Mian Zhao. Leisure-Time Reading Habit of Older Adults in Shanghai of China, 1998 To 2008. A Master's paper for the M.S. in Library Science. May, 2011. 36 pages. Advisor: Robert M. Losee

This thesis investigates the leisure-time reading habit of elders in Shanghai, the largest city of China. The study explored the role of reading of Shanghai elders in their entire leisure-time habitual activities and the temporal changes of the reading behaviors in Shanghai elders from 1998 to 2008. The data come from the Shanghai Longitudinal Survey of Elderly Life and Opinion (SLOSELO), which has been conducted in 1998, 2003, 2005 and 2008. I find that reading is one of the major leisure-time activities in Shanghai elderly population, and in recent years, the reading habits becomes more popular when demographic factors such as age, gender and rural/urban residence are under control. I also find out that such an increasing trend of reading could be explained by the improvement of socioeconomic and health improvement in Shanghai elders. This study calls for attentions of the local librarians to adjust their information service for an increasing group of old age.

Headings:

Reading habit

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Leisure time

Trend

LEISURE-TIME READING HABIT OF OLDER ADULTS IN

SHANGHAI OF CHINA, 1998 TO 2008

by
Mian Zhao

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Approved by

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Robert M. Losee

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INTRODUCTION

Our time is currently experiencing an unprecedented global wave of population aging and a major consequence for librarians is that the elderly population is making up a significant user group for nowadays and future libraries. According to the estimation of the United Nations (2008), the world elderly population aged over 65 years old will increased from 6.8% in the year of 2000 to 16.2% in 2050. In the less developed areas, the ratio is from 5.0% to 14.6%, while in the developed regions, the ratio increases from 14.4% to 26.2%. Therefore, it is very likely that in the year of 2050, for the western library system, one of four users will come from the elder group. In the developing world, due to the modernization and urbanization process within these societies, not only is the elderly population growing fast, these elders will also be more likely to be educated rather than illiterate. Therefore there should be a rapid growth of elderly users for the library systems in the developing world. In sum, the library system of both developed and developing countries is facing a newly-rising user group featured with old age.

The population structure dynamics greatly change the audience structure of the library system and pose a major challenge for the new generations of librarians. It is expected that information access and utilization of elders will make up a major content of the library services in the very nearly future. An important and interesting issue is that the aged population often has unique motivations, preferences, and patterns in using the library system. To understand the characteristics of elders interacting with the library system could be a key for us to reshape our service in face of the future. And to better serve this special

group is a wise direction to move forward for librarians who are planning to advance our information service in a new era.

Elders are linked to modern library system in their own ways. Late life represents the last and unique stage for the human beings. Being old has many critical implications. First, aged people decline functionally (Masoro and Austad 2006). They encounter increasing daily life difficulties which hardly happen in youth, and develop various strategies for coping. Second, elders tend to be isolated from the social and economic activities of the society (Binstock and George 1995). They are away from their job positions and the familiar social contacts. All these biological and socioeconomic status changes could greatly change the behavioral patterns in information access and utilization for elders.

The reading habit is one of those behaviors of elders, which are significantly affected by the aging process of human beings and reading habit in elders' leisure time is a critical topic for the library science, as may help the library system to be better prepared of the challenges from population aging. This could be particularly true for the developing societies. Firstly, the two third of the world aged population is currently hosted in the developing world and these developing societies also have a faster aging speed than the developing (Kinsella and He 2008). Thus, the developing societies may face a large elderly population as the incoming new user group. Secondly, this growing population is also more educated than previous generations because of the socioeconomic advancement of these developing countries after the Second World War. That is, the incoming new user group is not only aging, but also more likely to be capable to read in the developing world. At last, the developing societies generally do not have enough public resources to establish library infrastructure and provide satisfactory information service. Therefore they may lack the

capacity to encounter the challenge of increasing demand in library services. All the factors make it very urgent to study reading habit of the elderly population in the developing world.

At least two of the major missions for the future library system to face the population aging could aim to help old people with declining function for easy information access, and to encourage people to spend more leisure time on reading. Moreover, it should be mentioned that to advise elders for more reading does not only do good to the library system itself, but also benefit the welfare of the elders themselves. "There is strong evidence of the importance of reading in fulfilling the needs of the older person for entertainment, knowledge, the satisfaction of intellectual curiosity, cultural development and companionship..." (Harvey and Dutton 1979:213). In this way, the library system goes beyond its own sphere to be an effective mechanism of public health promotion.

RESEARCH QUESTION & SIGNIFICANCE

The current study is contributing to this topic by focusing on the status and change of leisure-time reading habits of the elderly in Shanghai from the year of 1998 to 2008. This study has five specific aims: 1) to describe the relative position of the reading habit of Shanghai elders in the entire leisure-time habitual activities; 2) to study the how demographic, socioeconomic and health factors may influence the leisure-time reading habits in Shanghai elders; 3) to document how habitual reading activities changed in Shanghai elders for the most recent decade; 4) to explore how demographic, socioeconomic and health factors could explain the observed trends; 5) to examine how changes of reading habits of Shanghai elders over recent years could be different across demographic and socioeconomic groups.

This study has its unique significance. This study for the first time examines the reading habits of elders in the most aged city of the world most populous nation, China. China keeps holding the largest elderly population in the world now and in a foreseeable future (Flaherty et al. 2007). In the year of 2010, China's elderly population (65+) will reach 111.4 million, 26.7% of the world elderly population; from 2010 to 2050, the elderly Chinese will be tripled to 330.6 million, 23.3% of the domestic population and 22.2% of the world elderly population (United Nations 2008). Shanghai is one of major economic and financial centers of China and also the most populous (13.9 million in 2008) and aged city in the country (15.4% age 65+ in 2008) (Shanghai Statistics Bureau 2009). In 2050, the local elderly population (age 60+) is projected to be about 2/5 of the total population, about 30% higher than the Chinese average (Xu et al. 2006a).

Table 1: The Number of Public Libraries of China, from prior to 1980 to 2009

	Prior to 1980	1981-1990	1990-2000	2001-2009	Total
National Level	0	1	0	0	1
Provincial level	7	9	12	9	37
City level	43	94	94	90	321
County level	348	675	623	845	2491
All	398	779	729	944	2850

Source: Ministry of Culture, People Republic of China, 2011.

Due to the sheer population size to serve, the library systems of China also have special weights for researchers to pay more attentions. The rapid economic growth in China has driven much public investment to the national library system, which has been witnessing a quick round of development in the recent decades. As can be seen from Table 1.1, the development of public libraries in China is very fast after 1980s: for

provincial-level public library, almost 10 new libraries have been established every ten years since 1980s; for city-level public library, about 90 new ones have been established every ten years since 1980s; and for county-level public library, about 600 new ones have been established every ten years from 1980s to 2000s and from 2001 to 2009, as many as 845 new libraries have been set up.

As the largest city of China and a major showcase for the Chinese modernization process, Shanghai is an important case for China in many aspects. Shanghai long served as an economic center in the pre-reformed China (1950s to late 1970s), its importance in the national economy fell down in the beginning phase of the Chinese market reform (late 1970s to 1980s). However, since early 1990s, due to the regained attentions and support from the central government, the city of Shanghai has been experiencing an unprecedented round of economic development in history. The investigation period in this study (1998 to 2008) indeed covers the best part of Shanghai economic re-invigoration until present: in this period, the local gross domestic production (GDP) increased by about 3.7 times; the local fiscal income by 5.1 times; and the local fiscal output by 4.5 times (Shanghai Statistics Bureau 2000, 2009).

With the economic boom, the local library system is also developing very fast. Currently, Shanghai has established the national largest public library system: from 1994 to 2009, the "Universal Library Card" program (i.e. users could access to the library service in different stations via a same card) has be started and expanded to 161 service stations and the current circulation of this program reached 17.5 million volumes (Shanghai Library 2010); The municipal government invested to build up an information access network. By October of 2009, there are totally 1,930 information access center or

stations, which include one city-level center, 19 district/county level center, 441 street/town level states and 1423 neighborhood/village stations (Shanghai Library Association 2010).

Based on the discussion above, I propose that the results of the study could make a meaningful contribution, both academically and practically. It may help the nowadays Chinese librarian estimate the potential demands of library usage from the old population in Shanghai and further help develop new strategies and models for the local library system to better serve the new generation of users. The observed changes in Shanghai, though not immediately applicable to the overall situation in China, may be likely to replicate itself in many other large cities in China, sooner or later. More broadly speaking, this study may provide valuable insights about how elders in a developing country could change their reading habits with the process of modernization and urbanization, thus could generate useful implications for other developing regions in the world. Doing such an exploratory study in this rarely-studied field, I hope the results from this study may open a gate for more investigations in the future, and may help build a more general understanding about reading habits of the elderly population.

LITERATURE REVIEW

Studies have shown that the physical, mental, sensory declines due to the aging process may effectively reduce the interest and behaviors of elders for reading. Reading is an advanced intellectual process, which involved many cognitive functions. The reading comprehension of elders is highly associated with vocabulary, decoding, phonological awareness, and morphological awareness (Champley 2005, 2008). Moreover, physiological wellness is also a necessary condition for implement of reading behaviors and maintenance of

reading habits. Therefore, either loss of vision, inability to walk, or dementia, which are all possibly health outcomes in old age, could all seriously hinder the reading behaviors of the aged people. In sum, "……physical and psychological deterioration associated with aging also affects reading behavior. Some of the deterioration that is a part of the natural aging process affects information processing and retrieval." (Aiex 1987: 280).

However, away from the previous full-time employment and social duties, elders also have much potential time to spend for various leisure-time activities including reading, as may increase their likelihood of developing reading habits in comparison with younger cohorts. In this case, it has been often believed that elderly people could spend more time in reading than youth. For instance, it has been shown that about 70% elder Americans aged over 65 read newspaper in an average week, however, for younger people aged 18-44, the ratio is less than 55% (Journalism.org 2004).

It is still an arguable topic about whether elderly or youth spends more time in reading (Romani 1973; Shanron 1973). According to a well-known review, Karmin (1984) claimed that "a review of the literature over the past 21 years indicates that older adults as a group do not read books or visit the public library as often as younger adults." (p.22), however, "age in and of itself does not seem to be the reason." In this review, less education and social inactivity were considered as two major mediating factors for the negative effect of aging on reading. Because of the improvement of education in the recent 50 years, the isolation in late life could become a more significant issue in the discussion above. Reading is positively related to social connections, although reading itself is often an individual behavior (Grubb 1982). The possible mechanisms could be that readers tend to communicate with each other; socially-open personality often also

holds curiosity to the external world and thus keeps an interest in reading. Therefore, aged person may lose their social ties as a result of getting away from previous economic and social participations, and thus they may further lose their interest in knowing the external world via reading.

Such an argument that elders tend to read less is further supported by a study comparing the leisure-time activities between younger old people and oldest old people (Hendon 1989). Basically, Hendon found out that leisure time activities declines for older people except for television watching; however, although reading declines, it is with the least rate among other activities.

There are some other interesting findings about the reading habits of elders. For instance, Ngandu and O'Rourke (1977) found out that elders read more newspapers and magazines than other materials and the top interests were about religion and news; Scales and Biggs (1983, 1987) observed that women has less difficulty in reading advertisement than men and married elders purchased more magazines and newspapers than elders without spouse.

On the other hand, researchers have long paid attentions to the temporal change of reading habit in the western societies. The modernization process of the western world since the sixteen century increased the overall education level of the western populations. In a historical perspective of view, the reading habits were developed among elders with an increased rate of literacy. However, in the recent decade, people of western societies started to experience a broad decline of leisure-time reading (Cushman et al. 1996). Knulst and Kraaykamp (1998) had listed some of the major research results to support

such a finding: for instance, proportion of U.S. citizens reading a daily newspaper decreased from 85% in 1957 to 63% in 1977 (Robinson 1980); meanwhile, Americans spent less time on reading, from 3.7 hours in 1965 to 2.8 hours in 1985 (Cutler, 1990; Robinson, 1990); A similar trend was also observed in France, the newspaper readers declined from 60% in 1967 to only 41% in 1988 (Samuel 1996). Knulst and Kraaykamp (1998) also reported that from 1955 to 1995, the proportion of time spent on reading as the whole leisure time activity reduced sharply in the Netherland elders, approximately from 25% to 15% for both men and women.

A recent report from the National Endowment for the Arts has sent a more alarming message based on their national survey (2007, p5): "The story the data tell is simple, consistent, and alarming. Although there has been measurable progress in recent years in reading ability at the elementary school level, all progress appears to halt as children enter their teenage years. There is a general decline in reading among teenage and adult Americans. Most alarming, both reading ability and the habit of regular reading have greatly declined among college graduates." So, media define it as a generation of not reading (Nearby 2007). Considering the fact that leisure time lifestyle is highly inheritable from the younger time (Roberts 1999; Thurston and Green 2004), reading behaviors in the late life are very closely associated with the reading habits in the childhood and adolescence (Kingston 1981). It is predictable that these not reading generations could result in a substantial decline of reading habits among elders in the a few decades. One major reason for these observed declines in reading could be that the more television programs as a major form of leisure-time entertainment has attracted people away from reading the printed media. As reported by the National Endowment for

the Arts, half of the total daily leisure time of all Americans aged 15 and older has been spent on watching TV.

Facing the population aging, more studies are definitely needed for the library science to better understand the features of reading habit, its influence factors and temporal trends among the elderly people. In particular, the current literature in the library science about the aged population and library services rarely mentioned about the developing societies (Asla, Williamson and Mills 2006; Kleiman 1995; Wicks 2004). To my knowledge, there are currently no studies on the changes of reading habits in Chinese elderly population. Again, this seems more urgent in consideration of the fact that two third of the world elderly population are actually living in these underdeveloped societies, and due to the underdeveloped economic conditions, most of these elders could be in greater need of information services than their western counterparts.

Moreover, the existing literatures about trends of reading habits based on the western societies could not be applied to China without carefully considerations. The reason relies on that modernization and the introduction of TV-watching are happening in the same time in China. One the one hand, the economic growth is quick and the education improvement is significant in China, especially in its metropolitan areas such as Shanghai; on the other hand, the TV is introduced as a major form of leisure time entertainment with the economic development. Therefore there should be at least two competing forces in determining the change of reading behaviors of the elderly Chinese population. Under such a situation, it is needed to investigate the reading habits of Chinese elders.

METHOD

Data

My study data come from the Shanghai Longitudinal Survey of Elderly Life and Opinion (SLOSELO). This is a longitudinal investigation on Shanghai residents aged over 60 years. The survey is administrated by Shanghai Research Center on Aging as a branch of the Shanghai municipal government. Until present, the survey has conducted four waves in 1998, 2003, 2005 and 2008.

Here is a brief discussion about the sampling strategy of SLOSELO. It followed a stratified and multistage random sampling procedure. In the baseline survey of 1998, 3,525 were determined as the sample size, approximately 1.5‰ of the elderly population in Shanghai. These cases were sampled through the following steps. Firstly, four zones in Shanghai were delimited in Shanghai and three districts were selected in each zone; and one street, town or village was chosen in each district: downtown (three streets from Huangpu District, Xuhui District, and Yangpu District), peripheral of city proper (three streets from Zhabei District, Changning District, and inner part of Pudong District), immediate suburbs (two villages from Jiading District and the outer part of Pudong District, one town from Minhang District), and outer suburbs (two villages from Qingpu District and Nanhui District, one town from Jinshan District). Based on the relative gender/age structure, the total sample was assigned into the four zones and then into each street, town or village. Secondly, three candidate communities were randomly selected from each street, town or village to set up a sample frame. All qualified elders from the first community were included into the sample framework and if not enough, elders from the other communities would be used. Thirdly, based on the assigned sampling list by

gender and age, subjects were randomly selected from the sample frame. The same strategies were always adopted in later waves with an additional replenish sample to replace attritions. Only 2,072 elders were interviewed in 2005 and 2,831 elders in 2008 due to budget shortages. This reduction of sample size should not be a serious problem because I still have enough sample size in these two waves.

The individuals younger than age 65 are dropped in the analysis. People living in institutions were also excluded due to the low institutionalization prevalence of Shanghai seniors (less than 3%). Consequentially, the total sample size was 9,860 if four waves combined. It should be noted that such a sample size contains repeated measurements for a same participants across the four waves. The sample attrition and the missing values of SLOSELO are within normal range for surveys of elderly populations and all missing values in the sample have been imputed using a regression method.

Measurements

The main variables are leisure time activities. SLOSELO has a detailed classification on elder's leisure time activity, including 16 major leisure-time activities o elders such as reading, exercise, calligraphy & painting, playing card, raising flowers and birds, listening to music, watching TV, watching movie, singing & dancing, traditional opera, going to park, collection, photography, tourism, fishing, and chatting. For each of these activities, SLOSELO specifically ask respondent, "Do you have this habit in your leisure time?" And the answering options are yes or no.

In the trend analysis, the major independent variable is years from 1998 to 2008. I take it as a categorical variable with values of the four investigation years. The reason is

that the socioeconomic development in Shanghai has changed greatly in this period and I consider the trend of the reading habit may not simply follow a linear pattern across the ten years from 1998 to 2008.

In order to understand the responsible factors for the observed trend, I will also add the following variables in the model of the trend analysis. Demographic factors are age, gender and rural/urban residence. Socioeconomic conditions include self-reported economic status (good/poor) and educational achievement (illiterate/primary and middle school/high school or above). A comorbidity index is used for control for the health conditions. This index contains eight major chronic diseases in the Chinese elders such as hypotension, coronary heart disease, stroke, diabetes, bronchitis, cancer, prostatitis and arthritis with a score ranging from 0 to 8. According to He and colleagues (2005), this index reflect well the major chronic diseases in the Chinese population.

Activity of Daily Life (ADL) was also included as another health index. For ADL items, SLOSELO included 8 items such as eating, dressing, moving on and off bed, transferring indoor, washing face and brushing teeth, toileting, bathing, and moving upstairs and downstairs. Cognitive impairment as another health covariates was measured using ten questions including current date and month, date for the Moon Festival on the lunar calendar, serially subtractions subtracting from 20 by 3, home address, living district or county, age, number of minutes in a hour, the year of establishment of People's Republic of China, and the name of the first prime minister of China. Cognitive impairment scores ranged from 0 to 10.

Analytical Strategy

To fulfill Aim 1, namely to describe the relative position of the reading habit of Shanghai elders in the entire leisure-time habitual activities, I will use a frequency table to summarize all leisure-time activities and rank them according to the frequency. This statistics is only based on data from 2008. I think it is not proper to pool all data together to present this result because the data contain repeated measurements for a same person. And moreover the year of 2008 is the most recent investigation time so that it could be more useful to describe the current status of leisure-time activities of the Shanghai elders. Additionally I also provide a frequency table by gender, age group (65-80 versus 80) and rural/urban residence.

For Aim 2, i.e. to study the how demographic, socioeconomic and health factors may influence the leisure-time reading habits in Shanghai elders, I will use a random-intercept logit regression model. The dependent variable is reading, and demographic, socioeconomic and health factors will be included as independent variables. The reason to use a random-intercept logit regression model is as below: firstly, the dependent variable is dichotomous, so a logit model is needed; secondly, the panel data contained repeated measurement of a same participant and we need to correct the intra-correlation of the same individual, so we introduce a random intercept for each participant to address this issue.

For Aim 3, i.e. to document how habitual reading activities changed in Shanghai elders for the most recent decade, I use a frequency table to summarize the frequency of each leisure-time activity across the four investigation years. In this way, I could not only examine the change of the reading habit itself, but also could compare its temporal trends

with other activities.

For Aim 4, i.e. to explore how demographic, socioeconomic and health factors could explain the observed trends, I also use a random-intercept logit regression model for this analysis, and additionally add the variable of year as one of the independent variables. I also develop three stepwise models to examine how different factors influence the trends of reading habits. In the first model, I control for demographic variables; the second model adds socioeconomic covariates; and the third model includes health factors.

At last, for Aim 5, namely to examine how changes of reading habits of Shanghai elders over recent years could be different across demographic and socioeconomic groups, I constructed the same model of Aim 4 by demographic and socioeconomic groups. This could examine the interaction effect between the time and the demographic and socioeconomic groups.

RESULTS

Table 2 presents descriptive results of the major 16 leisure-time activity of Shanghai elders in the year of 2008. As can be seen from the table, reading was one of the major activities for local elders, ranked the third about the 16 leisure time activities. About 38% Shanghai elders took reading as one of their leisure time habits. It is noteworthy that watching TV keeps the most popular leisure time activity (78%) in Shanghai elders for the four investigation years. And the other most favorite habits for Shanghai included chatting (44%), exercise (32%), going to park (16%), playing card (16%), and raising flowers and birds (10%). There are also some minor leisure-time habits such as tourism (8%), watching movies (7%), listening to and play music (6%), playing traditional opera

(4%), singing or dancing (3%). Rarely elders in Shanghai had the habits of calligraphy & painting (2%), fishing (2%), photography (1%) and collection (1%).

Table 2: Leisure-time activity of Shanghai elders in the year of 2008

Rank	Leisure-time habits	Percentage
1	Watching TV	77.7
2	Chatting	44.4
3	Reading	37.7
4	Exercise	32.3
5	Going to park	16.1
6	Playing card	15.8
7	Raising flowers and birds	10.4
8	Tourism	8.4
9	Watching movie	6.9
10	Listening to and playing music	6.4
11	Traditional opera	4.2
12	Singing & dancing	3.2
13	Calligraphy & painting	2.1
14	Fishing	1.8
15	Photography	1.2
16	Collection	0.8

Table 3 shows the leisure-time activities by gender, age group and residence. As can been see from table, with regards to the leisure-time habits, men are generally more active than women, younger olds are more active than oldest olds, and the urban residents are more active than rural residents. The disparity of reading between these three pairs of comparison is the most apparent. The proportion of men with reading habits were twice of that of women in Shanghai elders; the contrast between younger old and oldest old is also large, i.e. 41% versus 28%; in particular, the popularity of reading habits of urban

Shanghai seniors were five times in comparisons with local rural elders.

Table 3: Leisure-time activity of Shanghai by gender, age group and residence, 2008

Leisure-time habits	By gender (%)		By age group (%)		By residence (%)	
	Man	Woman	65-79	≥80	Urban	Rural
Watching TV	79.1	76.4	79.6	71.9	79.1	63.4
Chatting	39.8	48.2	45.2	41.9	47.0	44.1
Reading	51.7	25.9	41.0	27.8	40.6	8.4
Exercise	26.7	24.2	27.8	18.0	26.8	10.4
Going to park	16.8	15.5	17.7	11.3	17.4	3.5
Playing card	23.4	9.3	16.3	14.2	16.0	13.9
Raising flowers and birds	13.9	7.5	10.8	9.1	11.1	3.0
Tourism	9.1	7.8	9.9	4.0	8.7	5.0
Watching movie	6.8	7.1	8.0	3.8	6.9	7.4
Listening to and playing music	7.6	5.4	7.4	3.5	6.9	1.5
Traditional opera	3.0	5.1	4.7	2.5	4.3	3.0
Singing & dancing	2.0	4.2	3.8	1.3	3.2	3.0
Calligraphy & painting	3.6	0.8	2.4	0.9	2.3	0.0
Fishing	3.3	0.5	2.1	0.7	1.9	0.5
Photography	1.9	0.5	1.5	0.2	1.2	0.5
Collection	1.4	0.3	1.0	0.2	0.9	0.5

These group disparities were also confirmed in Table 4, which contains the result from random-intercept logit regression model. According to the table, every year increase in age reduced the likelihood of reading by 2%; female was 60% less likely to read in leisure time than male; rural residents was about 70% less likely to read than their urban counterparts. The table also reveals that good financial status increased the reading habits by 42%. Education achievement had extraordinarily substantial impact on the reading behaviors for elders. People with education over ten year will be 168 times more likely

to read than people without any education. Health conditions were also associated with the reading habits for Shanghai older adults. People with cognitive impairment and ADL disability were less likely to read in their leisure time by 35% and 47%, respectively.

Table 4: Influence Factor of Habitual Reading in Shanghai Elders

Variables	Odds Ratio
Age	0.98**
Female	0.40***
Rural	0.29***
Financial status: Not good	----
Good	1.42**
Education: No schooling	----
1-9 year schooling	17.0***
10+ year schooling	168.3***
Comorbidity	1.04
Cognitive impairment	0.65***
ADL disability	0.53***
Rho	0.32
-LL	3763.6

* $p<0.05$, **$p<0.01$, ***$p<0.001$

Table 5 describes the time changes of each leisure-time activities for Shanghai elders from 1998 to 2008. As can be seen from the table, the reading habit increased gradually from 28% in 1998 to 38% in 2008. It is also interesting to see that TV watching also increased its popularity at the same time from 66% to 78%, while exercising declined from 44% to 32%. A sudden decline was observed in listening to music. In fact, this could be due to an investigation inconsistency. In 1998, 2003, 2005, the question for

the music listening was worded as "listening to music", but in the 2008 wave, the wording is changed to "listening to and play music". In this case, it is not a surprise that people only listened to music at leisure time may not answer yes to this question any longer. I remind readers about this issue in the following parts of the paper.

Table 5: Descriptive Results of Leisure-time Activities of Shanghai elders, 1998-2008

Leisure-time habits	1998(%)	2003(%)	2005(%)	2008(%)
Watching TV	65.7	68.3	72.3	77.7
Chatting	37.4	47.7	46.5	44.4
Exercise	44.2	40.0	33.9	32.3
Reading	28.3	33.4	33.6	37.7
Playing card	18.2	16.7	16.9	15.8
Going to park	16.0	17.1	16.3	16.1
Listening to music	19.3	14.5	14.8	6.4
Raising flowers and birds	10.8	10.8	8.1	10.4
Tourism	5.0	6.6	7.7	8.4
Watching movie	4.6	7.6	8.0	6.9
Calligraphy & painting	2.6	2.4	1.6	2.1
Traditional opera	8.0	3.0	2.9	4.2
Singing & dancing	2.5	3.0	2.4	3.2
Fishing	2.4	0.9	1.0	1.8
Photography	1.1	1.4	1.1	1.2
Collection	0.9	1.0	0.5	0.8

To better illustrate the trend, I choose four major leisure time habits such as TV watching, chatting, exercising and reading, each of which had a proportion of practitioners over than 30%. For these four habits, I make a figure to show the time trend (Figure 1). As we can see from this figure, TV watching and reading both increased

gradually, while chatting and exercising indeed declined in recent years. This figure

could be an important proof showing the Shanghai elders were becoming more sedentary

in recent years.

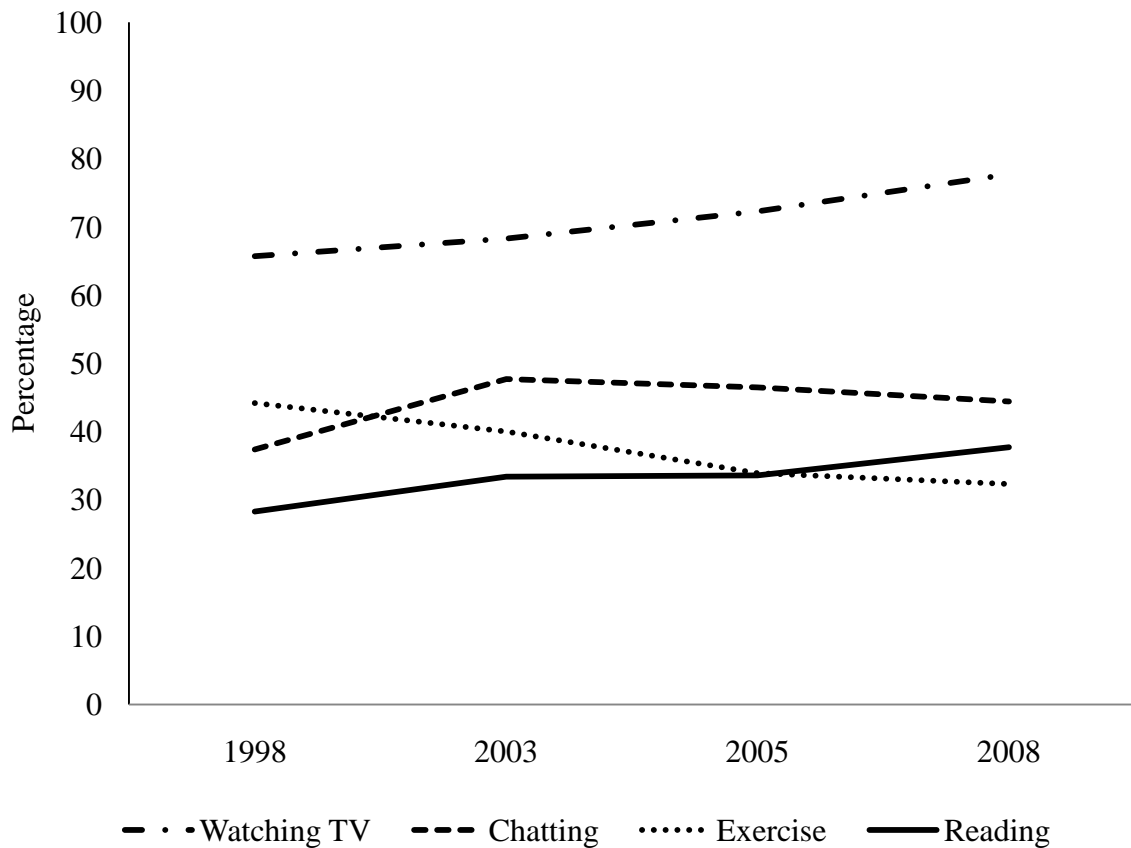Figure 1: Major Leisure-time Activities of Shanghai Elders, 1998 to 2008

Table 6 presents the trend of reading habit of Shanghai elders based on a series of

random-intercept logit regression models. As can be seen from Model I with controlling

for demographic variables, Shanghai elders tended to develop more reading habits in the

leisure time for the past decade. In comparison with the baseline year of 1998, Shanghai

elderly had 58%, 25% and 53% more likelihood to read in leisure time, respectively.

However, when economic status and education achievement were added in Model II, the

observed trends disappeared and even reversed after the year of 2005. Such a pattern was

further confirmed when more health covariates were under control. In comparison with the year of 1998, Shanghai elders were less likely to develop habitual reading behavior by 30% and 20% in 2005 and 2008 respectively.

Table 6: Trend of Habitual Reading in Shanghai Elders, 1998 to 2008

Variables	I	II	III
Year: 1998	----	----	----
2003	1.58***	1.01	0.98
2005	1.25	0.78*	0.70**
2008	1.53***	0.87	0.80*
Age	0.91***	0.96***	0.99*
Female	0.10***	0.38***	0.40***
Rural	0.05***	0.26***	0.28***
Financial status: Not good		----	----
Good		1.63***	1.43**
Education: No schooling		----	----
1-9 year schooling		22.4***	17.5***
10+ year schooling		226.8***	174.6***
Comorbidity			1.04
Cognitive impairment			0.64***
ADL disability			0.52***
Rho	0.59	0.33	0.32
-LL	4736.7	3846.7	3755.4

* p<0.05, **p<0.01, ***p<0.001

Table 7 checks the models by gender, age group and rural/urban residence, which may help to illustrate the interaction effect for different demographic groups. According to the table, the declining trends after the year of 2005 appeared more significant for urban residents than rural ones; although females were less likely to read in their late life,

the rural females were even less likely to read than the urban ones. Holding a good financial status played a more significantly positive role in reading promotion for women rather than men, and it also worked better for younger old people and urban residents. To receive education over than 10 year greatly enhanced elders to read, and the effect was much larger for women than men, and for urban residents than rural ones. At last, the table also shows that the health conditions did not differ greatly across the gender, age group and rural/urban residents.

Table 7: Trend of Habitual Reading by Gender, Age Group and Residence, 1998 to 2008

Variables	By gender		By age group		By residence	
	Man	Woman	65-79	≥80	Urban	Rural
Year: 1998	----	----	----	----	----	----
2003	1.04	0.89	0.99	0.83	0.89	1.56
2005	0.78*	0.62*	0.75*	0.44**	0.70**	0.55
2008	0.80	0.78	0.76*	0.74	0.78*	0.82
Age	0.98*	1.00	----	----	0.98*	1.01
Female	----	----	0.40***	0.49***	0.43***	0.23***
Rural	0.29***	0.21***	0.27***	0.41**	----	----
Financial status: Not good	----	----	----	----	----	----
Good	1.32	1.62**	1.53***	1.28	1.54***	1.04
Education: No schooling	----	----	----	----	----	----
1-9 year schooling	11.6***	24.5***	16.9***	22.4***	20.9***	8.7***
10+ year schooling	96.3***	353.7***	177.2***	165.2***	206.5***	61.4***
Comorbidity	1.06	1.02	1.05	0.99	1.04	1.06
Cognitive impairment	0.64***	0.64***	0.59***	0.68**	0.65***	0.56***
ADL disability	0.45***	0.63*	0.49***	0.52***	0.54***	0.41*
Rho	0.33	0.34	0.32	0.29	0.32	0.28
-LL	2190.9	1547.3	3118.2	648.7	3319.3	432.1

CONCLUSION & DISCUSSION

Reading habit, either for books, magazines and newspapers, is one of major activities of elders in late life and is directly associated with the possible visits of libraries and use of the information services (Weinstein-Shr 1995; Karmin 1984). Numerous studies in the western countries have shown that the elderly population has its unique feature, motivation, capacity and strategy in reading, in comparison with the younger population (Alligton and Walmsley 1980; Champley et al. 2005, 2008). It is important for the new generation of libraries to understand the reading behaviors of this special group, especially in consideration of the fact that the world is aging very rapidly and the elderly population is making up a structural change for the audience of future library systems.

The study firstly finds out that among all of the leisure-time habits, reading is a major one for Shanghai elders. This finding is consistent with many reports from the western world, i.e. reading is a major part of elderly life (Ngandu and O'Rourke 1977; Scales and Biggs 1983, 1987). This is good news for the local library system that Shanghai elders enjoy reading in their late life, as indeed makes up a huge and growing user group.

However, it should also be noted that watching TV was still the dominating form of leisure-time activity in Shanghai elders. This is a typical phenomenon of modernization. According to the experience of the western societies, in the past century, watching TV has quickly risen up as the dominating leisure time activity (National Endowment for the Arts 2007). The entertainment from the television program, ever since invented, has soon occupied the leisure time for people of our time, and the elders are not exceptional at all. What is happening in Shanghai is just a historical replication. However, it should be aware that the popularity of television may not be a major barrier for elders to visit and utilize the

library, because the visual media is also an important component of the library collection (Handman 2002). In this sense, the local library service should be also related to an even larger audience group, which is about 80% of local elders.

Another relevant issue here is the usage of internet among Shanghai elders, which the survey did not investigate. To my knowledge, there is less statistics specifically for the elderly population using internet. According to a news report, there are about 500 thousand elders frequently using internet (Xinhua Net 2006). In comparison with youth, the proportion of elders using internet in Shanghai may be rather low. However there is evidence that internet use is increasing among western elders (Leavengood 2008), and with the internet service further developed in China, we may assume that to use internet could rise up a new form of leisure time habit among Chinese old people, and may compete with watching TV and reading for the leisure time of elders. In such a scenario, the library system should be encouraged to play a role in such a transition.

To examine the gender, age, and residence disparity of the habitual reading behaviors among Shanghai elders provides some very interesting and useful results. I find that these disparities are very significant for reading habits. More specifically, men, younger older adults and urban residents tended to read more in their leisure time, in comparison with women, oldest old and rural residents. These differences are very substantial, in comparison with disparities of other leisure time habits: the percentage of men with reading habit reached about twice of that for women, the percentage of younger olds with reading habit was about 1.5 times of that for oldest olds, and the percentage of urban residents with reading habits was as high about five times as that for rural residents. As a practical suggestion based on these results, the local library system should pay more attentions to

their gender- age- and residence-specific services and focus more efforts to promote the library use of women, oldest old and rural residents.

Besides the crude distribution analysis of reading habits by gender, age and residence, the results from modeling influence factors for elders' reading habit provided further information about how reading behaviors could be different across population groups. The disparities of gender, age and residence observed above were confirmed in the model. I also find that the education and economy status had great impacts on the reading behavior. In particular, for an elder with over ten years' education in Shanghai, the likelihood of having reading habit was about 168 times in comparison with an elder with no education. It is true that the best way of reading promotion is education. Moreover, as expected, elders with cognitive impairment or physical disability were less likely to read in their leisure time. This may imply a need for the local library to provide more convenience of library use for the disabled elders.

Considering the huge impact of education on reading habit, it should be emphasized that China still holds a large elderly population without any education (Mu et al. 2005). This is because the currently elderly populations are actually from birth cohorts before 1950s, when China had been in a very underdeveloped stage for socioeconomic development. With time passing by, more and more educated elderly generations may replace the current groups. Due to the high association between education and reading, the local library will definitely see a growing demand from elders in the next few decades.

Another issue deserves attention. A substantial part of the gender, age and residence disparity in reading observed in the previous crude statistics could be attributed to the

different education levels between these groups. This is because in China, with regards to education, women, oldest olds and rural residents are seriously disadvantaged in comparison with men, younger olds and urban residents (Mu et al. 2005). However, it is also notable that these disparities still exist even after the education was controlled in the model for influence factors of reading habit. Many factors except education could be responsible for the residual disparity. For example, it is very likely that the lack of library infrastructure in the rural part of China may hinder the local elders to get information services. Obviously, more studies are needed to further understand these disparities in order to provide more and better advices for the local libraries.

According to the crude proportions in the trend analysis, the study shows that reading increased gradually from 28% to 38% in the ten years. Averagely, there was 1% increase for each year. When I compared reading with other habits, the four major leisure-time habits had different patterns in terms of the over-time changes as illustrated in the figure. That is, both reading and watching TV increased gradually, however, chatting and exercising declined. Such a pattern indeed imply an increasing demand for information service and suggest a rising challenge from the elder users for the Shanghai library system.

Nevertheless, these patterns may suggest an interesting lifestyle trend in the Shanghai elders. Chatting is a social activity and exercise is a physical activity, however watching TV and reading are all individualistic behaviors, neither involving social interactions and/or significant physical movements. Is this pattern telling us Shanghai elders are more isolated and sedentary? Are more TV-watching and reading behaviors in the late life responsible for this? In general, the social and physical activities such as

chatting and exercise are very important for the health of elders (Nelson et al. 2007; Gu et al. 2008). They are also feasible ways of saving public health costs of elders (Fries et al 1993). I think further studies are needed to clarify whether watching TV and reading have squeezed out the possibility of doing chatting and exercise in the elders' leisure time.

Although in terms of crude statistics result, both reading and TV watching increased popularity in the recent decade, the trend of reading was reversed when socioeconomic and health factors were under control in the random-effect logit models. This is a very intriguing finding: When demographic variables were under control, the trend appears to be rising. That is, for elders with same gender, age and residence, those surveyed in later wave were more likely to read in leisure time. However, when I further consider the socioeconomic and health covariates, those surveyed in later wave were less likely to read in leisure time. This result shows that the previous increase over time could be explained by the improvement in the socioeconomic status and health. More clearly speaking, it is just because Shanghai elders became more educated and healthy, the elderly population become more likely to read in their leisure time. I think, through this analysis, I have found out the major reason for the increasing reading habits of Shanghai elders in the recent decade.

However, it is still a puzzle that why the reading habits could be declining after controlling for the socioeconomic and health variables. One possible reason is that more television watching in the recent years may attract elder people from reading. According to the report from western societies (e.g. National Endowment for the Arts 2007), it is very likely that the rise of watching TV has taken over the time for many leisure-time activities including the behavior of reading. Such an explanation needs further studies to

confirm.

The results between the time trend and its collative by gender, age and residence confirmed what we have found in the previous analysis and provide addition information about some special audience groups in using the library service, which need close attentions of the local library system. For instance, the rural residents, especially the women, were particularly less likely to read; and on the other hand, women with good financial status and education were much more likely to read. It suggests that the local library should pay more attentions to help women living in rural areas to have opportunities accessing to the information service. And it also seems that a reliable way to promote reading in women is to improve their economic and education levels, as has to involve the efforts from agents beyond the library system.

In sum, this study for the first time examines the reading habit of elders in Shanghai of China, a largest city of a developing society which hosts the world largest aged population. In this study upon the reading habit of the Shanghai elders, I have examined the role of reading activity of elders in all leisure time activities, reported this role by gender, age group and rural/urban residence, modeled the influence factors for reading habit of elders, explored the trend of reading habits in the recent decade and compared this trend to the trends of other leisure activities, checked the influence factors for the trend and also examined these associations by gender, age group and rural/urban residence.

I believe the findings of this study are not only novel, but also could help the local library system to be better informed of the current elderly audience and to develop good strategies for better service. And due to the unique role of Shanghai, I also think the results reported in this study could be very helpful for libraries of other Chinese cities. I also think

this study could also be implicative for us to under the reading behaviors of older populations in the developing world in that the rapid modernization experienced in Shanghai should be also experienced by many other developing societies.

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