

Independent Reading in Rural China's Elementary Schools: A Mixed-Methods Analysis

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Abstract

Independent reading—unassigned reading for personal pleasure—has been shown to be an important driver of reading skills and academic success. Children that commonly read for pleasure exhibit higher academic performance. However, little research has been done about independent reading in rural China, where the education system is charged with schooling tens of millions of students. Many rural students fall behind their urban counterparts in school, with potentially troubling implications for China's ongoing development. This article explores the prevalence of independent reading and its associations with reading ability and academic performance among rural students. Using a mixed methods approach, we analyze quantitative data from a survey of 13,232 students from 150 rural schools and interviews with 745 students, teachers, principals, and parents. We find independent reading is positively and significantly correlated with reading ability as well as standardized math and Chinese tests scores. Despite such correlations, only 18 percent of students report reading for pleasure for 30 minutes a day, and seven percent for an hour. Interview findings suggest that inaccessible bookstores, curriculum constraints, unsupportive home environments, low availability of appealing and level-appropriate books, and the lack of investment may explain the low prevalence of independent reading.

Keywords: Independent reading; rural China; academic performance; qualitative study; mixed methods

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1. INTRODUCTION

Independent reading—unassigned reading for personal pleasure—has been shown to be an important driver of reading skills among children and adults (National Reading Panel, 2000; Slavin, Lake, Chambers, Cheung, & Davis, 2009). Indeed, research internationally has shown that independent reading is positively correlated with increased reading comprehension, verbal fluency, and vocabulary (Anderson, Wilson, & Fielding, 1988; Cullinan, 2000; Greaney, 1980; Guthrie & Greaney, 1991; Taylor, Frye, & Maruyama, 1990). It is generally understood that independent reading habits and reading skills enjoy a reciprocal, mutually reinforcing relationship.

Independent reading and the development of reading skills are important for academic success. Reading at an early age—particularly the elementary school years—appears to be especially important. Research findings consistently show a strong correlation between reading proficiency and academic success at all ages, from primary school university: students who read a lot and who understand what they read usually attain good grades(Clark & Rumbold, 2006; Gioia, 2008). Children who start reading for pleasure at an early age are exposed to higher numbers of new words—and a greater opportunity to develop literacy skills—than children denied early reading experiences. Evidence suggests that children who read for enjoyment every day perform better in reading tests than those who do not, develop a broader vocabulary, exhibit increased general knowledge, and do better in

school. In fact, reading for pleasure is more likely to determine whether a child does well at school than their social or economic background. By contrast, lack of independent reading habits has been linked to higher levels of school drop out and low student achievement. Researchers have gone so far as to conclude that independent reading may help explain the achievement disparities between the educational haves and have-nots (A. Cunningham & Stanovich, 2001). As a consequence, reading programs for vulnerable youth attempt to encourage positive reading habits in order to boost reading skill levels and in turn remediate learning in school (Kim, 2006; Kim & Quinn, 2013).

Little is known about independent reading habits in rural China, where one of the largest education systems in the world is charged with schooling tens of millions of students. Educational inequality across the rural-urban divide is severe in China, as rural students lag far behind their urban peers (X. Wang, Liu, Zhang, Shi, & Rozelle, 2013). Many factors have been shown to contribute to the education shortfall in rural China, including poor student nutrition, lack of primary healthcare, lack of remedial tutoring, and low teacher quality (Luo et al., 2012; Mo et al., 2013; Sylvia et al., 2013; Yang et al., 2013; Yi et al., 2015). But it is not known to what extent the existence or lack of independent reading habits may be helping or holding rural students back. Given that China's education gap may have implications for the nation's continued economic growth (Zhang, Yi, Luo, Liu, & Rozelle, 2013) and given the important link between independent reading, literacy, and academic achievement, an investigation into independent reading in rural China is overdue.

The purpose of this paper is to investigate the prevalence of independent reading habits in rural China, the connection of these habits to achievement in China's school system, and the barriers common in rural areas to independent reading. To meet this goal we have several specific objectives. First, using a quantitative methodology we document the

prevalence of and popular attitudes toward independent reading in China's poor rural areas. Second, also based on empirical evidence, we examine the correlation between independent reading and critical reading ability as well as academic performance in math and Chinese. Third, in trying to address a number of issues that are more difficult to quantify with information from survey-based data, we employ a qualitative methodology to shed light on the mechanisms that may drive the quantitative findings on the prevalence of and correlates of independent reading in rural areas.

2. QUANTITATIVE DATA AND RESULTS

Our statistical analysis, the focus of this section of the paper, has four parts. First, we describe the sampling and data collections protocols. Second, we review the statistical methods that we use in the quantitative analysis. Third, we describe the prevalence of independent reading and reading resources. Fourth, we examine the correlation between independent reading and critical reading ability as well as academic performance. After reviewing the empirical evidence on these issues, we use qualitative data to examine some of mechanisms underlying the quantitative results.

Sampling Procedure and Data Collection

The quantitative data come from a large survey conducted in Guizhou and Jiangxi provinces in southern China. Like many of the populous, predominantly rural provinces in China's hinterland, Guizhou and Jiangxi are below average in GDP per capita when compared to other provinces (China National Bureau of Statistics, 2015). Data from the sampled locations, while not nationally representative per se, can yield important insights into circumstances typical of vast areas of rural China that are home to hundreds of millions of Chinese citizens.

The survey was administered to elementary school principals and students. The survey for principals contained a questionnaire only, while that for the students contained a questionnaire and three standardized tests. The questionnaires were designed to collect information about the independent reading habits and attitudes of rural elementary school students and their principals. Independent reading (*kewai yuedu*) was specifically defined in the survey as reading outside of school for a purpose not related to school. Part of the student questionnaire adapted items from the Progress in International Reading Literacy Study (PIRLS) survey, an international measure of reading comprehension that is widely used throughout the world (TIMSS & PIRLS International Study Center, Lynch School of Education, Boston College). The adapted questions also generated a standard measure of confidence in reading. Another part of the questionnaire sought to capture how much time students spent reading for pleasure outside of class, how they felt about this activity, and their access to books at school and at home.

In addition to the questionnaire, students also completed three standardized tests. The first test was carefully designed to measure reading skills. The test questions were adapted from those found in the PIRLS test. The test questions were carefully translated according to the PIRLS translation guidelines and reviewed by a panel of experts and local teachers who are well-versed in China's education system. The translated reading tests then went through several rounds of pilot tests in Chinese schools. The results were independently reviewed by a group of test assessment experts and were revised to make sure they are of the highest quality and appropriate for student levels.

The two remaining standardized tests were in math and Chinese language. Both tests were carefully designed with assistance from educators in the local bureaus of education to ensure coherence with the national curriculum. We pretested the exams repeatedly to ensure

their relevance and to make sure the time limits were appropriate. All three tests took 30 minutes to complete and the enumeration teams carefully timed and proctored the exams.

Statistical Approach

In investigating how independent reading is correlated with reading skills and performance in math and Chinese (results reported in the next subsection), we regress student standardized test scores in reading, math, and Chinese on student reading behaviors, attitudes, and access to books at school and home. We estimate the following ordinary least squares (OLS) model:

$$Y_{ijc} = \alpha + \beta' Read_i + \gamma' X_{ij} + \phi_c + \varepsilon_{ijc} \quad (1)$$

where the dependent variable Y_{ij} indicates the standardized test score of student i in school j and county c , $Read_i$ is a vector that includes four variables pertaining to reading. Specifically, $Read_i$ includes whether student i is an independent reader (equaling 1 if the student spends more than 30 minutes per day on independent reading, and equaling 0 if the student does not); whether the *school has a library* (1=yes, 0=no); whether the student *borrow books from the school library* (1=yes, 0=no); and whether the student's *parents buy books for the student* (1=yes, 0=no).

The vector X_i includes student, family, and school characteristics, which serve as controls. The student characteristics include student *age* (in years), student *gender* (1=male; 0=female), and *boarding status* (1=boarding student; 0=non-boarding student). The family characteristics include the *household consumption asset value* (to calculate an asset index, we asked the students to fill out a checklist of household consumption, then used the coefficients from principal component analysis to create a single measure of wealth). The school characteristics include *whether the school size is larger than average* (1=yes, 0=no).

We estimate equation (1) for three dependent variables, including standardized reading test scores, standardized math scores and standardized Chinese scores. We also add county fixed effects, ϕ_c , to account for county-level heterogeneity.

Quantitative Results

Table 1 indicates that in total the surveyors collected data from 13,232 students in 134 rural schools across six counties in Guizhou and Jiangxi provinces (Figure 1).

To draw our study sample, we began with four counties officially designated by the Chinese government as “poverty counties” in our study area (Daozhen and Zheng’an in Guizhou Province, Huichang and Yudu in Jiangxi Province). We also included two counties that are not “poverty counties” (Suiyang in Guozhou Province and Ruijin in Jiangxi Province). Before the survey, we conducted a canvass survey in each county to construct a list of all rural primary schools and the number of students enrolled in each school. Restricting our sampling frame to primary schools with all six grades (*wanxiao*), we randomly selected 134 schools for inclusion in our study.

As shown in Table 2, fifty-two percent of the sample students were male, which is consistent with the gender ratio in rural China (China National Bureau of Statistics, 2015). Sample students ranged in age from 9 to 15 and grades three to six, with an average age of 11.2. About nine percent of the students are boarding at school.

On the whole students reported limited independent reading behavior and did not typically report placing much value on independent reading. Less than one in five students reported reading for pleasure for at least thirty minutes per day and only seven percent reported doing so for an hour or more (rows 4 and 5, column 1). Only about one in ten students (12 percent) indicated that they were confident readers (according to the PIRLS

metric; row 6). A large majority of students did not believe independent reading to be helpful for Chinese or Math class (only 39 and 42 percent agreed it is helpful, respectively; rows 7 and 8). Interestingly, although most schools in rural China have libraries, only twenty percent of students indicated they borrowed books from the school library (row 9). Moreover, as will be discussed in the next section, even when students report borrowing books, it is possible that many of these books are exercise books, rather than leisure reading materials.

The weak attitudes of students toward independent reading reflected in the results above are generally shared among parents and principals. Almost no parents (less than ten percent) were reported to have purchased independent reading books for their children (row 10). Even fewer (6.2 percent) had ever read to their children at home (row 11). At most, only 27 percent parents are thought to value reading at home (but, again, it is not clear if parents value independent reading rather than reading/reviewing exercise books—row 12).

School principals generally support the notion that reading can improve grades in Chinese class. According to our data, 69 percent believe this is true (row 13). Interestingly, this means that 31 percent of the sample principals do not believe there is a connection between reading and language performance. Barely one in ten agree reading can help a student in their math class (11 percent; row 14).

Perhaps not surprisingly given the tepid support for independent reading among parents, principals, and students themselves, students tend to have limited access to independent reading resources. Two thirds of students have less than ten books at home (69 percent, row 15). Most students report that their schools have a library (72 percent, row 16) but only 20 percent indicate that it is open to the students (row 17).

Reading and academic performance

Results from the multivariate analysis in Table 3 reveal a number of insights about the correlates of independent reading and reading resources. Among those students that do read independently for a significant amount of time each day (60 minutes), test scores are significantly higher across all subject areas: reading (0.13 SD), math (0.16 SD) and Chinese (0.12 SD). All three results are statistically significant (reading and math at the 1 percent level, Chinese at the 10 percent level; row 1, columns 1 to 3). Such results are consistent with those found elsewhere in the literature. For example, international studies showed that students who read independently become better readers, score higher on achievement tests in all subject areas, and have greater content knowledge than those who do not (A. E. Cunningham & Stanovich, 1991; Krashen, 2004; Stanovich & Cunningham, 1993).

Interestingly, the correlation analysis also contains a number of results that may be helpful in understanding the independent reading environment in rural China. For example, whether or not a school has a library is not correlated with student test scores in a statistically significant way (an issue we return to in the qualitative findings). Also somewhat surprisingly, students that receive books from their parents are more likely to perform worse on all three standardized tests, reading, math, and Chinese (all significant at the 1 percent level; row 4, columns 1-3). We also explore this finding further in the qualitative analysis.

To check for robustness, we also undertake the analysis using different standards to identify children that read independently. The results of both checks are consistent. Students that spend even 30 minutes a day (rather than 60) also are more likely to perform better on all three tests. Similar results are had when we use students who are confident readers according to their responses to questions adapted from the PIRLS questionnaire. The 30 minute reader and confident reader results are reported in appendix Tables 1 and 2, respectively. In these tables, as with the 60 minute readers reported above, spending more time reading is

positively correlated not only with better reading ability but also higher academic achievement in math and Chinese.

In sum, the quantitative findings do not show that students, their parents, or school principals attach much importance to independent reading despite an unambiguous positive correlation between independent reading and school performance. The lack of attention paid to independent reading is made clear by the generally low level of reading and reading confidence among students, the lack of support for independent reading on behalf of parents and principals, and the under utilized nature of reading resources such as books purchased on the market or borrowed from the library. In fact, as shown in a forthcoming paper by Mo et al.,(Mo, Wang, Yi, & Rozelle, 2017) when compared to the PIRLS 2011 international results in reading, rural China appears to be an extreme outlier: students reading skill test and confidence in reading score among the lowest in international reading scales. This may be one reason rural students' academic performance are far behind their urban peers in China (Loyalka et al., 2014).

3. QUALITATIVE DATA AND RESULTS

Qualitative Data Collection

As part of our effort to interpret and better understand key findings from the quantitative analysis, we conducted three waves of qualitative interviews. Specifically, we wanted to investigate why many students do not read, why school libraries are not positively correlated with test scores, and why parents buying books for their children is negatively correlated with test scores. A qualitative analysis in this case is needed, since we found it difficult to quantify using standard pre-coded questions many of the beliefs and norms and actions that underlie behavior in rural China when it comes to independent reading.

To conduct the qualitative study, we systematically took steps to organize this part of the study in three waves. First wave interviews were conducted in June 2015, a five-person team (from Shaanxi Normal University and Stanford University) interviewed students, parents, teachers, and education bureau officials from ten elementary schools in two of the sample counties in Guizhou province. In total, 16 students, 10 heads of household, 18 teachers, 4 principals, and 3 education bureau officials were interviewed (Table 1, column 2 to 5). The interviews lasted from 20 to 60 minutes and were semi-structured: interviewers referenced an interview protocol but also had the freedom to diverge from this protocol in order to investigate specific responses that emerged. Relevant portions of each interview were transcribed with personally identifiable information removed.

In the second wave, interviews occurred over a five-day period in April 2015. A team of 12 enumerators (from Shaanxi Normal University) conducted in-person interviews with 213 randomly selected fourth and fifth grade math and Chinese teachers and 113 principals from 113 schools in Jiangxi province. The team also conducted telephone interviews with 322 heads of household. All interviews were conducted one-on-one and transcribed. All participants gave informed consent, and all personally identifiable information was removed from the transcripts. The interviews lasted from ten to 15 minutes and were a structured set of free-response questions, including: Is independent reading valuable for students? What kind of books should students read? Does independent reading impact students' academic performance? Do you buy books for your child?

For the third wave of interviews, interviews were conducted one-on-one by phone in July 2015. In order learn what factors may have driven their behaviors, we randomly selected 46 students who read independently and 10 parents who bought books for their children (as

reported on the quantitative surveys). All participants gave informed consent, and all personally identifiable information was removed from the transcripts.

In the following sections, we include quotations from all three waves of interviews. The selected quotations are representative of the sentiments expressed by a majority of respondents on any given issue.

Qualitative Findings

The qualitative patterns from our interviews allowed us to shed further light on our three main quantitative findings: why many students do not read, why school libraries are not positively correlated with test scores, and why parents buying books for their children is negatively correlated with test scores. First, our interviews suggest that the low prevalence of independent reading in rural China is associated with the following potential barriers: *inaccessible bookstores, curriculum constraints, and unsupportive home environments*. Second, our interviews illuminate why the existence of school libraries and their utilization are not correlated with better reading skills. Based on our interviews, we suggest that the *poor quality of school libraries and insufficient school investment* may contribute to the failure of libraries to boost test scores. Third, we examine why children whose parents buy them books perform worse on the tests. Our qualitative interviews present two possible explanations: *books are purchased as a remedy for weak academic performance* and *books are not suited for independent reading*. In the following section, we explore each of these three themes in detail.

1. Barriers to Reading in Rural Areas

In general, we find three main factors that appear to be acting as barriers to reading: students in rural areas lack suitable independent reading books; rural students do not always

have sufficient free time; and receive little encouragement to read within the household. It is our belief that this combination of factors may contribute to the low levels of reading reported in our quantitative data.

Inaccessible bookstores

Both our qualitative analysis and casual observations suggest that the unavailability of bookstores in rural areas may deter students from reading. Our interviewees echoed the challenges of accessing a bookstore near their home.

“I don’t own any books. If I wanted to go buy one from the bookstore, I would have to walk down to the road, take a minivan to the township, then take a bus to the county seat and go to the bookstore, then come all the way back. I don’t know how long that would take.” (Student, 2011S1)

“I would say one out of five of the students will buy books for themselves besides the curriculum books. They buy them in the township. There’s no bookstore there but they sell workbooks in the convenience store. But as for any other kind of book, nobody buys any of them. And even if they wanted to, they aren’t available.” (Principal, 2034H1)

Over the course of our interviews in Guizhou, we visited ten townships with over 60 schools and an estimated 10,000 students. However, not a single township contained a bookstore or a store that sold extracurricular reading books for children. This severe supply-side constraint may factor into children’s low independent reading habits.

Curriculum constraints

According to our interviews, rural elementary schools are faced with a variety of responsibilities, including preparing students for standardized examinations, adhering to the standard curriculum, and fulfilling government directives. These functions require significant time and resources and may render schools unable to oversee independent reading.

Perhaps the most emphasized of these responsibilities is preparing students for the high-stakes examinations that begin in elementary school and last through selection into tertiary schooling (Loyalka et al., 2014). As a result, classes often focus on test preparation (Thogersen, 2000). This emphasis on test scores may leave little room for teachers to encourage independent reading. Many teachers we interviewed spoke about the limitations posed by the test-focused system.

“The standard curriculum doesn’t emphasize independent reading. The only focus is on scores. The purpose of the system is to pass the college entrance exam. If a student is falling behind, he’ll sometimes get special tutoring after class. But if he can’t keep up, he should just self-study the dictionary at home.” (Teacher, 2034T1)

“Under China’s exam-oriented education system, I believe that students should pay attention to textbooks rather than independent reading books because textbooks are the foundation.” (Teacher, 2063T1).

Moreover, teachers report being pressured to adhere to the rigid week-by-week national curriculum, which serves as the central source of teaching and learning material for the majority of rural schools throughout the country (Huang, 2004; Paine, 1998). However, our interviews indicate that this curriculum is quite difficult and the pace may be too fast for most rural students. The rigorous and inflexible curriculum may leave little time for teachers to incorporate supplementary activities such as independent reading, especially in low-performing schools (D. Wang, 2011).

“All of our curricular materials are the standard curriculum, which, I’m speaking frankly now, is too hard for rural students. But the fact is that we have to teach them. If they understand the material, we teach it. If they don’t understand the material, we still teach it because we don’t have any other options.” (Teacher, 2022T2)

“Our curriculum is designed by experts somewhere, we don’t know where. Someone, we

don't know who, tells us which curriculum to use. We have to implement that curriculum. If we don't think it's suitable, we don't have a choice. There are no independent reading programs that are part of that curriculum.” (Teacher, 1000T3)

In addition to complying with the standard curriculum, schools and teachers must implement government-mandated supplementary initiatives such as safety training and International Children's Day performances. Many teachers and principals complained about these burdens, which demand significant time and money. When directives such as these divert schools' resources, schools may lack capacity to focus on other activities such as independent reading.

“The government mandates that schools employ safety education. We place a heavy emphasis on safety training. For example, we have to teach kids not to swim in the river, not to eat wild mushrooms, how to cross the road properly, not to chase each other around the campus, and not to jump near the windows. In short, rural areas are unpredictable in many ways and when accidents happen, society becomes upset and expects responsibility to be assigned for those accidents. Often schools are blamed. Therefore, we do our best to implement safety training, which ends up being a significant burden in terms of time and resources.” (Principal, 2034H1)

“Basically, I don't read because I don't have any time. I haven't read a book in two years, and even that book was for work and not for fun. It's the same for the other teachers. The teaching staff has a wide variety of tasks they must do outside of teaching that are mandated from above. For example, they have to institute a safety education program, which requires developing materials, displaying information, and lecturing on how to deal with traffic. These tasks take an enormous amount of time.” (Teacher, 2022T1)

Even if there were sufficient time and resources to encourage independent reading, it is not clear that teachers value independent reading, or are willing to provide guidance about independent reading to students. Although most teachers said that independent reading is

important, few spoke of concrete methods to encourage reading. Teachers commonly expressed the attitude that independent reading is a student's personal responsibility.

“I have been a Chinese teacher for 28 years. The library at the school was built 10 years ago. I've rarely gone in there. I don't think there are many independent reading books in there—I think that most of the books are workbooks. For reading outside of class, that's really the students' business and something they need to address on their own. If it were up to me, I'd recommend that they read workbooks.” (Teacher, 2034T2)

“None of the students read for fun. The school has a library, but the teachers don't manage it. They don't record who checks out the books. The students just like watching TV and cartoons, and in rural areas very few students read outside of school. They don't even read textbooks. Teachers don't care what students do outside of school.” (Teacher, 2042T2)

The test-driven and rigid standard curriculum appears not to foster ample opportunities for independent reading. Even if a student is falling behind, the curriculum must carry on, which suggests that students who fall behind in learning how to read at school will face difficulties in reading at home. In such a system, it also may not be surprising that many teachers do not emphasize independent reading—the focus is on scores and they may view textbooks and workbooks as the only keys to examination success.

Unsupportive home environment

Based on our interviews, the living situation of many rural students does not foster independent reading for two main reasons: significant time constraints faced by students outside of school and lack of encouragement for independent reading.

In China's elementary schools, school days are long, often extending from 7:30 a.m. to 5:00 p.m. After school, many of the children who we interviewed must walk home and

help around the house, performing tasks such as cooking, caring for younger siblings, and working on the farm. These activities limit time available for independent reading.

“After school, I walk home and then feed the geese, ducks, and chickens. I then do my homework. Then I cook, do more homework, and go to sleep.” (Student, 2022S1)

“Listen, some of our students live a two hour walk away. They are from places where there aren’t roads whatsoever. They wake up before sunrise, walk to school, spend all day in school, and sometimes—especially during the wintertime—they have to walk home in the dark. Some of them have to traverse the mountain behind the school, a two hour walk, every day.” (Teacher, 2022T3)

On top of substantial time constraints, few children appear to receive encouragement from their families to invest time in independent reading. In rural China there are as many as 58 million children who are left behind by parents who have migrated to faraway cities in search of work (China Youth Research Center, 2006). Left-behind children generally have limited contact with their parents: fewer than 30% of left-behind children see their parents every year (Ye, Murray, & Wang, 2011). Unfortunately, migrating parents may be unable to supervise their children’s education and encourage independent reading habits.

Many left-behind children are raised by their grandparents. Our qualitative data show that grandparents are often too busy and ill-equipped to supervise the studying and independent reading habits of their grandchildren.

“We are a poor family. Our son and his wife have four kids, and only completed fifth grade, so they have to work in a factory in Guangdong to make a living. They left their children at home with us. If the children do well in school, great. If not, it doesn’t matter to us. We don’t have any books at home and we’re illiterate so we can’t help with their homework or reading.” (Grandparent, 2011G1)

“Generally, kids live with their grandparents because their parents are out of town working. Grandparents are most concerned with getting food and clothes for the kids. As long as those two things are met, they don’t think about much else for the children.” (Teacher, 2041T1)

Furthermore, independent reading may not be a common practice in rural China, as evidenced by our survey finding that only 30 percent of households own books. Many interviewees explained the limitations of households in supporting children’s independent reading.

“In the countryside I can safely say that no parents read to their kids. The parents lack time and also lack sophistication.” (Teacher, 2022T2)

“Independent reading increases students’ burdens. It also makes them wild and distracts from curricular learning. Independent reading does not benefit language or math grades—it will affect students’ concentration. Our family does not buy independent reading books for the children because we fear that it will affect their studies.” (Parent, 3062P2)

In a home environment where independent reading does not seem to be valued, rural students may lack the motivation or the choice to read. Reading independently may run counter to their caregiver’s expectations and take away from valuable time they believe should be purely focused on academics.

2. School Libraries are not Associated with Better Test Performance

Almost by definition, school libraries are supposed to increase students’ reading volume. Although our quantitative results shows that students who read independently are good readers (and hence, better-performing students), reading ability was not associated with whether the school had a library or whether the student used it to borrow books. The qualitative interviews help explain this discrepancy: we found that libraries are of poor

quality and lack school support, which, it appears, contributes to their lack of association with reading ability and academic outcomes.

Inadequate School Libraries

In rural areas, libraries may lack sufficient human resources and suitable books to effectively improve student reading habits. One fundamental issue with many libraries in rural elementary schools is that they are often closed.

“The library is required to be open Monday to Friday. But, in fact, it is only open once a month because there’s not a teacher whose responsibility it is to manage the library.”
(Teacher, 2041T1)

Even when libraries are accessible, schools may lack control over the selection of the available books. Most books in rural schools are provided by donations or purchased by the local bureau of education. However, books are not always chosen with the needs of students in mind.

“A fraction of the books in our reading room were supplied by the education bureau. They just give us the books. They never ask us what kind of books we need. In fact, I think that some of the books they give us are not suitable for students to read. For example, books about how to code or repair computers. These kids have never touched a computer. How could that be useful?” (Principal, 1081H1)

Indeed, one reason that school libraries were not associated with better reading abilities or higher scores may be that students cannot find books of topics and difficulty levels suitable for independent reading. In addition, books in the library may not often accord with student interests. Our quantitative results reveal that 76% of students are interested in

fables, while 43% and 45% are interested in novels/kung-fu novels (武侠小说)¹ and nature books, respectively. School libraries, however, seem not to prioritize having these books in their collections; most do not have any or many of these types of books. This may be due to the belief held by many teachers that these types of books are not appropriate for elementary school students. Instead, the teachers believe that students should focus on reading classics and reference books.

“I think students should read reference books. For example, essay writing books, the dictionary of ancient Chinese expressions, fables, and the dialects of Confucius and Mencius. Even if students cannot understand the Chinese classics, it is still good for them to read these types of books. Novels are not good for students. They are too long and students don’t have enough time to finish them. It’s a waste of time for the students and they cannot understand these novels. Romance novels are also bad for the students. However, I’ve never read any of them.” (Teacher, 2022T1)

“Kids should not read manga or science fiction because the content of manga books is imaginary. They don’t help students solve real world problems and lack educational value. In fact, they have a negative influence on students because the students try to mimic the violence and humor in books. Village students should not read science fiction because those books have content such as spaceships that students won’t comprehend.” (Teacher, 2042T2)

In addition to potential challenges with the types of books available, school libraries contain books that are damaged and outdated. This may contribute to how school libraries’ do not promote better reading skills.

“Almost 70 percent of the books from the library are damaged or out of fashion. They’re old, out of date, broken, and missing pages. The last time the government sent us a book was around ten years ago.” (Teacher, 2022T1)

¹ Kung-fu novels are a popular genre of Chinese adventure literature that blend martial arts with historical fiction.

“The books in the library are generally out of fashion; kids do borrow books, but they will read a few pages and then return them. They do not have much interest. I think that students could be interested in books if there were new books that were shiny, colorful, and had pictures or if there was a teacher there to help students decide what they want or how to be interested in reading. The books haven’t been updated in all of my time here.” (Teacher, 2041T1)

In summary, utilization of school libraries face interesting demand-side and supply-side problems. On the demand-side, teachers encourage children to read materials that may be inappropriate given either their current reading level or their interests. Even if students had the liberty to borrow books that they like, it is possible that they may be unable to do so if the library is closed or the books are falling apart. These constraints may explain, at least in some part, how students who borrow library books are not better readers.

Insufficient school investment

The decentralization of school finances in China has led to unequal distribution of money and resources among schools (Park, Rozelle, Wong, & Ren, 1996; Tsang, 1996). Rural schools generally receive less funding and human resources than urban schools and face severe budgetary constraints (Huang, 2004). These financial challenges may prevent reading resources and programs from becoming a priority. This is evidenced by the importance of donated books in libraries in rural schools. Of the ten schools visited during the qualitative interviews in Guizhou, all of them relied on donations for their library materials. Many teachers and administrators described the financial challenges of their schools.

“Our budgets are extremely tight. In fact, we’re in the red. We need to buy teaching materials like paper, pens, computers, folders, and bookcases. We have to prepare for and pay for community activities like the Children’s Day presentation. We have to pay for all the expenses of supervising the exams every year, which includes transporting our teachers to

other schools and hosting the visiting teachers. Plus, teacher training, transport and accommodation during county meetings. Then there's the sound system, the electricity bill, the internet bill. Each year we go further into debt just to cover these fundamental costs.” (Principal, 2032H1)

“If I had 50,000 spare RMB, first and foremost I would make the required safety improvements at our school. Safety is first, after all. So that means fixing the stairs, repairing cracked walls and windows, things of that nature. After that, I'd say we definitely need some computers and multimedia hardware. Finally, it would be improvements to the teachers' office space, including desks and shelves and whatnot.” (Teacher, 2034T1)

Non-central rural schools are especially strained economically. Beginning in the late 1980s and early 1990s, China began to close village schools in an effort to centralize resources (Paine, 1998). The government may not want to invest in a school with an uncertain future. Therefore, these schools often lack support from above. Some teachers cited this pattern as a key reason for insufficient school libraries.

“Of course the school needs equipment and investment. We need a wall around the school and other hardware investments like books. We've been asking the Education Bureau for things like this for ten years. But the fact of the matter is that in this area there are fewer and fewer kids and the government has probably decided that it is not worth investing in this school anymore.” (Teacher, 2022T4)

“The education bureau has a policy to combine relatively small schools. For that reason, it's possible that this school will be shut down next year. But I'm not sure. I haven't received any kind of concrete news even though it's only a year away.” (Principal, 2031H2)

As shown, the financial challenges burdening rural schools appear to be significant—principals report having to cope with constrained budgets and little prospect for future funding. As such, independent reading is not of primary concern for these educators. Rather,

they must focus on the costs they consider fundamental to their schools' operation. And, as our interviews revealed, books or programs for independent reading are almost never cited as essential to a school's functioning.

3. Children Whose Parents Buy Books for Them Score Worse on Tests

The multivariate analysis shows that students whose parents buy them books are, on average, worse readers, and that the relation is statistically significant (Table 3, row 4). The qualitative interviews may explain this result by revealing that book purchases usually take place to remedy poor reading abilities, rather than to provide more materials for interested readers. Moreover, the interviews show the books that parents buy are often unsuitable for independent reading, and thus fail to satisfy their purpose.

Books for remedial learning

Our qualitative data suggests that the correlation between purchasing books and poor reading skills may occur because parents buy books for children when they fall behind in school or cannot read as well as their peers. In our third wave interviews, 80 percent of parents who bought books for their children did so because their children were falling behind in school. This suggests that it is poor reading skills and/or test performance that prompts book purchases.

"My child is not doing well in school at all and his teacher asked me to buy some books for him. So I bought him a storybook and a dictionary. I don't know if it helps improve his grades." (Parent, 2021P1)

"My kid came back and told me that her teacher asked her to buy some books so I gave her about 20 RMB. I didn't pay attention to what books she got. I don't know if they help her study because she can't even understand the textbooks in class." (Parent, 2021P2)

From this discussion, we also learn that parents do acknowledge the value of books in boosting learning, and given our earlier discussion on how bookstores can be scarce, it is possible that parents go to great lengths to be able to provide these books. However, the fact that parents only provide books when children are falling behind shows that parents perceive the purpose of books as limited to an academic remedial tool. Alternatively, this suggests that parents may be underestimating the value of reading books outside of school, as a path for acquiring skills or intellectual and cognitive growth which all children can benefit from, regardless of their academic performance.

Books are not suited for independent reading

When parents purchase books for their children, these books may go unread. Many rural Chinese parents believe that their children should read books to supplement their academic work. Therefore, they direct their children towards classics and poetry, which children may often be reluctant to read.

“As long as Dad agrees, we can buy the books. Sometimes, if the book is a fairy tale or something not related to school, Dad will say it is not useful. The books that we buy are those that he thinks are useful for my studies. They’re all workbooks.” (Student, 2041S1)

“My son is not interested in reading and I don't know how to encourage him. I bought him a book of the analects of one of Confucius’s disciples. But he hasn’t read it. He just wants to watch TV. I very rarely read with my kid.” (Teacher, 2022T1)

It is possible that a student may feel deterred from independent reading if their only option is a long, difficult, and complex classic from China’s antiquity. The misalignment of parents’ book preferences with their children’s reading interests may thus be a factor driving low levels of reading among rural children.

4. CONCLUSION

This paper presents a mixed methods analysis of a large-scale survey on independent reading in six rural counties in the Guizhou and Jiangxi provinces in China. Using the quantitative data, we show that although there is a clear, positive correlation between independent reading and test scores in reading, math, and Chinese, support for independent reading in rural China is low among students, parents, and school principals. This finding is made clear by very low rates of independent reading and reading confidence among students, and an inattention on the part of parents and principals to the potential benefits of independent reading. Purchase of independent reading books on the market or borrowing them from local school libraries is uncommon.

Our qualitative interviews show possible mechanisms that may constrain independent reading habits. Rural students often have little or no convenient place to purchase books. Moreover, the school environment focuses heavily on testing, and students may therefore find little time or support from teachers for developing independent reading habits. Finally, the home environment in many rural households seems to have internalized a negative view on independent reading whereby it is thought to substitute away from academic learning.

This study makes two additional findings about independent reading in China. First, as opposed to some of the literature (Coleman et al., 1966), we find no evidence that good readers are those who borrow books from school libraries. Our interviews with students, teachers and school principals suggest that library quality and an unappealing selection of books may limit the utility of libraries as independent reading resources. Our study also suggests that stakeholders view independent reading as a remedial solution for students falling behind in class rather than a valuable end in itself.

As the quantitative findings of the current study are correlational in nature, further research employing experimental methodologies is required to better understand the extent to which increased independent reading and independent reading programs can actually raise student outcomes, academic or otherwise. Even at this early stage, however, the promise of independent reading to remediate learning and help students become inquiring and motivated learners warrants attention from China's educators and policy makers alike.

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Figure 1. Study Provinces

Table 1. Sample sizes of quantitative surveys and number of interviewees in the qualitative study in Guizhou and Jiangxi Provinces, China

| | (1) | (2) | (3) | (4) | (5) |
|--------------------------|---------------|--------------------|------------|------------|----------------------------|
| | Students | Heads of Household | Teachers | Principals | Education Bureau Officials |
| Quantitative data | | | | | |
| Guizhou Survey | 2,152 | 2,152 | 156 | 14 | 0 |
| Jiangxi Survey | 11,080 | 11,080 | 576 | 120 | 0 |
| <i>Total Surveys</i> | 13,232 | 13,232 | 732 | 134 | 0 |
| Qualitative Data | | | | | |
| Jiangxi Interviews | 46 | 322 | 213 | 113 | 0 |
| Guizhou Interviews | 16 | 10 | 18 | 4 | 3 |
| <i>Total surveys</i> | 62 | 332 | 231 | 117 | 3 |

Data source: Authors' data, 2015

Table 2. Summary Statistics on Independent Reading in China's Rural Elementary Schools

| | (1) | (2) | (3) | (4) |
|--|--------|-------|-----|-----|
| | Mean | SD | Min | Max |
| <i>Student biographical data</i> | | | | |
| 1. Gender (1=Male) | 0.520 | 0.500 | 0 | 1 |
| 2. Age (Years) | 11.150 | 1.047 | 9 | 15 |
| 3. Boarding at school (1=Yes) | 0.093 | 0.291 | 0 | 1 |
| <i>Student independent reading behavior and attitudes</i> | | | | |
| 4. Spend more than 30 minutes on reading per day (1=Yes) | 0.176 | 0.381 | 0 | 1 |
| 5. Spend more than 60 minutes on reading per day (1=Yes) | 0.072 | 0.259 | 0 | 1 |
| 6. Students confident in reading (PIRLS scale) (1=Yes) | 0.116 | 0.320 | 0 | 1 |
| 7. Students think reading helps Chinese score | 0.392 | 0.488 | 0 | 1 |
| 8. Students think reading helps Math score | 0.206 | 0.404 | 0 | 1 |
| 9. Borrow books from school library (1=Yes) | 0.200 | 0.400 | 0 | 1 |
| <i>Parental and school principal independent reading attitudes</i> | | | | |
| 10. Parents buy books for students (1=Yes) | 0.097 | 0.296 | 0 | 1 |
| 11. Parents read to students (1=Yes) | 0.062 | 0.242 | 0 | 1 |
| 12. Parents think reading is important at home | 0.270 | 0.444 | 0 | 1 |
| 13. Principals think reading helps Chinese score | 0.691 | 0.461 | 0 | 1 |
| 14. Principals think reading helps Math score | 0.111 | 0.314 | 0 | 1 |
| <i>Student independent reading resources</i> | | | | |
| 15. Have less than 10 books at home (1=Yes) | 0.692 | 0.461 | 0 | 1 |
| 16. School has library (1=Yes) | 0.722 | 0.448 | 0 | 1 |
| 17. School library opens to students (1=Yes) | 0.337 | 0.472 | 0 | 1 |

Notes: 13,232 students participated in the survey.

Data source: Authors' survey, 2015.

Table 3. OLS Estimates of the correlations between reading and academic performance for students who spends 60 mins or more on reading per day

| | (1) | (2) | (3) |
|---|--------------------|--------------------|--------------------|
| | Reading Score | Math Score | Chinese Score |
| 1. Spends 60 mins or more on reading per day, 1=yes | 0.13*** (0.05) | 0.16*** (0.05) | 0.12* (0.06) |
| 2. School has a library, 1=yes | 0.03 (0.05) | 0.02 (0.05) | 0.01 (0.07) |
| 3. Borrows books from school library, 1=yes | 0.03 (0.04) | -0.02 (0.04) | 0.04 (0.06) |
| 4. Parents buy books for student, 1=yes | -0.22*** (0.03) | -0.34*** (0.04) | -0.18*** (0.04) |
| Controls | YES | YES | YES |
| R-squared | 0.057 | 0.061 | 0.074 |
| Observations | 13,232 | 6,944 | 6,288 |

Note: all regressions above include county fixed effects. Cluster-robust standard errors adjusted for clustering at the school level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Control variables include students gender, age, boarding status, family asset value, and school size.

Appendix Table 1. OLS Estimates of the correlations between reading and academic performance for students who spends 30 mins or more on reading per day

| | (1) | (2) | (3) |
|---|--------------------|--------------------|--------------------|
| | Reading Score | Math Score | Chinese Score |
| 1. Spends 30 mins or more on reading per day, 1=yes | 0.26*** (0.04) | 0.33*** (0.04) | 0.18*** (0.05) |
| 2. School has a library, 1=yes | 0.02 (0.05) | 0.01 (0.05) | 0.01 (0.07) |
| 3. Borrows books from school library, 1=yes | -0.06* (0.04) | -0.13*** (0.04) | -0.01 (0.06) |
| 4. Parents buy books for student, 1=yes | -0.22*** (0.03) | -0.34*** (0.04) | -0.18*** (0.04) |
| Controls | YES | YES | YES |
| R-squared | 0.063 | 0.071 | 0.077 |
| Observations | 13,232 | 6,944 | 6,288 |

Note: all regressions above include county fixed effects. Cluster-robust standard errors adjusted for clustering at the school level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Control variables include students gender, age, boarding status, family asset value, and school size.

Appendix Table 2. OLS estimates of the association between independent reading with reading skills and academic performance

| | (1) | (2) | (3) |
|---|--------------------|--------------------|--------------------|
| | Reading Score | Math Score | Chinese Score |
| 1. Confident in reading, 1=yes | 0.52*** (0.03) | 0.39*** (0.03) | 0.49*** (0.04) |
| 2. School has a library, 1=yes | 0.04 (0.04) | 0.03 (0.05) | 0.01 (0.07) |
| 3. Borrows books from school library, 1=yes | 0.03 (0.04) | -0.00 (0.04) | 0.05 (0.06) |
| 4. Parents buy books for student, 1=yes | -0.23*** (0.03) | -0.34*** (0.04) | -0.19*** (0.04) |
| Controls | YES | YES | YES |
| R-squared | 0.083 | 0.075 | 0.098 |
| Observations | 13,232 | 6,944 | 6,288 |

Note: all regressions above include county fixed effects. Cluster-robust standard errors adjusted for clustering at the school level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Control variables include students gender, age, boarding status, family asset value, and school size.