

Teaching Possibilities beyond Algorithms: Practical Reflections on Cultivating Adolescents' Reading Literacy Based on Multi-Group Interviews

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Abstract: *Against the realistic backdrop, this study systematically analyzes effective strategies for breaking the cocoon to enhance adolescents' reading literacy under the influence of the information cocoon effect. From a multi-dimensional perspective, it examines the impact of information screening mechanisms on adolescents' cognitive development by analyzing school reading education across three stages—basic education, secondary education and higher education—and the teaching philosophy of Yuedu Academy, a local brand dedicated to fostering reading literacy for children aged 3 to 14 and their families. Combined with interviews with teachers, students and parents, this research focuses on facilitating the paradigm shift of adolescents' reading mode from algorithm dependence to independent screening, and endeavors to construct a cross-stage three-dimensional reading model of "heart in, eyes on, mouth out". It aims to provide an operable strategic reference system for the progressive development of adolescents' reading ability in the digital age.*

Keywords: *Adolescents' reading literacy; Information cocoon; Construction of reading model*

1. Introduction

In the era of accelerated digitization, enhancing adolescents' reading literacy has become an important component of the national education development strategy. In recent years, the state has issued a number of policies at the national level, reflecting the high attention paid to adolescents' reading literacy and providing a top-level design basis for this study. Under the guidance of national policies, Shandong Province has actively promoted localized practices to improve adolescents' reading literacy, forming a series of innovative measures with local characteristics. In 2023, the Implementation Plan for Promoting Adolescent Reading in Shandong Province was issued, offering substantial support in expanding reading resources, optimizing school environments, integrating reading into daily teaching, guiding family reading and mobilizing social resources. The newly developed Framework of Chinese Adolescents' Reading Literacy constructs a three-dimensional model of "Knowledge-Ability-Value"[1], which demonstrates the continuous advancement of practical exploration. Nevertheless, the improvement of adolescents' reading literacy still faces numerous practical challenges.

2. Manifestations of Current Problem

Nowadays, adolescents are increasingly inclined to replace reading with watching various short videos, unwittingly trapped in the information cocoon woven by short videos that advocate the core value of "superficial browsing without in-depth understanding". Based on practical cases of the Young Adult Library Services Association (YALSA) in the United States, some scholars point out that digital reading can effectively increase adolescents' exposure to texts and their willingness to read continuously, yet the fragmented way of information acquisition also hinders the development of their logical thinking and changes their behavior patterns in using physical libraries[2]. Although reading media have become more diverse, the algorithm recommendation mechanism in digital media acts like an overprotective "nanny", continuously providing users with content that caters to their preferences. While ensuring the immediate pleasure of reading, it leads to cognitive limitations of "nutritional monotony". The most typical manifestation is that the systematic bias caused by algorithm recommendations tends to trap the public in a cycle of homogeneous content reception, persistent superficial reading and false knowledge

construction, resulting in a closed thinking mode and a strong dependence on online information acquisition channels[3]. More importantly, the internet has become an important channel for adolescents to obtain and read information, but it is also prone to inducing attention deficit disorder among them and exacerbating their anxiety, thus leading to persistent psychological distress caused by high-frequency information exposure[4]. Some students over-rely on fragmented information, making it difficult for them to establish a systematic knowledge framework or being confined to a certain type of books for a long time, resulting in a narrowing of their knowledge scope. Even the information screening mechanism in the digital age may trigger specific cognitive dilemmas in adolescents' development, affecting their ability to perceive the multi-dimensional nature of society, and ultimately leading to the dual challenges of lagging development of social communication skills and hindered emotional socialization process[5]. In addition, children's and family reading is a key area for the promotion of national reading. By analyzing the tendency of children's book selection, reading driving factors, parental participation and reading habits, some scholars have found a current trend of family and social environments fostering reading habits through space creation and atmosphere guidance[6].

To sum up, the phenomenon of information cocoon in adolescents' digital reading is intensifying, whose essence mainly stems from the interactive influence of technical mechanisms, individual reading behavior patterns and social environmental conditions. The existing theoretical frameworks mainly construct relevant elaboration systems from three dimensions: first, at the technical mechanism level, intelligent recommendation systems analyze users' persistent and fixed content preferences based on their behavioral data and push fixed content to them, yet the adjustability of algorithms also provides an operable space for breaking through information technology barriers. Second, at the level of individual reading behavior patterns, the interest-oriented content screening model is gradually solidifying the cognitive boundaries of adolescent users, and it is urgent to improve their ability to judge and identify information through educational intervention and other means. Finally, at the social environment level, the governance of the internet ecosystem needs to build a more perfect institutional framework to coordinate the dynamic balance between intelligent recommendation and public values. However, most current studies only focus on the influence mechanism of a single dimension and the action path of specific factors, failing to form a cross-dimensional dynamic interaction model of technological optimization, educational empowerment and policy planning, and still lacking dynamic correlation research.

3. Analysis of Multi-Group Interviews

However, combing this issue from existing literature makes it difficult to fully grasp the cognitive differences, practical dilemmas and potential consensus of multiple stakeholders in the process of cultivating adolescents' reading literacy. Based on this, this study adopts the qualitative research method of multi-group interviews, selecting front-line teachers, current students and parents from the three stages of basic education, secondary education and higher education in Shandong Province, supplemented by teaching staff from Yuedu Academy, a representative local reading education brand, as research objects. Through the systematic sorting and analysis of the discourses of multiple subjects, this study reveals the dilemmas and opportunities faced by reading literacy cultivation in the realistic context, laying a solid empirical foundation for the subsequent construction of a more explanatory and operable cross-stage three-dimensional reading model.

3.1 School Reading Education

The Chinese teaching model in schools of Shandong Province presents distinct curriculum standard-oriented characteristics, carrying out teaching around textbooks and examination requirements, and its core philosophy is reflected in the teaching paradigm of "intensive reading + skill training". Classroom teaching mainly focuses on fragmentary analysis of articles, interpretation of rhetorical devices and training of reading comprehension skills. From the three stages of primary school, junior high school and senior high school, school Chinese reading education shows an obvious "pyramid" progressive form, which reflects the gradual and systematic characteristics of cultivating students' reading ability and literacy according to the cognitive development characteristics of students at different age stages.

In the primary school stage, reading education focuses on cultivating students' reading interest and basic reading abilities. The core of teaching content at this stage is to stimulate students' enthusiasm and interest in reading, and guide students to establish good reading habits through the selection of vivid and interesting texts and diverse teaching activities. At the same time, attention is also paid to the cultivation

of basic reading skills, including the training of basic abilities such as character recognition, vocabulary accumulation and simple comprehension, laying a solid foundation for the subsequent development of reading ability. Notably, the primary school stage has compiled the "Happy Reading Bar" book list according to the thematic arrangement of textbooks for different grades, which also reflects the requirements for improving the reading ability and literacy of students of different school ages.

After entering the junior high school stage, reading education shows an obvious characteristic of "framework construction". The focus of teaching at this stage is to systematically construct students' reading method system and cultivate their ability to analyze, understand and appreciate texts. In terms of teaching methods, more emphasis is placed on the identification of stylistic characteristics, the application of reading strategies and the exploration of the deep meaning of texts. It is worth noting that while improving students' reading literacy, this stage also appropriately integrates the training of examination skills to help students adapt to the requirements of further education examinations, but on the whole, it still maintains a balance between literacy cultivation and examination needs.

Reading teaching in the senior high school stage focuses on cultivating students' in-depth thinking ability and personalized interpretation ability, guiding them to conduct critical thinking and creative interpretation of texts. The teaching content involves more complex text types, including philosophical and abstract works, requiring students to form independent opinions and conduct well-founded text analysis and evaluation. The cultivation of such high-order thinking abilities not only improves students' literary literacy, but also lays an important foundation for the formation of their lifelong learning ability.

The reading teaching model in schools is characterized by unified promotion, implementing teaching accurately in accordance with the grade curriculum standards, but due to limited time, it rarely reflects the principle of teaching students in accordance with their aptitude. Interviews show that teachers also arrange books recommended by the Ministry of Education into teaching content, but usually only select fragments of the works for teaching, with little involvement in whole-book reading. The core goal is still to ensure that students master the Chinese skills required for examinations. From the perspective of teaching practice, this model has a certain effect in improving students' examination ability, but to a certain extent, it also restricts the expansion of some students' reading horizons and the cultivation of in-depth reading ability.

3.2 Parents' Cognition of Cultivating Students' Reading Literacy

Interviews with parents show that many parents state that "reading will benefit him for a lifetime", which indicates that the current parental group presents multi-dimensional cognitive characteristics and value orientations in the cultivation of adolescents' reading literacy. At the level of value cognition, parents generally regard reading as a core literacy affecting children's lifelong development, believing that its value far exceeds the scope of examinations. They particularly emphasize the emotional experience value of reading, hoping that children can truly enjoy the "joy of books" and cultivate their positive life attitude of "loving life" through reading. However, the interviews also reveal that parents themselves have many guiding anxieties. Most parents frankly admit that they lack professional reading guidance abilities, such as "being unable to lead children into the world of reading". This cognitive and ability gap also gives rise to their strong demand for external support, especially an urgent need for professional reading guidance. In the interviews, parents express their expectation that educational institutions can provide a scientific book selection system ("I don't know how to choose books") and in-depth text interpretation ("enable children to have a higher-level interpretation of the book").

In addition, parents' cultivation of adolescents' reading ability and literacy shows obvious phased characteristics: in the short term, it focuses on establishing basic cognition ("hoping that children can have an understanding of relevant content"); in the medium term, it focuses on cultivating persistent reading habits ("also hoping that children can have the ability to persist in reading"); in the long term, it is committed to forming a positive attitude towards reading ("loving reading"). Interviews with parents who have registered their children in educational and training institutions show that they attach great importance to systematic reading enlightenment methods and recognize the value of reading literacy education, but they also cannot completely break away from the realistic constraints of examinations. Therefore, on the one hand, based on realistic considerations, they choose the "must-read books" training camps of educational and training institutions, reflecting their attention to the examination-oriented function of reading; on the other hand, they worry that children will think reading is "hard work", which may bring some negative emotional impacts. This contradiction prompts them to adopt a compromise strategy—taking examination-oriented content as the starting point with the ultimate goal of stimulating children's endogenous reading interest. This cognitive contradiction profoundly reveals the necessity of

constructing a school-family-society collaborative mechanism for reading literacy cultivation, and also indicates the potential development space of the professional reading guidance service market.

3.3 Reading Courses of Commercial Brand Study

Interviews with teachers of Jinan Yuedu Academy reveal that the reading courses of this commercial brand have constructed a complete cultivation system of "age adaptation - classic reading - thinking development - life connection". The institution clearly positions itself with the statement that "we do not attach much importance to students' reading for examination purposes, but focus more on improving their personal reading literacy", committing to enabling adolescents to "develop an interest in the book and have their own thinking", and cultivating their reading interest and improving reading literacy through accumulation and long-term immersion.

The interviewees state that "our teaching model is different from the conventional Chinese teaching model in schools". The institution strictly follows the laws of children's cognitive development, establishes a graded and progressive reading system and a dynamic book list. "Different book lists mean different knowledge expanded by teachers", forming a complete sequence from fairy tales for lower grades to famous works for higher grades. Lower grades focus on fairy tales and fables, with the key points of "shaping children's qualities, such as bravery" and "stimulating children's imagination"; higher grades turn to "more difficult voluminous works such as the Four Great Classical Novels". In reading courses, teachers reduce the reading difficulty by "telling stories and character backgrounds, and integrating historical knowledge to supplement the historical context for classic works", achieving the teaching goal of enabling students to "develop an interest in the whole book" in the primary school stage, and helping adolescents establish a connection between reading and reality through reading.

Different from schools that "teach some reading comprehension skills and then intensive reading appreciation", Yuedu Academy mostly adopts the teaching strategy of "whole-book reading", emphasizing that "children need to understand the book and finish reading the whole book". The institution also pays attention to the step-by-step development of adolescents' reading ability. For example, the interviewees state that "the content taught in the fifth and sixth grades is more difficult with more expanded knowledge points"; lower grades focus on "making children more interested in reading" and "connecting animal stories with their own reality"; higher grades require "collision between the author's ideas and their own ideas", cultivating the ability to "have their own views", and emphasizing that "they should have their own values and understanding, including the ability to express them". It can be seen that this reading teaching model breaks through the limitations of fragmentary teaching in schools, and as a complement, it also reflects the gradient cultivation of adolescents' thinking development.

3.4 The Phenomenon of "Selective Reading" in Adolescents' Online Literature Reading

In-depth interviews with college students reveal that the critical period for adolescents to contact online literature is concentrated in the seventh and eighth grades of junior high school, which is highly consistent with the awakening period of gender awareness, indicating a certain synchrony between the awakening of gender awareness and reading enlightenment in adolescence. One interviewee recalled: "I started searching for similar novels during the summer vacation of the seventh grade", which shows that this reading enlightenment has distinct characteristics of independent exploration. In this interview, all interviewees stated that they discovered reading content through online channels: some avoided the payment threshold through free web pages ("I only searched on web pages because Jinjiang Literature charges fees"); some were influenced by the rankings of commercial platforms ("I will pay attention to the rankings of Jinjiang Literature, and you can only rate after reading the whole book by paying"); however, more interviewees formed circle-based communication through the "CP shipping" behavior in like-minded communities. Although the interviewees showed their own screening criteria for online literature, such as requiring the authenticity of characters in the works ("not making me feel that the character is not living in this world"), the coherence of the plot ("not quarreling in one episode and confessing in the next") and avoiding illogical works ("not reading some very nonsensical ones"), their evaluation system is actually independent of the appreciation criteria of classic literature.

Adolescents' reading motivation presents a composite form of emotional needs and content consumption. At the emotional level, works can not only serve as a substitute for real relationships, but also carry the longing for specific emotional patterns, and have the function of stress relief ("I like to read novels without using my brain and completely relax"). In terms of consumption characteristics, it is manifested in the focus on subtype such as "detective novels" and "campus novels", pursuing the

immediate pleasure of "appropriate emotional expression". In addition, one interviewee pointed out: "The first novels I came into contact with on the platform will affect the types I read later", which also shows that platform algorithms continuously strengthen reading preferences through initial choices, leading to type homogenization. Although there are individual cases where novels on themes such as "airline captain novels" have stimulated readers' interest in professional knowledge with the growth of the interviewees, the mainstream still remains at the level of emotional consumption ("most just want to ship the emotional relationship"), which also reflects the implicit restriction of the algorithm environment on cognitive horizons.

The current reading ecology of adolescents has shown an unbalanced trend: online literature occupies a dominant position in meeting emotional needs, forming a functional differentiation with the reading of classic masterpieces. One interviewee stated: "I read classics for exams, and BL or fan fiction for emotional needs", and "I also read classic books because the books recommended by teachers are tested in exams". From the interviews, the preference of adolescents for BL or fan fiction mainly stems from three deep-seated motivations. At the psychological needs level, such works generally focus on themes such as youth emotional exploration, identity construction and interpersonal relationship handling. For example, the delicate depiction of characters' psychology in campus BL novels exactly caters to the emotional demands of adolescents in the process of growth, enabling them to have a strong sense of substitution and resonance; in contrast, classic literature often creates a sense of distance for young readers due to differences in the times and barriers in language expression. From the perspective of reading experience, the unique fast-paced narration, popular expression and interactive functions of online literature, such as chapter comments and fan creation communities, have greatly lowered the reading threshold and provided adolescents with an "instant" entertainment experience, which forms a sharp contrast with classic literature that requires in-depth understanding of texts and reflection on background knowledge. More notably, the BL or fan fiction circle has developed a unique subcultural community. Through participating in work discussions and secondary creation, adolescents can not only gain a sense of group identity, but also meet their social needs, which also reflects the new characteristics of contemporary adolescents' reading preferences.

4. Construction of the Cross-Stage Three-Dimensional Reading Model of "Heart In, eyes on, mouth out"

Based on the practical dilemmas and empirical insights revealed by the above multi-group interviews, this study integrates the collaborative roles of school education, family guidance, and social institutions in accordance with the laws of adolescent reading development, and constructs a cross-stage three-dimensional reading model of "heart in, eyes on, mouth out". It provides a clear path and implementation framework for the systematic improvement of adolescents' reading literacy in the digital era. The specific contents are shown in the table 1.

Table 1 A cross-stage three-dimensional reading model of "heart in, eyes on, mouth out"

| Dimension | Core Objectives | Basic Education | Secondary Education | Higher Education |
|---|--|---|--|---|
| Heart In (Cognitive Internalization) | 1. Cultivate critical thinking 2. Develop algorithm awareness | 1. Cultivate diverse reading interests through the "Happy Reading Corner" and MOE-recommended book lists both on and off campus. 2. Introduce the concept of "information selection" in daily book purchasing; ask students to compare similarities and differences between books and explain their choices. | 1. Introduce relevant courses on campus to popularize platform algorithms and recommendation mechanisms. 2. Strengthen communication between teachers, students and parents; guide students to compare classic works with online literature in class and conduct literacy guidance with prudence and inclusiveness. | 1. Conduct independent information tracing in interdisciplinary learning and reading to strengthen metacognitive abilities. 2. Further improve reading literacy through guided emotional resonance in reading sharing. |
| Eyes On (Vision) | Break through | 1. Hold "Theme Reading Week" in after- | Joint efforts of family and school: school libraries | 1. Conduct transmedia reading |

| Dimension | Core Objectives | Basic Education | Secondary Education | Higher Education |
|-------------------------------------|--|--|--|---|
| Expansion) | information cocoons and filtering technologies | school services to provide diverse reading lists for students and parents. 2. Off-campus reading institutions may develop carefully screened "blind box books" for sale. | establish "cross-circle reading lists"; parents supervise students to read one classic book for each online literature book read. | and build a reading matrix with relevant tools. 2. School libraries adopt AI-based random book recommendation systems. |
| Mouth Out (Output & Transformation) | Form reflective expression | 1. Conduct retelling training such as "telling stories to toys" for young students. 2. Parents keep family reading journals to record students' content integration, expression of feelings and reflective questions after reading. | 1. Write reviews of online literature with mandatory reference to classic texts for comparative analysis. 2. Design independent "cocoon-breaking reading lists" and state reasons for recommendation. | 1. Discuss themes and core questions based on reading materials in on-campus and off-campus community activities or public reading events. 2. Initiate or organize online discussions on platforms such as Douban and Zhihu. |

In terms of school stages, the primary school stage should focus on cultivating adolescents' basic abilities and stimulating their reading interest; both inside and outside schools can help adolescents establish a positive attitude towards reading through interesting reading activities. The junior high school stage needs to strengthen adolescents' text analysis ability, and especially initially guide students to establish critical thinking in school education. The senior high school stage should continue to deepen adolescents' speculative qualities, with a particular focus on encouraging creative expression. However, it should be noted that the improvement of adolescents' reading literacy does not only rely on schools' efforts in reading education; families and society need to collaborate to create a diverse and non-utilitarian reading ecology for adolescents and provide strong support for the development of their abilities at all stages.

5. Other Strategic Suggestions

Interviews with adolescents reveal that in the current algorithm-dominated online reading environment, adolescents are extremely prone to falling into the "recommendation cycle" of platforms, only being exposed to fixed types of content, which also leads to the neglect of classic literature, social science and popular science books. Therefore, to "break the reading cocoon" and establish a dynamic balance between "happy reading" and "growth reading", it is necessary to start from three aspects: personal strategies, educational guidance and technical tools.

5.1 Personal Initiative to Expand Reading Boundaries

In the digital age, it is crucial for adolescents to take the initiative to expand their reading boundaries to improve their reading literacy. When adolescents or parents choose books by themselves, they can ask themselves several key questions: Does this book only repeat known views? What is the author's background and professionalism? Is this book worth recommending to others? Through such reflective questions, the pertinence and value of book selection can be improved. Of course, adolescents need to consciously carry out "cross-circle" reading. On online reading platforms, adolescents or parents can add one category of books that they have come into contact with but do not pay attention to in the reading preference settings to forcibly broaden their reading horizons and break through the information cocoon by changing the algorithm recommendation mode. At the same time, after reading several favorite high-quality online novels, adolescents can take the initiative to choose one non-preferred book to read (in either e-book or paper book form). In addition, they can participate in co-reading challenges such as "reading one classic a month" in online or offline communities, and maintain the continuity and diversity of reading with the help of peer pressure and external incentives.

5.2 Joint Guidance of Schools and Families

The family environment plays an irreplaceable role in shaping adolescents' reading habits. In their research on the correlation mechanism between family support and adolescents' reading ability, Wen Hongbo, Liang Kaili and other scholars systematically discussed the environmental action path in the formation mechanism of reading ability, and proposed that family support factors have a positive effect on the degree of reading input, stimulate the in-depth development of reading interest through the continuous accumulation of input intensity, and ultimately form a positive interactive cycle of "input - interest - re-input"[7]. Therefore, at the level of educational guidance, schools and families should form a joint force to help adolescents break through the information cocoon of reading. Focusing on the current situation of family co-reading practice, Li Shanying and Yi Lianyun pointed out that there are obvious deficiencies in family co-reading activities in terms of value cognition, environmental construction, method application and subject participation. It is necessary to re-examine the educational function of reading activities to eliminate the utilitarian tendency, simultaneously improve material conditions and psychological atmosphere, select age-appropriate reading materials and innovate interactive forms, focus on enhancing the participation of fathers, and take the coordinated development of children's cognitive ability and emotional literacy as the goal[8]. In daily life, parents can arrange physical books in a "decentralized" and "visible" way, placing a variety of books in different areas of the home to create a natural reading atmosphere for adolescents. Parents with sufficient time can also conduct parent-child co-reading to guide children to conduct critical thinking. For example, when reading online novels together, parents can discuss with children questions such as "which parts will be deleted if adapted into a movie" and "whether the book involves popular science knowledge in a certain field", creating an inclusive, open, diverse and guiding family reading environment for adolescents.

5.3 Full Utilization of Technical Tools

In the era of digital reading, data-based self-management tools can help adolescents objectively evaluate their reading structure. Adolescents or parents can try to use tools such as Notion and Wolai to establish a personal reading database, systematically record the type, rating and gains of read books, and realize the visual management of reading experience. At the same time, tools such as Excel can be used to quantitatively count the reading proportion of various types of books, such as the proportion of classic literature, online novels, popular science readings, etc. Timely adjust the reading plan through data feedback to ensure the balanced development of reading horizons.

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