Exploring of the Fusion of Traditional Reading and Digital Reading from the Perspective of Cognitive Communication

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Abstract. With the development of modern information processing and communication technology, people have changed a lot in their cognitive-approaches to reading. Digital reading and electronic reading flourish day by day, gradually overtaking traditional reading to become an effective approach of reading and a new channel of perceiving the world. This paper, from the perspective of cognitive communication, analyzes distinctive features of the media, cognition carriers and internal interactivities between traditional reading and digital reading. Based on detailed analysis of their influences on students’ reading experience, cognitive approach and education appraisal, it provides possible pathway for the integration of traditional reading and digital reading, in the hope of promoting their balanced development and encouraging active reading among students and even all people in China.

Coginitive Features of Traditional and Digital Reading

In recent years, the development and extensive use of modern information technology make it possible for the popularization of digital reading. In China, digital reading appeared in the early 1990s and developed freely without the constraints of relevant laws and regulations. Not until the "Ninth Five-Year Plan for Publication of National Key Electronic Publications" was promulgated by the former General Administration of Press and Publication on March 1998 that the domestic digital reading market started to develop in order with its guidance. The so-called "digital reading", mainly refers to the digitalization of the reading media and objects. The former means that readers tend to read through electronic instruments and the latter means that readers pay more attention to some micro blog posts, web pages and blogs on the Internet. According to conservative estimates by experts in this field, the global market share of e-books is expected to surpass that of traditional books by 2018. Undoubtedly, this will be a milestone for the traditional way of reading, which has always been paper-based.

China’s digital reading market has entered the blowout development since 2010, demonstrating the unique cognitive characteristics of digital reading. According to the annual survey of digital reading, in 2016, the rate of reading online through mobile phone and optical disks was on the rise. E-readers decreased slightly, while the overall rate of reading thorough various media increased in China. The year 2016 witnessed a centralized and diversified development in digital reading industry. Till this stage of development, digital reading has become relatively mature and the growth of Internet users has slowed down, and thus the overall growth rate of the digital reading gradually stabilizes. By 2016, about 300 million people read on mobile phones, making mobile phone the preferred carrier for digital reading. The digital reading plays an increasingly important role in promoting nationwide reading.

In the digital reading era, the frequency and depth of digital reading also reflects its important influence on reading cognition. According to relevant data, 56.6% users read everyday, and 25.9%
users read 3 times a week on average, suggesting that digital reading takes a large proportion in our country; data on the depth of digital reading is also very conspicuous, with nearly 80% users being partly or fully intensive readers. Featuring freedom in time and space, digital reading has become the driving force behind dissemination where "people" are the core.

Nowadays, with the promotion of digital reading, individual’s cognitive mechanism’s perception system for reading is also turning and integrating. Electronic media as an extension of the central nervous system, making people no longer favor only visual and text processing, the current pattern of cognitive reading should be perceived integration. The core of Marshall McLuhan's classic exposition of "media is the message" is proof of this: the media of different historical periods not only shape people’s particular outlook on world but also transcend the specific messages and surface characteristics during this period. [4] The transformation of media forms not only promoted technological innovation and development, but also influenced people's changes in reading patterns and cognitive patterns. Future’s cognitive patterns of mobile reading and social reading will become people's reading trends.

Traditional paper reading relies mainly on words and pictures to convey knowledge or information, and the development of new media technologies has greatly enhanced the status of visual communication. [5] Compared to digital reading, the relatively prominent cognitive character of the traditional reading is single visual communication, and the carrier of its transmission, includes newspapers, journals, books and so on. The main classification of traditional reading covers a wide range of disciplines including literature, history, philosophy and natural science, and is an important vehicle for recording the wealth of human spiritual civilization. For a long time, readers are more familiar with the traditional reading, which is an enduring cognitive channel. The traditional reading is conducive to readers to deeper think and communicate, to maintain the integrity and consistency of reading. For individuals, traditional reading enhances the quality and depth of reading, providing a wider space for understanding and chewing the text itself and for building audiovisual awareness beyond the text. In the digital age, the traditional reading is greatly limited by space and time, which has become an important factor that hinder its sound development. In recent years, the prosperity of the digital publishing industry has launched a severe blow to the traditional publishing industry. At present, the traditional publishing industry in our country is stagnating or even shrinking. Many magazines and newspapers in China have stopped publication. Physical bookstore have also suffered from a considerable squeeze of living space, the reduction of paper materials will inevitably adversely affect the traditional reading. Therefore, to clarify cognitive characteristics of the traditional reading and digital reading, and promote the integration has become an important proposition in current era.

**Cognition Experience: Integration of Traditional and Digital Reading**

The evolution of human civilization has undergone three stages: agricultural, industrial and ultra-industrial, i.e. information society. Ways of accessing and expressing knowledge change from the most primitive, oral communication, totem worship to writing and reading with cognitive awareness. It is safe to say that the reading revolution brought about by the development of information technology has led us to a deepest reform in the reading and cognitive approach that has been preserved for thousands of years. Different reading biases and changing cognitive experience came along with such transformation. In the print age, readers underwent their cognitive experience through deep excavation and decoding of Chinese characters in the traditional way of reading. In the era of information fragmentation, digital reading covers a wider range of symbolic meanings, and the information transmission and cognitive utility change from uni-directional and static to bi-directional and dynamic, and through cognitive symbol media, like words, sounds, pictures and sound-picture combinations, etc. It passes more intuitive information to users and delivers information more rapidly and efficiently.
Cognitive Education Experience on Reading Preferences

The rapid development of Internet technology brings more abundant and comprehensive information to students in their daily life. Digital reading can well target the students’ cognitive preferences, provide more personalized reading experience and achieve good cognitive utility. Major news portals and apps can analyze data on users' searching keywords and reading data on the background to help users to filter and recognize effective information and push out their most interested and concerned messages and topics, increasing user stickiness. On the other hand, students who prefer literature and history tend to choose paper books to read, because paper reading can help the readers acquire the contents of books more completely, and improve the readers’ cognitive ability and thinking awareness. At present, the public libraries in China also provide different reading modes according to the reading preferences of readers to promote the reform of reading education. For example, news and messages can be publicized through the portals, mobile apps, micro blogs, We Chat, etc., while paper books can be borrowed through online reservation. Through detailing reading preferences, public libraries have achieved good results and promoted cognition education to readers.

Cognitive Education Experience on Reading Habits

Users of different groups, classes, ages, and academic qualifications demonstrate prominent differences in reading habits. Individuals have their own unique cognition experience and understanding of reading. Reading cognition is also an important way to collect information, understand the world, develop thinking ability and gain aesthetic experience. It is a private behavior. The traditional way of reading enables individuals to better comprehend the content and grasp the essence of the book, so as to achieve better cognitive effect. Digital reading has become a common choice of youth groups since they uphold individuality and tend to read without limitation on time and space. Digital reading, featuring "sharing", "convenience" and "promptness", provides users with personalized cognitive patterns through new media platform, in line with the reading habits and cognitive needs of young students. Emerging ways of reading has also changed the reading habits of a majority of people, and the cognitive model inevitably changes from deep reading to superficial reading. Surely, technological innovations and changes in the medium of expression are not the dominant factors that lead to fast-food reading. The purpose and method of reading are all important factors affecting readers' depth and breadth of reading. In the face of a more diversified reading structure, each reader can have better reading experience following his or her reading habits.

Cognitive Education Experience on the Reading Carriers

Any kind of reading requires a medium or a carrier; otherwise readers can not have their cognitive reading experience. Traditional reading relies on paper media as a carrier to spread knowledge and information, digital reading also needs a specific medium. Although electronic devices are portable and have powerful functions, and readers’ perception is less affected by reading, conditions, these devices can be affected by signals, battery level, proficiency of equipment operating and other factors. And traditional reading has less constraint, which is also an important reason why traditional reading will not die out. For an individual's cognitive experience, the paper-based reading allows him/her to be better and longer immersed in the book and acquire a deeper reading experience. However, how to develop a win-win situation for traditional reading and digital reading through a multi-dimensional mode of reading and how to bring more fresh and deeper perceptions and cognitive experiences to readers has become important propositions in exploring models of reading cognition in the future.

The Cognitive Advancement: the Pathway for the Integration of Traditional Reading and Digital Reading Development Path in the Hope of Promoting Their Balanced Development.

With the development of information technology, our reading scope expands rapidly. However, traditional reading and digital reading are not always mutually exclusive. In fact, the two can promote each other. Although the current development of digital reading poses a great challenge to traditional
reading and the share of traditional reading decreases, traditional reading and digital reading have their own irreplaceable advantages. On the one hand, the emerging technological changes have created a brand-new reading experience for readers. On the other hand, different ways of reading lead to a more unique and rich cognitive experience for readers' subjective experience, sensory perception and mental exploration. In view of this, we must correctly handle the relationship between traditional reading and digital reading, and give full play to their own cognitive characteristics, and promote their fusion development.

First, efforts must be made to promote systematization, intelligentization and digitization of stereoscopic reading patterns and popularize education. The full utilization of digital resources to develop paper book resources has a crucial role to play in the integration and development of traditional reading and digital reading. To a certain extent, there are some problems that the traditional reading has, such as obscure texts, a rather dull cognitive process. By means of digitization, the texts are presented in the form of pictures and videos to stimulate readers' interest. Bibliography Navigation System through digital technology is in favor of the system to collect all the subject knowledge, to make use of digital resources as disseminating carriers, to consolidate different types of bibliographic navigation database. It can greatly simplify the complexity of reading search, make reading more efficient and convenient and help to build multi-dimensional cognitive mechanism’s perception system for reading.

Second, in view of the complexity and diversity of the audience's cognition, we track the information in each part of the reading and the change in cognitive attitudes of individuals, in order to realize the multi-angle communication and the focus communication, and promote the implementation of the humanistic education. A variety of digital marketing platforms should be established, which are targeted for different reading habits, reading preferences of readers in order to customize different reading programs. The classified management should be carried out for readers to borrow or buy books. As for educational books, they can be set up according to different levels of education and divided into higher education, secondary education and primary education. Higher education can be divided into arts, sciences, engineering and medicine according to disciplines so that readers can enjoy more meticulous services and experience greater cognitive practice of reading.

Third, individual cognitions can not be separated from the influence and function of social culture. Therefore, it is necessary to regularly carry out statistical-analytical research, and to establish and improve a diversified and benign reading system structure so as to encourage active reading among students and even all people in China. In-depth reading experience is a complex cognitive process, and promoting the integration of traditional reading and digital reading is a long way to go. In recent years, the state has promulgated a series of policies to encourage active reading among all people and establish a scholarly society. Besides, not only reading services of college and community but also public infrastructure is continuously improved. The state carries out regular reading activities, and promote structural transformation of reading, in order to create learning atmosphere in society. Therefore, only by complying with the trend of the times, integrating the cognitive advantages of different media, and creating a social atmosphere for reading by all people can the mutual growth of traditional reading and digital reading be promoted.

Conclusion

With the reading activities going further, the traditional reading and digital reading have developed rapidly. Students’ reading quantity has greatly increased, and their reading ability has also been greatly enhanced. The application of cognitive communication undoubtedly deepens the deconstruction of reading and teaching behaviors. The medium which can carry the information and shoulder the task of transmission includes many characters such as text and audio-visual symbols, which has become the prominent feature of distinguishing the traditional reading from the digital reading. Therefore, we should grasp the advantages and cognitive characteristics of different reading media to make use of the characteristic advantage, to promote their integration, and to realize the
strategic transformation of stereoscopic reading as soon as possible. Only in this way can the
traditional and digital reading better serve the readers and the society.

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