libraries should inno-

vate service ideas, create deep reading models, and lead value reading. For example, they can draw on the “NetEase Snail Reading” app model, using the form of only three books on the bookshelf to solve reading choice difficulties and reading confusion, which aligns well with decision psychology; using the method of “daily free reading hour” collection or “daily reading check-in to open reading permissions” to urge users to aim to finish a book, insist on daily reading, develop good reading habits, provide point rewards for readers who participate in reading interactions and write book reviews, promote readers to complete value reading, and help readers develop good habits of deep reading.

- (4) **Other Platforms.** Libraries can use third-party software to build social reading platforms. First, they can use WeChat public accounts to push short passages that can resonate with readers, fitting the characteristics of modern readers’ fragmented reading, and open comment functions at the end of articles for readers to comment. Second, on official Weibo platforms, they can introduce new books with short passages and pictures, allowing readers who follow the official Weibo to comment and forward. Third, libraries should deeply mine library user reading data, obtain the book content that library readers pay the most attention to, use WeChat public account group functions, draw on the practice of “Reading Together” activities in “Library at Height,” establish WeChat reading group groups with different characteristics, and readers can enter by scanning group QR codes, using WeChat groups for book recommendations and reading exchanges.

4.2.2 Optimizing Information 推送 Design for Reading Services The information 推送 function of social reading services depends on the capture of digital reading subjects’ digital traces and the data aggregation technology of reading platforms. The *Report* points out that big data technology will be adopted by research and academic libraries within one year, and big data comes from the digital footprints generated by libraries providing online resource services and social media services to readers. Such libraries conduct big data analysis on the digital footprints generated by reading subjects’ online identity to determine and meet readers’ personalized needs. Capturing digital traces of reading readers for user analysis is conducive to fully grasping the structure of library readers and improving user analysis capabilities; it can provide scientific and reliable decision-making basis for libraries, help establish a more scientific, reasonable, widely applicable, and reader-demand-matching literature resource system, and help libraries continuously optimize service policies and improve reading service levels.

- (1) **Strengthening the Utilization of Readers’ Digital Footprints.** Given the four channels for building social reading services mentioned in Section 4.1, the author believes that libraries can strengthen the utilization of readers’ digital footprints through the following approaches:

Libraries can provide two types of retrieval permissions for users: one is the library reader identity. Through the reader account registered at the time of registration, users log into the online retrieval system. Library staff can obtain basic reader data, retrieval content data, and final borrowed book content data through back-end data capture, or embed data capture programs in existing retrieval platforms. By capturing passive digital footprints and conducting data analysis, they can examine readers' age levels, subject distribution, etc., to adjust service content and improve service levels; they can examine the matching degree between readers' needs and borrowed books to adjust library literature resource construction and improve literature utilization efficiency. The other is the tourist identity, which does not require entering the retrieval system through a reader account. Libraries can also collect digital footprints left by tourists during retrieval, capture retrieval keywords, conduct content visualization or cluster analysis, and obtain the focus points of library readers' reading content as a supplement to the aforementioned data analysis results. Libraries can design and embed big data calculation and precise algorithm functions in mobile reading platforms to extract readers' active digital footprints. This can provide precise content 推送 services for library readers through algorithms and identify active users in mobile reading platforms and books with many comments. Based on these two indicators, they can establish core reader groups for the library, identify content of common interest to library readers, provide reference opinions for the library to carry out thematic knowledge services and special lectures, grasp readers' reading hotspots, implement offline deep reading discussion projects guided by readers' interests with the goal of cultivating readers' good reading habits and improving reading aesthetic abilities, and enhance reader participation and 黏合度.

(2) **Strengthening Literature Resource Description and Revelation.**

In the Web 3.0 context, modern readers have put forward higher requirements for library literature resource retrieval systems. Readers need to improve the accuracy and efficiency of obtaining required information resources from massive information, which requires libraries to strengthen literature resource description and revelation. At the same time, effective revelation of literature resources is also a prerequisite for achieving precise 推送 of social reading. To this end, libraries should fully integrate digital resources and print book resources, establish or purchase resource catalog query systems that support unified retrieval and presentation of various resource formats, establish a tag system for library literature resources, further describe "resource portraits" through data mining technologies such as semantic mining and machine deep learning, and lay a good foundation for reading content 推送. At the same time, libraries should organize subject librarians to research library collection resource catalogs, not completely relying on big data aggregation technology for precise 推送 to readers. Through manual intervention, they should give full play to sub-

ject librarians' guiding role, recommend reading books that can extend interests with interdisciplinary vision and divergent thinking, thereby expanding readers' reading scope, breaking the constraints of "interest tags," and stepping out of reading taste segregation.

4.3 How to Avoid Social Reading Risks

4.3.1 Signing Electronic Agreements to Avoid User Data Usage Risks

Accompanying digital footprints are user privacy issues. Many readers feel uncomfortable being monitored in cyberspace. The author believes that libraries can sign data usage electronic agreements with readers during registration, promising readers that collected data will only be used for library user analysis and not for any commercial purposes. Additionally, during reader orientation education, libraries can emphasize to readers the important role of digital footprint utilization and analysis in pushing precise content, enriching service content, improving library service levels, and adjusting literature resource composition and service policies, to obtain readers' understanding and support for library user data collection.

4.3.2 Establishing Early Warning Mechanisms to Avoid Risk of Inappropriate Content Publishing

The reading environment is an important factor affecting readers' reading experience. Compared with current news platforms and self-media platforms, the content quality of information texts in mobile reading apps is higher, and the quantity of clickbait-style content and false information is relatively limited. When libraries open entry points to achieve reading socialization, all kinds of readers can speak in cyberspace. Library parties must reflect on the problems existing in current news platforms and self-media platforms in text information supervision and 推送, absorb the advantages of mobile reading apps, and only by doing a good job in safeguard measures can they better prevent problems before they occur. First, as text information pushers, libraries must adhere to professional ethics, firmly 守住 moral 底线, and 杜绝 pushing content with "four vulgarities" problems or clickbait-style content. Second, they should strengthen network management, set up keyword filtering technology and electronic monitoring wall systems to automatically identify inappropriate information texts when readers generate active digital footprints and block their publication. At the same time, they need to establish manual review mechanisms and reader supervision mechanisms to form a co-regulation pattern, jointly 维护 the pure land of library digital reading and build a green, ecological reading environment.

4.3.3 Conducting Offline Reading Activities to Cultivate Readers' Reading Habits

The trend of social reading will cause thinking laziness in a certain number of readers and lead to declines in reading aesthetic ability and linear thinking ability, but this does not mean we should reject social reading. For libraries, the issue is how to cultivate and maintain modern readers' immersive reading habits in the social reading environment. First, libraries should attract

more people into libraries through diversified offline reading activities. They should advocate classic reading, cultivate readers' reading patience, strengthen reading behavior guidance, help readers form browsing reading habits that do not blindly follow the herd and are diligent in thinking, not overly dependent on contributions from other readers, possess the critical spirit of courageous questioning, and promote readers to construct a reading method where superficial reading and deep reading are balanced, complementary, and coexist. Second, they should maintain the continuity of offline reading activities, establish a normalized development mechanism, use activities to promote readers' sustained sense of closeness to print books, promote readers to learn contemplation and critical thinking in reading, forge reading aesthetic abilities, and improve humanistic literacy. Third, they should formulate incentive policies to encourage readers to participate in offline book exchanges, create platforms for readers to write reading reflections, and fully mobilize readers' initiative and enthusiasm for offline reading exchanges. Fourth, they should advocate family reading and parent-child reading, improve parents' awareness of the importance of children's reading, and start cultivating reading habits from childhood to prevent modern people from overly indulging in cyberspace and make print reading and immersive reading an endogenous cultural need for modern readers.

4.3.4 Implementing Digital Literacy Training to Improve Digital Survival Ability

Digital survival ability is an instinct that people should possess in network society. In the social reading environment, the geometrically growing information volume is accompanied by fake news and vulgar expressions. How to distinguish information texts and how to improve effective information acquisition are important manifestations of modern readers' digital survival ability. At the 9th Shanghai International Library Forum in 2018, Glòria Pérez-Salmerón delivered a themed report on "Libraries: Drivers of Social Change," pointing out that digital literacy education is one of the key issues that IFLA needs to solve. She believes that libraries should help users master new ways and methods of information acquisition, educate readers to become knowledgeable citizens with both critical spirit and information acquisition and free expression abilities. The *Report* points out that one of the challenges libraries can solve is that librarians can help users improve digital literacy, evaluate information credibility, cultivate students' critical thinking about information, and make them know how to interpret information and identify what information can be shared without infringing copyright and privacy. Therefore, the author believes that in social reading services, libraries can implement digital literacy training from the following two aspects to improve readers' digital survival ability. First, conduct new writing ability education in the digital era. Libraries should advocate that readers abide by online writing principles, cultivate readers' public morality in writing in cyberspace, advocate purifying the online reading environment starting from themselves, establish correct attitudes toward information sharing and dissemination, disseminate positive and healthy content, and achieve no vulgarity, no low taste, no 媚俗, and no philistinism even when using simple and

understandable popular language for free writing, which will be beneficial to the good development of the overall reading ecological environment. Second, cultivate readers' ability to identify misinformation in the digital era. Libraries should teach readers strategies and techniques for identifying false information. For example, when searching for information, identify whether it is an official website by checking key fields in the website address to avoid entering phishing websites; introduce and teach readers to use browser plug-ins (extension applications) such as AdDetector, B.S. Detector, and FiB that can help searchers identify information effectiveness and bias; teach readers to use search engines to filter information, mine source webpages, and find the original source of information; cultivate readers' vigilance awareness in webpage browsing, be careful of advertisement links around webpages, and avoid clicking and entering to prevent falling into fake websites.

4.3.5 Setting Quantity Upper Limits to Prevent Readers' Over-Reliance on 推送 Currently, social reading platforms have too many hyperlinks in information 推送, which easily makes readers deeply immersed in reading content of the same theme. Libraries developing social reading services should avoid this risk. In terms of information text 推送, they should focus on quality rather than blindly pursuing daily 推送 quantities. When portraying readers' "reading portraits" based on their digital footprints and matching literature resources, they can set 推送 quantity upper limits in the 推送 system to prevent readers from over-relying on big data aggregation technology, losing opportunities to construct logical connections between texts during content searching, and promoting readers' maintenance and improvement of logical thinking ability in social reading.

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The Online Identity Characteristics and Digital Footprint Analysis of Social Reading Subjects and Its Enlightenment

Liu Yan

Jiangxi Provincial Library, Nanchang 330077

Abstract: [Purpose/significance] In the trend of social reading, this study combines the online identity of social reading subjects with the library’ s future digital reading services, clarifies the reasons for libraries to develop social reading

services, explores the construction channels of social reading platforms, and provides relevant suggestions for future library reading services. [Method/process] Through philosophical speculation on online identity, the paper points out the characteristics of social reading subjects' online identity and the resulting reading problems; distinguishes the types of digital footprints of social reading subjects in cyberspace, and discusses in detail the influence of social reading on the reading environment, readers' reading behavior, and readers' reading ability. Finally, from three aspects of why to build social reading, how to build social reading, and how to avoid risks, the paper puts forward suggestions for libraries to build social reading services. [Result/conclusion] The online identity of social reading subjects has the characteristics of real identity absence and digital identity virtual presence. The "disembodied" and "anonymous" online identity gives modern readers broad discourse space, promotes the generation of digital footprints and the formation of social reading. In view of problems such as superficial reading, lazy thinking, homogenized information push, and gamification of information texts, libraries can build social reading channels through online websites, retrieval platforms, mobile reading apps, and third-party software in future services; can optimize information push through data aggregation; and can avoid social reading risks by signing data usage agreements, strengthening supervision of online publishing content, carrying out offline reading activities, implementing digital literacy training, and setting upper limits on information quantity recommendations.

Keywords: social reading; online identity; presence; absence; footprint

Note: Figure translations are in progress. See original paper for figures.

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