



A Study on Electronic Reading Habits and Usage of Second Language Acquisition Students in the Context of Big Data

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Abstract. This study aims to explore the electronic reading habits and usage of second language acquisition students in the context of big data. Through in-depth analysis of massive user behavior data, the study found the preferences, behavior patterns and challenges of second language acquisition students in electronic reading. The results show that although electronic reading provides students with convenient learning methods, their reading habits and behaviors are still influenced by many factors, including learning habits, learning environment, technology support, etc. This study is of great significance for understanding the electronic reading habits of second language acquisition students and optimizing electronic reading platforms and resources.

Keywords: big data; second language acquisition; electronic reading habits and behaviors; usage.

1 Introduction

With the advancement of science and technology and the rapid development of informatization, big data has become an important support for research in many fields. In the field of second language acquisition, big data not only provides researchers with massive learning resources, but also creates more diversified learning methods for students. Electronic reading, as an important form, has been gradually accepted by most students. Electronic reading can not only provide students with rich learning materials, but also make personalized recommendations based on students' reading habits and interests. However, students' behavior habits and usage effects in the process of electronic reading are still a problem worth studying. Especially in the context of second language acquisition, students' reading habits may be influenced by many factors such as language proficiency, cultural background, learning motivation, etc.

2 Analysis of Electronic Reading Habits and Behaviors of Second Language Acquisition Students

2.1 Reading Device Usage Habits

2.1.1 Diversified Usage Habits.

Through surveys and data analysis, we found that second language acquisition students show obvious diversity in their usage habits of electronic reading devices. Some students prefer to use large-screen tablets, believing that the display effect is better and more suitable for long-time reading; while others prefer small and portable smart phones, as they are highly portable and can be used for learning anytime and anywhere. There are also some students who choose professional e-book readers to pursue a purer reading experience.

2.1.2 Influence of Habits on Learning Effects.

The usage habits of electronic reading devices have an important influence on the learning effects of second language acquisition students. Proper device selection and usage habits can help students improve learning efficiency and enhance learning experience. For example, by utilizing the instantaneity of smart phones, students can look up vocabularies, grammar explanations and other learning materials at any time, thus deepening their understanding of language knowledge; while students using tablets can take advantage of its rich applications to conduct diversified exercises such as listening and speaking, so as to improve their language proficiency.

However, over-reliance on electronic devices can also lead to some problems. For example, long-time use of electronic devices for reading may cause visual fatigue; excessive dependence on electronic devices may weaken students' ability to learn independently, as they may tend to rely on the answers provided by the devices rather than think by themselves.

2.2 Reading Time and Frequency

2.2.1 Current Situation Analysis of Reading Time and Frequency.

Through surveys and data analysis, we found that there are considerable differences in the reading time and frequency of second language acquisition students on electronic reading. Some students spend several hours on electronic reading every day, while others may only occasionally conduct electronic reading. This difference is not only influenced by personal learning habits and goals, but also related to factors such as selected reading materials and reading environment.

2.2.2 Influence of Reading Time and Frequency on Language Learning.

The reading time and frequency of electronic reading has a significant impact on the language learning of second language acquisition students. Firstly, reasonable elec-

tronic reading time and frequency helps students develop good learning habits and improve learning efficiency. Secondly, long-term electronic reading can help students accumulate a large amount of language knowledge and cultural background, enhancing their language perception and application abilities. However, excessive electronic reading may also cause students to feel reading fatigue, affecting learning effects. Therefore, balancing electronic reading time and frequency is crucial.

2.3 Reading Content and Preferences

2.3.1 Extensiveness and Diversity of Reading Content.

The electronic reading content of second language acquisition students shows extensiveness and diversity. They not only pay attention to textbooks, but also actively expand extracurricular knowledge. For example, English learners may choose to read English novels, news, blog articles, etc. to improve language application abilities and cultural literacy. At the same time, they also utilize electronic reading devices to learn grammar, vocabulary and other basic knowledge through interactive exercises, so as to enhance listening, speaking, reading and writing skills.

2.3.2 Influence of Reading Preferences on Learning effects.

The electronic reading preferences of second language acquisition students have positive influences on their learning effects. When students are interested in the reading content, their learning enthusiasm and initiative will be higher, and they will be more likely to immerse themselves in the language learning context. Meanwhile, diversified reading content can meet the learning needs of different students and promote their comprehensive development. However, attention should also be paid to the fact that some students may overly prefer certain types of content, leading to one-sidedness in language learning. Therefore, teachers and parents should provide proper guidance to help students build balanced and comprehensive reading structures¹.

3 Application of Big Data in Electronic Reading of Second Language Acquisition

3.1 Application of Big Data Technology in Electronic Reading Analysis

With the continuous development and extensive application of big data technology, it also plays an increasingly important role in the electronic reading of second language acquisition. Big data technology can collect, analyze and mine massive electronic reading data to provide more accurate and personalized learning support for second language acquisition.

3.1.1 Data Collection and Integration.

Big data technology can first comprehensively collect the electronic reading data of second language acquisition students. This data includes but is not limited to the types

of reading materials, reading duration, reading frequency, reading difficulty, etc. The integration of this data can form a huge dataset to provide a basis for subsequent analysis and mining.

3.1.2 Reading Behavior Analysis.

By analyzing the collected electronic reading data, big data technology can deeply understand students' reading behaviors. For example, it can analyze students' reading preferences to find out which types of materials they prefer; it can analyze students' reading progress and difficulty to assess their learning efficiency and proficiency; it can also analyze students' reading time and frequency to understand their learning habits and rhythms. These analysis results can provide more accurate teaching and learning suggestions for teachers and learners.

3.1.3 Personalized Recommendation and Learning Path Planning.

Based on the analysis results of reading behaviors, big data technology can provide personalized reading recommendations for students. For example, according to students' reading preferences and learning progress, recommend suitable reading materials and learning resources for them. At the same time, more reasonable and efficient learning paths can also be planned for students based on their learning needs and goals. This can not only improve students' learning effects, but also enhance their learning motivation and interest as shown in Figure 1.

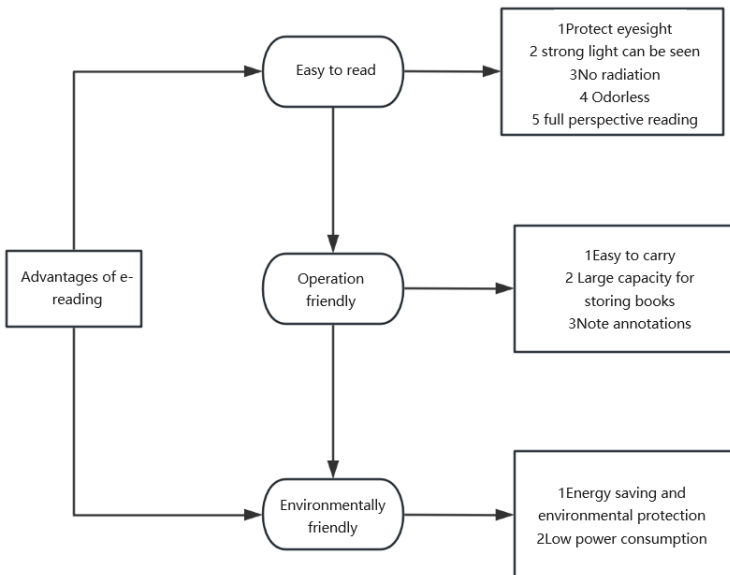


Fig. 1. Advantages of electronic reading

3.2 Collection and Processing of Students' Electronic Reading Behavior Data

3.2.1 Collection of Students' Electronic Reading Behavior Data.

Firstly, there are reading behavior logs. Each electronic reading behavior of students, such as opening books, turning pages, dwelling time, etc., can be recorded as logs by the system. These logs can provide detailed reading behavior data of students. Secondly, there are reading preference surveys: Collect students' preference information on the types, difficulty and interest of reading materials through regular questionnaires or interactive feedback. In addition, there are reading scores and feedback: students' reading comprehension scores, test scores, as well as their understanding and feedback on reading materials are important data sources. Finally, multi-source data fusion: In addition to the data directly from the electronic reading platform mentioned above, data from other sources such as students' academic performance, attendance, classroom performance, etc. can also be combined to understand students' reading behaviors more comprehensively².

3.2.2 Processing of Students' Electronic Reading Behavior Data.

Firstly, data cleaning: Invalid, duplicate and obviously erroneous data are removed to ensure data quality and accuracy. Secondly, data classification and labeling: The collected data is classified and labeled, such as reading duration, reading material types, reading speed, etc., for the convenience of subsequent data analysis and mining. Thirdly, data aggregation and visualization: Through data aggregation, scattered data is integrated into valuable information, and displayed through data visualization tools, so that educators and students can intuitively understand the characteristics of reading behaviors.

3.3 Data Analysis and Behavior Identification

3.3.1 Data Analysis.

Through in-depth analysis of students' behavior data on the electronic reading platform, we can obtain information such as students' reading speed, reading habits (whether they like skimming, re-reading, etc.), distribution of reading time, etc. Combined with students' reading speed and scores, we can evaluate students' learning progress and effects, timely discover students' learning difficulties, and provide more targeted assistance. Analyzing the types, difficulty and themes of the materials students choose to read can help understand students' learning needs and interests, and provide a basis for educators to adjust teaching content and materials.

3.3.2 Behavior Identification.

By identifying students' reading behaviors, we can understand the reading mode of each student, such as some students like to read continuously from beginning to end, while others like to read sporadically. This helps educators provide more personalized reading suggestions for each student. When students encounter difficulties in reading, such as dwelling on a page for a long time, frequent turnbacks, etc., these behaviors can

serve as the basis for identifying students' learning disabilities. By timely identifying and providing assistance, educators can effectively help students overcome learning difficulties. Analyzing the reading materials students choose can identify their learning interests and preferences. This helps educators provide reading materials and learning resources that are more in line with their interests³.

4 Research on the Impact of Electronic Reading on Second Language Acquisition

4.1 Promoting Role of Electronic Reading on Second Language Acquisition Effects

Electronic reading provides a convenient learning approach for second language acquisition. Compared with traditional paper-based reading materials, which are not only costly but also difficult to be updated and modified on a large scale, electronic reading breaks this limitation. As shown in Figure 2 Learners can access a large number of online resources anytime and anywhere, and easily obtain the latest and most comprehensive language learning materials. This convenience enables learners to devote themselves more actively to language learning, thus improving learning outcomes.

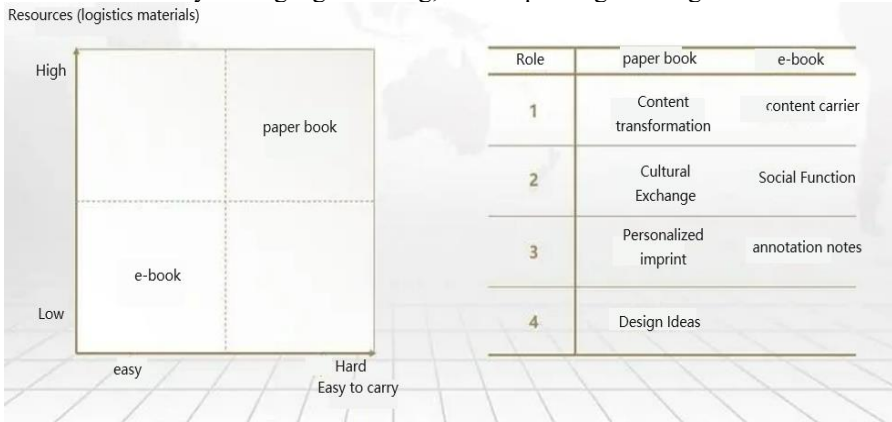


Fig. 2. Comparison between electronic reading and paper books

Electronic reading helps achieve personalized learning. Everyone has different learning styles and habits, and electronic reading platforms usually provide rich learning tools and functions, such as dictionaries, translations, highlights, etc., so that learners can customize the learning experience according to their own needs and preferences.

4.2 Analysis of Factors Affecting Electronic Reading Effects

The quality of electronic reading materials is also an important factor affecting the effects. High-quality electronic reading materials should be accurate, timely, diverse and

interactive. If the materials contain grammatical errors, outdated information or monotonous content, learners' reading effects will be greatly reduced. At the same time, the lack of interactivity will also make learners feel boring and unable to maintain the continuity of learning.

Learners' reading habits and strategies will also affect the effects of electronic reading. For example, regular review, note taking, and discussion with others are all effective reading strategies that can help learners better understand and remember reading materials. At the same time, maintaining good reading habits such as timed breaks and avoiding distractions can also improve reading effects⁴.

5 Discussion on the Integration of Electronic Reading and Second Language Acquisition Education

5.1 Selection of Technology Platforms

Selecting appropriate technology platforms is the first step in integrating electronic reading with second language acquisition education. The technology platform should have good compatibility, stability and security, and be able to support diversified learning methods and resource formats. At the same time, the platform should have big data analysis functions to track and evaluate students' learning behaviors and effects in real time.

5.2 Screening and Integration of Content

In electronic reading, students need to learn to screen and integrate suitable second language learning materials. The materials should cover various fields of the target language, such as literature, history, science and technology, culture, etc., and be closely linked to the learning objectives. In addition, students should also reasonably integrate reading materials based on their own language proficiency and learning progress to form a systematic learning plan.

5.3 Diversified Reading Modes

Students can experience diversified reading modes such as text reading, audio reading, video reading, etc. through the electronic reading platform. These diversified reading modes help students maintain the coherence and efficiency of learning in different learning scenarios.

5.4 Personalized Learning Paths

Students should formulate personalized learning paths according to their own learning characteristics and needs. Through the data analysis functions of electronic reading platforms, students can understand their learning progress and weaknesses, so as to adjust learning strategies and achieve personalized learning⁵.

6 Conclusion

With the arrival of the big data era, electronic reading has become an indispensable learning tool in the field of second language acquisition. Through in-depth research on the electronic reading habits and behaviors of second language acquisition students, we can catch a glimpse of the profound changes brought by the big data era to second language learning. Second language acquisition students show diversified and personalized characteristics in their electronic reading habits. They not only obtain rich language materials through electronic reading platforms, but also understand their learning progress and weaknesses through data analysis, so as to adjust learning strategies. In addition, the interactive and feedback mechanisms provided by electronic reading platforms also greatly enhance students' learning motivation and interest. In terms of electronic reading usage, second language acquisition students make full use of the advantages of big data to screen and integrate suitable learning materials, and form systematic learning plans.

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