Enhancing the User Experience in Fragmented Reading Applications: A Study on Information Anxiety and Design Strategies

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Abstract. With the rapid development of Internet technology, the large amount of fragmented information in mobile reading applications leads to the lack of concentration and the decline of reading quality among college students, which triggers generalized information anxiety. This paper investigates the causes of information anxiety in fragmented reading among college students, and aims to improve the quality of reading and independent learning and alleviate anxiety through the experience design of mobile reading applications. The Information Anxiety Rating Scale and Reading Behaviour Questionnaire were used to investigate 180 college students, of which 154 questionnaires were valid. It was found that information source, information medium and information quality in the environmental factors, and information discrimination, expectation management, time management, concentration and inductive ability in the internal factors were the most important factors for information anxiety. Then, a model of information anxiety formation was constructed and targeted suggestions for alleviation were made. In terms of reading tools, combining the linguistic summarization capabilities of AI and knowledge visualization theory, design suggestions in the three directions of reading management, reading scaffolding and note management are proposed. The study not only contributes to a better understanding of information anxiety but also provides novel design ideas and methods for mobile reading applications.

Keywords: Interaction Design; Knowledge Management; Fragmented Reading; Knowledge Visualization

1 Introduction

The development of the Internet led to the information explosion, people are exposed to more fragmented and diverse reading content, the quality of the content varies, and fragmented reading has gradually become the most popular reading method in the era of mobile Internet.

Fragmented information is characterized by fragmentation of content and fragmentation of the process of accessing information. Fragmentation of content means that the content is short, cannot be systematized, knowledge is not related to each other, etc. Fragmentation of the information acquisition process means that the process of acquiring information is interrupted by

multitasking and fragmentation of attention. Although fragmented information helps readers to disperse their thinking and increase their interest and scope of cognition, the phenomenon of "information anxiety" is common among contemporary young people due to changes in reading needs, the fast-paced life of society and the omnipresent sense of competition.

Scholars have conducted research on information anxiety. Information anxiety manifests itself behaviorally as information obsession, fear of missing information, difficulty in decision-making and screening, and difficulty in concentration; and psychologically as anxiety, mental fatigue and distraction[1] .

From a longitudinal perspective, the adverse effects of information anxiety are multifaceted, encompassing individual and societal dimensions. Firstly, in terms of psychological health, the relentless influx of information challenges individuals' capacity to process and assimilate content, consequently generating sustained psychological stress[2]. This stress potentially precipitates or exacerbates issues such as anxiety, depression, and loneliness[3]. Secondly, information anxiety significantly impairs cognitive functions. Information overload disperses individuals' attention[4], while frequent task-switching further depletes their cognitive resources, leading to a decline in memory and decision-making capabilities[5]. Regarding interpersonal relations, continuous online interaction may diminish the necessity and proficiency for face-to-face communication[6]. Individuals might exhibit a preference for digital communication, constraining their ability to forge deep social connections and thereby experiencing isolation and a disconnection from society. Studies have demonstrated a negative correlation between information anxiety and college students' engagement and academic achievements[7], additionally impacting their career decision-making capacity[8]. At a societal level, the distractions and time management issues induced by information anxiety directly affect the learning efficiency of students and the job performance of professionals, thereby stifling the overall innovative capacity and productivity of society[9]. Furthermore, problems in information processing adversely affect the efficiency of collaboration and communication among social groups.

Regarding the causes of information anxiety, people's attempts to deal with multiple tasks at the same time is a major factor leading to anxiety[10] , people's attention remains fixed on the previous task when switching between tasks unable to switch in time, leading to fragmented cognition[11] . Reading is the main way for people to get fragmented information on the Internet. Based on this, this paper raises a question: Can we plan reading behavior to make it an effective way to use fragmented information and relieve information anxiety?

2 Method

This paper mainly adopts questionnaire survey to collect information and analyze it. The main object of the questionnaire survey is college students, because college students often have to deal with a large amount of information, in addition to active access to professional information, employment information, but also to receive a variety of network information, entertainment information, but also more exposed to multitasking tasks[12] , relative to other groups, college students are more prone to fragmented information anxiety. The purpose of the survey is mainly to correlate and analyze the effects of reading habits and information anxiety, and to explore strategies to alleviate anxiety and enhance cognitive efficiency in fragmented reading.

The questionnaire was designed in three parts, namely the fragmented reading behaviour survey, the fragmented information anxiety scale and the visual reading needs research. Among them, the Fragmented Information Anxiety Scale was adapted from literature research[13–16]. After the Cronbach's Alpha reliability test, the Cronbach's Alpha coefficient value is above 0.8, and the reliability of this scale is very good in this survey; after the KMO and Bartlett's test, the KMO value is 0.802, and the KMO value is more than 0.8, the questionnaire has a good structural validity, and the research data are very suitable for extracting information.

Based on the flow of fragmented reading, the reading behaviour was divided into 5 dimensions, with 4 multiple choice questions for each dimension:

1)   Information selection behaviour: preference for fragmented information content, including reading purpose, content type, content source, etc;

2)   Information acquisition behaviors: access to information, filtering information behaviors;

3)   Reading planning behaviors: the ability to plan reading and complete the plan;

4)   Reading process behaviors: frequency of fragmented reading, concentration, and causes of reading interruptions;

5)   Post-reading behaviour: how the value of knowledge is retained after reading, including the organization, export and re-call of knowledge after reading.

The Fragmented Information Anxiety Scale is divided into five dimensions, each with four 5-point Likert scale questions:

1)   Information content anxiety: anxiety triggered by negative or overly entertaining information content, conflicting values, etc;

2)   Information access anxiety: refers to the anxiety caused by the fact that the information itself is of varying quality, and it is difficult to distinguish between the real and the fake, or that the retrieval system itself is not perfect, or that one's own retrieval ability is insufficient, and that one is unable to access the information one needs.

3)   Information Dependency Anxiety: Anxiety that arises from craving fragmented information, worrying about missing out on important information, spending too much time on fragmented information, and feeling that the information received does not make sense;

4)   Information Processing Anxiety: The effect of fragmented information on cognitive ability, or the anxiety caused by interrupting the process of receiving information while multitasking;

5)   Information Utilization Anxiety: Anxiety in the process of utilizing fragmented information due to unclear judgments about the value of fragmented information, the difficulty of organizing, internalizing information to one's personal knowledge system, and the difficulty of recalling and utilizing it again.

The questionnaire of Visual Reading needs briefly investigated the pain points, reading assistance needs and knowledge visualization needs of fragmented reading, in order to provide inspiration for the design strategies of subsequent reading tools.

A total of 180 questionnaires were distributed online within the college students, and 154 valid data were obtained by excluding the data of too short response time and regular response. There were 47 male subjects and 107 female subjects with a mean age of 22 years. In this paper, IBM SPSS Statistics 23.0 was used to analyze the data of the questionnaire for reliability analysis, internal consistency test (Cronbach's Alpha), validity analysis, and then Pearson correlation coefficient analysis, and ANOVA analysis were used to analyze the correlation between the Fragmented Information Anxiety Scale for College Students and the Questionnaire of Reading Habits of Fragmented Information.

3 Results

(1)   Levels of fragmented information anxiety among college students

According to the literature study[14], 38 points is the cut-off value of information anxiety scale, with 38-55 points as mild information anxiety, 56-65 points as moderate information anxiety, 66-80 points as moderate to severe information anxiety, and 81 points and above as severe information anxiety. As for Table 1, the degree of information anxiety of the survey respondents was mainly moderate to severe, and the overall anxiety level was on the heavy side. In addition, according to the results of T-test analysis, there is no significant difference between men and women except for the dimension of information acquisition anxiety, which is significantly higher for women than for men, and there is no significant difference between the information anxiety levels of majors and grades.

Table 1. Information Anxiety Score Distribution

	Anxiety level	Frequency	Percentage (%)
Information Anxiety Score	Mild	20	12.99
	Moderate	40	25.97
	Moderate to severe	60	38.96
	High	34	22.08
Total		154	100.0

(2)   Characteristics of Reading Behaviour of College Students

Based on the five dimensions of reading behaviour, the findings are as follows. From the viewpoint of information selection behaviour, college students have a strong subjective willingness to use fragmented information for learning; reading knowledge and entertainment account for an approximate ratio; reading content is serious and has a certain depth; and overall reading content is inclined to be positive and active.

In terms of information acquisition behaviour, college students' fragmented information source channels are dominated by pan-content platforms and pan-entertainment platforms. Their searching frequency is not high, and they do not often find the information they need. In addition, they often judge the readability of an article by the title + jump reading. They often trust information recommended by domain experts and peers. There are few reading plans, and the participation rate is around 35% in terms of content, time, and execution of the plan. the act of. In terms of reading process behaviour, half of the people read in the learning scenario, with an

average reading time of less than 25 minutes, and most people interrupt reading because they think the content doesn't match the title. Fewer people will systematically organize their reading notes after reading, and the frequency of organizing is also lower, in which more people will recall and share their reading. Usually, shorthand-type tools are used to organize reading notes, and very few use systematic knowledge base tools, which is also related to the fact that fragmented information is independent of each other and the difficulty of systematization is high.

(3)   Analysis of the correlation between reading behaviour and information anxiety

Pearson correlation analyses were conducted on various dimensions of reading behaviour and information anxiety to understand which reading behaviors are highly correlated with anxiety in order to develop mitigation strategies.

As Table2, it can be found that the purpose of reading is significantly positively correlated with information acquisition anxiety, the reason may be that the purpose of reading for study will increase the expectation of information, to a certain extent, test the information retrieval ability of college students, and increase the anxiety of information acquisition. The reason for the significant negative correlation between the depth of reading content and the degree of anxiety may be that the depth of reading content tends to bring a certain degree of thinking and knowledge gain, and is less likely to cause addictive information dependence. Therefore, in information anxiety alleviation strategies, it is necessary to bridge the gap between users' reading purpose and the quality of reading content as much as possible, and to implement content hierarchy management, as well as to enable users to have reasonable expectations of the content.

Table 2. Information Selection Behaviour and Fragmented Information Anxiety Pearson Correlation Analysis

	Purpose (Learning-Recreation)	Content (Depth)	Content (Positive)
Total	0.033	-0.249*	0.148
Content anxiety	-0.033	-0.089	0.143
Access anxiety	0.243*	-0.153	0.086
Dependency anxiety	0.052	-0.350**	0.065
Processing anxiety	-0.012	-0.236*	0.093
Utilization Anxiety	-0.114	-0.128	0.194
* p<0.05 ** p<0.01			

Information Acquisition Behaviour: as shown in Table3, when choosing close peers as the most relied upon source of information, it has a significant positive correlation with Information Acquisition Anxiety, Information Dependence Anxiety, and Information Processing Anxiety. To a certain extent, it can show the peer pressure among college student groups.

Table 3. Information Acquisition Behaviour and Fragmented Information Anxiety Pearson Correlation Analysis

	Platform	Peers	Elders	Expert
Total	0.063	0.289*	-0.091	-0.141
Content anxiety	-0.043	0.111	-0.032	-0.011
Access anxiety	-0.078	0.259*	0.069	-0.108
Dependency anxiety	0.008	0.244*	-0.091	-0.074
Processing anxiety	0.174	0.350**	-0.194	-0.186
Utilization Anxiety	0.166	0.153	-0.092	-0.158
* p<0.05 ** p<0.01				

As Table4 shown, combined with the cross-analysis of the purpose of information selection and information media, when college students browse fragmented information for the purpose of learning, the channels for acquiring knowledge are diversified, and they choose media such as Zhihu, WeChat, Bilibili and so on. When they chose professional learning platforms, information anxiety was relatively low, while when they chose pan-entertainment platforms, their information acquisition anxiety increased significantly. This is related to the explosive growth of pan-knowledge content, in an environment where massive entertainment and knowledge content are mixed, users must both deal with the pressure of identifying false information and resist the temptation of entertainment content. Therefore, managing the medium of information access is also an important part of alleviating information anxiety.

Table 4. Pearson correlation analysis of medium of information access and fragmented information anxiety

	Professional studies	Quiz Community	Pan-content platform	Information platforms	Pan-Entertainment Platform
Total	-0.019	0.099	-0.168	-0.073	0.148
Content anxiety	-0.134	0.103	0.043	-0.151	0.018
Access anxiety	-0.082	0.193	-0.153	0.004	0.294**
Dependency anxiety	-0.032	0.028	-0.187	-0.012	0.201
Processing anxiety	0.019	0.026	-0.177	-0.113	0.108
Utilization Anxiety	0.133	0.050	-0.161	-0.020	-0.046
* p<0.05 ** p<0.01					

As Table5 shows, reading planning behavior negatively predicts information anxiety, where 'planning time' shows a significant negative correlation with information dependency anxiety. Thus, we can help users to manage reading time and content.

Table 5. Pearson Correlation Analysis of Reading Plan Behaviour and Fragmentary Information Anxiety

	Programmed content	Scheduled time	Fulfilment plan
Total	-0.114	-0.162	-0.102
Content anxiety	0.018	0.019	-0.045
Access anxiety	-0.073	-0.143	-0.047
Dependency anxiety	-0.200	-0.244*	-0.187
Processing anxiety	-0.158	-0.215	-0.095
Utilization anxiety	-0.015	-0.032	-0.015
* p<0.05 ** p<0.01			

Information anxiety in reading process behaviour is independent of the actual place and time of reading. As shown in Table6 among the reasons leading to reading interruption, interruption of reading due to lack of concentration positively predicted information anxiety, in which mainly information dependence anxiety and information processing anxiety showed significant correlation. Therefore, when developing strategies to alleviate information anxiety, it is necessary to consider how to improve concentration in various fragmented reading scenarios.

Table 6. Pearson Correlation Analysis of Reading Process Behaviour and Fragmentary Information Anxiety

	Hard to read whole article	Too difficult to understand	Cannot extract useful information	Content and title do not match	Find the information in advance
Total	0.317**	0.143	0.059	-0.151	-0.16
Content anxiety	0.13	0.16	-0.084	-0.061	-0.172
Access anxiety	0.085	0.134	0.17	0.037	0.005
Dependency anxiety	0.411**	0.118	0.197	-0.213	-0.163
Processing anxiety	0.417**	0.057	0.011	-0.19	-0.091
Utilization Anxiety	0.171	0.1	-0.072	-0.144	-0.203
* p<0.05 ** p<0.01					

After reading, organizing and summarizing information is a key step in calling up information again and bringing out its value. As shown in Table7 inductive ability negatively predicts information anxiety and is significantly negatively correlated with information processing anxiety and information dependence anxiety. College students with good inductive ability is usually better able to construct their own knowledge system. Fragmented reading scenarios are complicated, and additional summarization and collation often take more energy; therefore, it is necessary to help users lower the threshold of summarizing information in the mitigation strategy.

Table 7. Pearson correlation analysis of Post-Reading Behaviour and Fragmentary Information Anxiety

	Total	Utilization Anxiety	Processing anxiety	Dependency anxiety	Access anxiety	Content anxiety
Inductive ability	-0.182	-0.087	-0.230*	-0.258*	-0.173	0.061
* p<0.05 ** p<0.01						

4 Discussion

(1)   Information Anxiety Formation Modeld

Based on the results of the data analysis of the questionnaire, the categorization of fragmented information anxiety factors was completed by information selective coding, and the fragmented information anxiety formation model was proposed as Figure 1
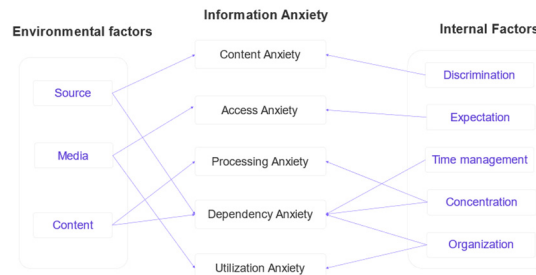
Figure 1. A Model of Information Anxiety Formation in College Students

The model divides the formation of fragmented information anxiety into two parts: environmental factors and internal factors. The environmental factors include the three core factors of information source, information medium and information depth. In response to the external environment, the mitigation strategy can be information source selection, filtering to reduce information noise, and guiding in-depth reading and build a suitable reading scene.

There are more internal influencing factors, which mainly reflect the personal ability and subjective willingness of readers, including users' ability to discern information, expectancy management, time management, concentration and information summarization. For internal factors, the main strategies are developed from three perspectives of input, experience and output: enhancing screening ability and reducing screening costs; managing reading expectations and designing reading content hierarchically; improving reading concentration and promoting in-depth thinking; and visualizing reading value and improving self-efficacy after reading, thus forming a positive cycle.

(2)   Fragmented Information Knowledge Visualization Strategies

Knowledge visualization relies on visual representations, and with the help of a variety of illustrative means to form an external representation of knowledge that can directly act on human

senses, which can better promote the knowledge receiver's understanding of knowledge and improve the efficiency of knowledge dissemination. ChatGPT's excellent linguistic processing ability can help humans' summaries and understand information well, and can also sort out the logic of visualization from the logic of language. Therefore, this paper attempts to explore possible directions for improving the reading experience using knowledge visualization and LLM (Large Language Model).

In the process of acquiring, filtering and reading fragmented information, we find that the amount of information presents an hourglass shape, so we formulate the reading tool design strategy from the three links of reading management, content service and effect output respectively. In the reading management link, the ability of information screening is improved, and a plan for reading time and content management is established. In the content service section, multiple visualization strategies for reading content are designed to build the reading scaffold. In the output segment, the main purpose is to review and organize the reading content, so that the information can be easily recalled, and at the same time generate assessable values to give the user a sense of achievement, such as visual notes or medals of honor.

Combined with the analysis of currently available reading tools, this paper proposes the following three directions of reading tool design strategies.

1) Reading Management

The first step is reading source management. According to the results of the questionnaire, the medium of information acquisition affects readers' information dependency anxiety, and in the complicated information channels and various content platforms filled with personalized recommended content, it is difficult to avoid the temptation of all kinds of low-quality information and get out of the information cocoon. Therefore, the establishment of sources that can give users full freedom without being overly disturbed is the primary demand. Therefore, this paper suggests the use of RSS tools to actively select information instead of passively receiving it, and at the same time combining subscription and custom input. RSS (Really Simple Syndication) is a subscription-based content aggregation tool, which can subscribe to information from Internet sites across various information platforms and display it in one tool if permitted. on a single tool. It also automatically detects and fetches new content, eliminating the need for users to manually visit each site to check for updates.

Within the academic community, researchers can stay abreast of the latest published papers and research outcomes in real-time by subscribing to RSS feeds of multiple scholarly journals closely aligned with their field of expertise. This strategy allows scholars to focus on the cutting-edge developments within their domain without the need to expend significant amounts of time navigating the official websites of various journals. Similarly, content creators and media professionals can efficiently keep up with the latest updates in their areas of interest by aggregating sources related to specific topics or news events into an RSS reader, such as Feedly. The RSS subscription service enables users to swiftly identify and respond to pivotal events, thereby substantially reducing the risk of becoming disoriented amidst a deluge of information. For university students who frequently rely on online resources for knowledge acquisition, RSS offers an effective method for alleviating information overload and optimizing information management by facilitating the meticulous selection and organized management of information sources.

The second step is the hierarchical management of reading content. In terms of reading content, the quantitative management of content grading is adopted to help users allocate their time and attention, and read different types of information in a planned way. Table8 categorizing them primarily into professional content, hobby content, and entertainment content. This strategy encourages users to adopt a more proactive and deliberate approach to selecting and consuming information. This not only aids in the more efficient processing and utilization of information by the users but also alleviates information anxiety by minimizing unnecessary information consumption and preventing information overload.

Table 8. Strategies for grading and managing reading content

Typology	Connotation	Diagnostic property	Typical example
Specialized Content	Professional books related to readers' work and study	Harder to understand	Academic works, full-length classics
Content of Interest	Popular books that read for self-improvement and to expand knowledge base.	Scan reading; Read with a plan; Stimulate innovation	A classic read of moderate length
Entertainment Content	Content based on readers' preferences	Pursuing pleasure and freshness, no need to think hard, not seeking efficiency	Leisure reading that can be read at any fragment of time: news, trends, etc.

The third step is reading time management. According to the depth of the reading content, give a suggested reading time for each article, while setting a to-read list, a reading priority and a regular cleaning mechanism. Visualize and manage the reading plan, promote its execution, and understand the progress in real time. Gamification and social feedback mechanisms can also be set up to allow users to understand their reading journey and gain a sense of achievement.

2)   Reading Scaffolding

During the reading process more attention is paid to the user's attention. According to attention theory, prior volitional exertion leads to a temporary reduction in self-efficacy and willingness in subsequent activities[17]. Therefore, it is important to establish a workflow that is as fixed as possible during the reading process in order to minimize additional decision-making.

Muraven's research on types of attention suggests that flexible attention and floating attention are needed for creative people to be able to switch between them [18]. We therefore suggest splitting up the attention in reading. We suggest splitting tasks in reading and assigning different levels of attention to different tasks (e.g., filtering, skimming, intensive reading, expanding). The advantage of LLM is that it can efficiently model natural language, and when filtering the reading content, a summary of the text content can be generated after processing by LLM, which helps readers to understand the main content of the article and decide whether to read it or not. And visually emphasize the key content (zoom in, highlight, underline, etc.).

Research demonstrates that the human brain is capable of processing a maximum of 7±2 tasks concurrently, underscoring the importance of documenting the outcomes of our cognitive endeavors. A plethora of studies have affirmed that visualization tools significantly enhance readers' comprehension and retention of information. Tools such as mind maps, which primarily

depict hierarchical relationships, cognitive maps illustrating cause-and-effect relationships, and thinking maps integrating various types of relationships, effectively represent the logical connections within textual content. Among these, the thinking maps proposed by educator David Hyerle[19], as illustrated in Figure 2, employ eight distinct types of graphical representations to visualize complex information and concepts, thereby facilitating learners in constructing knowledge frameworks and deepening the learning process. Hyerle's thinking maps have profoundly impacted the field of education, not only being widely implemented across various educational levels but also serving as an effective pedagogical strategy to support cognitive development in students. Additionally, the application of thinking maps transcends disciplinary boundaries, being utilized in language arts, science, social studies, mathematics, and more.
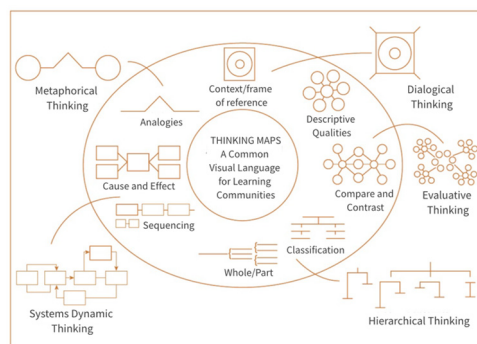

Figure 2. The 8 tools of Hyerle's thinking map

Consequently, in designing reading tools, integrating thinking maps with the linguistic analysis capabilities of Language Models (LLM) can provide users with a visualized reading experience. For instance, employing LLM to generate hierarchical content outlines aids readers in grasping the overall structure of the text and locating targeted information. For content that presents challenges, generating logical diagrams, as shown in Figure 3, to explicate concepts can foster knowledge discovery and understanding through interactive operations.

Externalizing thought processes using visualization tools like mind maps can lower the barrier to textual input. Furthermore, utilizing LLM to construct thinking tools, such as guiding readers with questions, can assist in clarifying concepts or perspectives. We can achieve the logical visualization of reading content by processing the language logic through LLM, then outputting it as program statements, and using program graphing tools such as Mermaid and Graphviz to achieve a visual presentation.
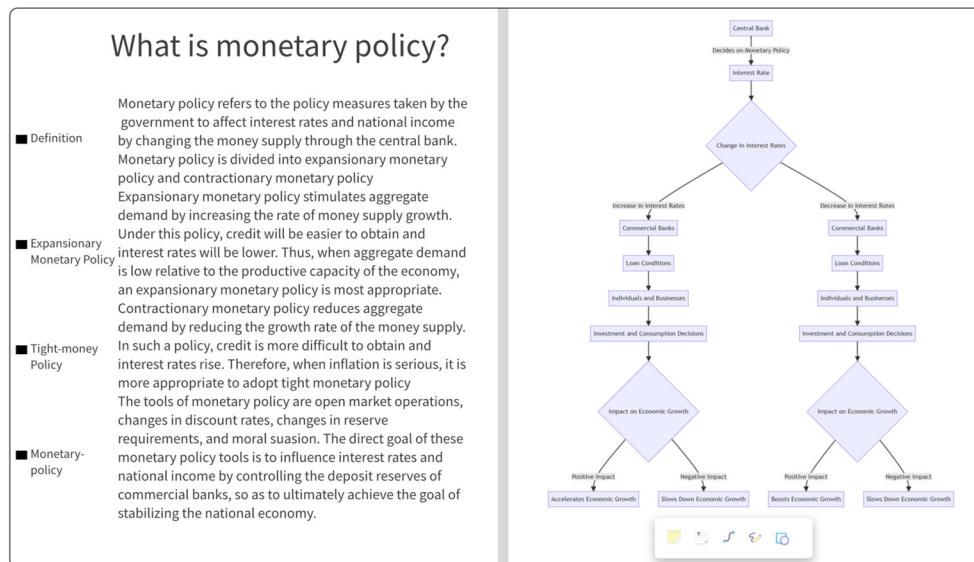
Figure 3. Schematic diagram of the reading interface

3) Notes Management

Note management strategies can be dichotomized into two principal systems: ephemeral notes generated during the reading process and organized long-term notes. Ephemeral notes primarily encompass three aspects: key citations from the literature, extended learning materials, and individual innovative thoughts. Subsequently, through employing strategies such as inductive reasoning and questioning, these notes are connected to an individual's existing knowledge framework, thereby evolving into structured and organized long-term notes. Moreover, the formation of long-term memory is facilitated by randomly selecting note cards and recommending periodic reviews. This process mirrors the cognitive mechanism of human memory, specifically the conversion mechanism from short-term to long-term memory. Ephemeral notes capture the immediate thoughts and questions that arise during the learning process, reflecting the information processing activities within short-term memory. Through the subsequent organization and synthesis process, this information is effectively encoded into the long-term memory system, simulating the human memory's transition pathway from short-term to long-term[20].

By creating a visual knowledge management system, linking relevant knowledge that has been read, and using tags and bi-directional links to form a personal knowledge graph, users can conveniently go back to what they have read and their personal notes.

5 Conclusions

Based on real survey data, this study reveals the causes of information anxiety in fragmented reading among college students. It was found that the combined effect of external environmental factors and internal personal factors influenced the formation of information anxiety in college students. In external factors, information source, information media, and information quality are important causes of information anxiety, while internal factors unfold from readers' personal abilities, mainly information discrimination, expectation management, time management, concentration and inductive ability.

In information selection behavior, reading expectation and reading content affect information access anxiety and information dependency anxiety respectively, while the survey process also shows heavy peer pressure. As for the information acquisition media, it is noteworthy that more respondents have the habit of acquiring knowledge in pan-entertainment platforms, and this predicts information acquisition anxiety. In terms of reading plan behavior, we found that time planning significantly reduces information dependency anxiety. In terms of reading process and post-reading behaviors, improving concentration and summarization skills are ways to reduce information processing and information dependency anxiety.

Therefore, based on existing research on reading tools, we combine LLM techniques and knowledge visualization theories to propose the design strategies of reading tools that can alleviate information anxiety, including three aspects of reading management, reading scaffolding and note management.

In the era of widespread information anxiety, the findings of this study provide a brand-new solution for the audience to learn from fragmented information, improve the efficiency of information use, and alleviate anxiety. It also sheds important light on the use of LLM.

This study analyzed data based on an online questionnaire survey distributed within the university, and due to objective conditions, the categorical sampling division of the surveyed college students was not further refined and perfected. Future research will refine the sampling classification of the college student group, such as gender and grade level, and increase the number of respondents to conduct more in-depth empirical research on information anxiety in fragmented reading.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Declaration of competing interest

The authors declare that the research was conducted in the absence of any commercial or ffnancial relationships that could be construed as a potential conffict of interest.

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