

The role of library user preferences in the willingness to read and pay for e-books: case of the Czech Republic

Role of library user preferences

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Abstract

Purpose – The study aims to analyse library user preferences in the willingness to read and pay for e-books, using a sample of both active readers (users of public library services) and non-users (the general population).

Design/methodology/approach – Two empirical surveys were conducted from August to November of 2019; the research sample consisted of 1,334 users from the Municipal Library of Prague and 1,101 non-users from the general Czech population. The research was focussed on e-book user preferences. The willingness to pay (WTP) for e-book services and the determinants that affect this willingness were also examined.

Findings – The results show the specific approach of Czech readers, whose main determinant of WTP is not the content, but the price and method of its payment (allocation). Some people prefer a cheaper annual lump sum, whereas others may prefer a charge of small regular fees. The decision to pay depends on their reading or payment habits.

Originality/value – This study also aims to clarify the demand for various types of digital media in Czech libraries and the preferred distribution models. Furthermore, the study determines the dependence of the preferences of library users in their WTP for e-books using different evaluation models. The originality of this study is in the evaluation of the determinants of WTP for e-books, which makes this study unique, and the findings should contribute to the expansion of existing knowledge in the field of information science.

Keywords Library users' preferences, Willingness to pay, E-books, Readers, Non-users, Czech Republic

Paper type Case study

1. Introduction

A number of popular media and research studies are currently discussing a change in user behaviour, namely, whether the change in maturity and the development of information



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technology (IT) are gradually changing users' habits (Noh, 2020). This question also applies to the cultural industry, including books. The digital revolution is forcing fundamental debates in this area. The discussion explores the justification of the existence of paper books (printed books) and their gradual replacement with electronic books (Lin *et al.*, 2019; Rao *et al.*, 2018; Richter and Courage, 2017; Salloum and Shaalan, 2018; among others). The "fight" between e-books and printed books has been going on since the 1990s (the first Sony e-reader was created in 1992; Catenazzi, 1997; Vassiliou and Rowley, 2008). At that time, the development of e-books was perceived as a major threat to printed books. Some studies have seen gradual changes in some countries (Jeong, 2012; Pew Research Center, 2014; Wang *et al.*, 2019; Zhu, 2015) in favour of e-books. Some companies have seen a higher share of interest in e-books. For example, US markets have seen a significant increase in interest in e-books due to the newly introduced Kindle e-readers, resulting in year-over-year sales growth in tens of percent (Shim *et al.*, 2016). Interestingly, the same surveys also show that printed books are still part of readers' habits. In the case of the US book market, only 4% of readers stopped using paper books and fully replaced them with e-books (Pew Research Center, 2014). The rest use e-books in combination with paper books.

Library users' (mainly readers) behaviour is determined not only by individual preferences, but also by strategic behaviour on the supply side – most often, publishers. For them, e-book publishing is far more efficient, so they a greater effort to promote e-book subscriptions, time subscriptions, or loans of readers to remove the barrier to accessing e-books. Most of the world's publishers (e.g. Forbes, Scribd, Springer, EE) have already moved to expand the offerings of electronic books over paper books. Of course, these publishers also address the issue of copyright protection, the technical security of digital services, and the reduction of computing power requirements so that virtually anyone can read the e-book. From a marketing point of view, publishers are also entering a whole new market, where they have no other interaction with the patrons than through applications, online advertising, and so forth. Thus, even these companies need to understand how to get satisfied users to buy and pay for e-books (Huang *et al.*, 2017). However, there is often no massive adoption of e-books, but rather a dilution of demand or just the necessary library user behaviour (because the paper book is not available on the market).

Thanks to the development of digital services, there is a significant expansion of the offer of so-called digital documents that were not previously accessible due to their high historical value or the threat of destruction during further use. These include mainly maps, historical books, archival documents, and so forth. Such documents are mostly provided by public or state organizations; namely, libraries. The offer is realized due to public interest and is usually financed with public funds, so library users often do not pay any fees for using such services.

Thus, further research into user behaviour in the e-book and printed book market is necessary. In particular, the impact of digital technologies on user behaviour needs to be clarified and economic aspects addressed. User behaviour in virtual markets (on the Internet) is changing significantly. Users are willing to pay for digital services and, as a result, are far more advanced and able to compare the benefits they get with the costs they have to bear (Chen, 2012). These experiences are also becoming an important determinant of user behaviour.

For e-book producers as well as libraries, it is essential to distinguish the demand of paper book readers or e-book readers from those who are not active visitors to libraries or active readers (i.e. the general population), as these people probably have different requirements for a printed book or e-book, so their behaviour will differ (Chow and Tian, 2021). Yet very few studies have defined, analysed, and examined the role of user

preferences in the provision of information e-services. The aim of this study is to analyse the preferences of e-book users using a sample of both active readers (public library users) and non-users (the general population). This study also aims to clarify the demand for various types of digital media in Czech libraries and their preferred distribution models. Furthermore, the study determines the dependence of user preferences in willingness to pay (WTP) for e-books using different evaluation models. The novelty of this study is in the evaluation of the determinants of WTP for e-books, which makes this study unique, and the findings should contribute to the expansion of existing knowledge in the field of information science.

The remainder of this paper is structured as follows. In Section 2, the theoretical background for empirical surveys and behaviour analyses of readers and non-users as a specific focus (target) group is presented. Section 3 provides the methodology of the empirical survey. Section 4 provides the characteristics of the data set and the research results. In Section 5, the obtained results are discussed, and Section 6 concludes the paper with suggestions for future research.

2. Theoretical background and hypothesis development

2.1 Literature review on e-book user behaviour

In the past two decades, there has been a significant increase in digitization in all areas of human activity. The same trend is evident in the field of cultural services, especially in public libraries, as well as academic libraries. With the development of IT and communications, technical barriers to the expansion of the offer of books in digital form are being fundamentally removed (Hawkins, 2002). It might seem that if technical barriers are removed, a massive supply will be created (public libraries and e-book producers) to which demand by readers will respond. Trends in the introduction of e-books into library collections and commercial offers of e-books are evolving, but these trends show some variability (Ashcroft and Fong, 2005). The largest offer of electronic content (whether e-books or e-journals) are from academic libraries, with demand created by students and scientists (especially in technical and scientific fields). However, offers have gradually expanded to include fiction, textbooks and other genres (Ashcroft, 2011).

Despite the massive development of digital technologies, which significantly affect the lives of each individual, various determinants of user behaviour (readers of e-books or printed books and documents) remain. Some of them are users' fundamental determinants, which can be called "mental obstacles". An example of such an obstacle is the experience of reading a book. According to many studies, this experience depends on the form of the book (e-book or printed book). Godwin-Jones (2007) concluded that the experience of reading an e-book is comparable to the experience of reading a printed book. One of the strong promoters of e-books was Sottong (1999), who argued that "the best display technology cannot beat print on paper" (p. 50). However, many scholars disagree (Chu, 2003; Sellen and Harper, 2003) who claim that a printed book has certain elements that can never be replicated in an e-book. They refer to them as *affordances*, or a set of properties that bring a special kind of benefit (experience, feeling) to the reader. Specifically, readers can feel the paper in their hands, along with the smell of a printed book, which combine with memories and experiences in the human psyche that have a high personal emotional value for users. This group of readers will therefore dominate and will not be willing to switch to e-books completely.

On the other hand, a number of studies (Cumaoglu *et al.*, 2013; Dillon, 2001; Prokop and Stejskal, 2020) have focussed on the behaviour of readers (of either e-books or printed books) to define the requirements that an e-book must have in order for readers to be willing to

accept it as a medium for reading and at the same time be willing to pay for access. Schilit (1999) described the six advantages that e-books have. He considered the mobility of the e-book and the ability of the publisher to distribute it through various distribution channels to be essential. In terms of user functions, it most often supports the function of full-text search and filtering. Berry *et al.* (2002) added that readers especially appreciate post-benefit convenience. In line with these conclusions, Lai and Chang (2011) defined the requirements as follows: an e-book can be read comfortably, anywhere, and it must be compatible with the paper book (thus providing the same content, including graphic pages). Its advantage is the possibility of hyperlinking, which allows the reader to easily switch to new content according to the reader's interest.

Some studies have examined the situation on the part of the reader and analysed the reasons there is no wider demand for e-books. Interestingly, research conclusions have not changed significantly, although several decades have passed between their publications. Sainsbury (1996) concluded that barriers to more massive use of e-books are the unavailability of hardware (e-readers), financial demands, and the health problems caused by screen work. Health risks and the quality of e-books no longer appear to be an issue. Kim *et al.* (2020) identified four barriers to a wider e-book spread – namely, usage, value, risk, and image – that cause resistance to change, and readers with a higher resistance have a lower intention to use e-books. Foasberg (2011) identified obstacles by focusing on the basic premise of reading e-books (that is, with an e-reader) and, according to Foasberg's results, the basic obstacles are the price of the e-reader as well as the available selection on the market. The price of an e-book and the possible price of a substitute in the form of a printed book were rated in third place. The logical conclusion is that those who do not own an e-reader automatically prefer a printed book.

2.2 Hypothesis development

The very requirements for e-books are an important determinant of reader behaviour (Martindale *et al.*, 2015). In a study by Chou *et al.* (2010), they concluded by stating “potential adopter intention to adopt is solely determined by normative pressures, whereas user intention is solely determined by attitude, which refers to the perception of content enrichment, reading servicisation, and device personalization” (p. 854). Carroll *et al.* (2016) postulated the same conclusion. This normative intention is determined by individual preferences. Kurata *et al.* (2017) published research that also focused on e-book usage and preferences. Their research is based on a broad definition of reader preferences, which are based on a certain limited rationality and each reader's ability to choose an advantageous (effective) variant for themselves. Models working with these assumptions have been used in many studies (Bansal, 2011; Davis, 1989; Rogers, 2003). This assumption will also be applied in this research and the results published in this paper.

Likewise, a certain soft prerequisite is a certain user setting. Shrimplin *et al.* (2011) defined several users according to their methodology, finding that their preferences and normative behaviour were very similar. One group is “book lovers”, who in all circumstances prefer physical objects in hand (e.g. printed books), whereas “technophiles” always favour e-books for their accessibility to the search function – a feature essential for them that surpasses all negatives and obstacles. “Pragmatists” behave according to the occasion and in all circumstances choose the more effective variant (typically, if they need to travel, they choose an e-book due to its low weight). The last group consists of those readers who, for health reasons, have difficulty reading from the screen. They are called “printers”. It is already clear from this study that some users will never prefer e-books.

Based on the above literature review, the following hypotheses are formulated:

H1a. E-book preferences (in terms of preferred ways of obtaining books, and devices used for reading e-books) differ across age categories.

H1b. E-book preferences (in terms of preferred ways of obtaining books, and devices used for reading e-books) differ for the general population and readers at the Municipal Library of Prague (MLP).

Different groups of e-book readers create demand, and the volume of this demand is influenced by various factors which need to be analysed according to each group's willingness to request access to a printed book or e-book. A number of studies have addressed the WTP for the provision of books (Fujiwara *et al.*, 2019; Lee and Chung, 2012; Stejskal *et al.*, 2016) and e-books (Ahmad and Brogan, 2016; Min *et al.*, 2011; Stejskal and Hajek, 2015). All studies concluded that regular readers (e.g. those registered in a library) are more willing to pay to borrow a book due to the habits associated with regular library attendance and regular reading (Cameron, 2019; Kim, 2011).

In their study conducted in the USA, Chow and Tian (2021) found that non-users are positively affected by the existence of a public service, namely, a library where they can borrow books. The positive impact of this service was identified in terms of quality of life, level of education, average per capita income, and number of jobs. The scholars pointed out that the role of libraries defined in this way justifies the public interest in their existence. Therefore, the following hypotheses are formulated:

H2a. Demand for e-books differs across age categories.

H2b. Demand for e-books is different for the general population and readers at the MLP.

However, previous studies have rarely examined whether library readers and non-users would be willing to pay for the provision of a public service or the availability of paper books or e-books. For example, Liu *et al.* (2020) analysed the changes in readers' interest in e-books when they were provided for free or for a cost on Zongheng.com (a well-known online reading platform in China). They stated that information cascades are more salient for paid e-books than for free e-books. (*Information cascades* are a new phenomenon resulting from the study of behavioural economics and network theory, according to which many people gradually make the same decisions. It is, therefore, a study of patterns of user behaviour.) A similar study which dealt with information provision in South Korea via mobile instant messenger, not e-books, examined an employed WTP approach and confirmed that informational messages bring greater benefits than costs to readers (Kim, 2018). In general, this service provides a higher net social benefit, which justifies its existence and financing. It can be assumed that occasional users will be less WTP for books (printed books or e-books) because they have not yet perceived the need in their lives. This is confirmed by the findings of Kendall (1996), Ko *et al.* (2012), Sin and Vakkari (2015), and Wadley *et al.* (1997). So, additional hypotheses are proposed as follows:

H3a. WTP for e-book loans and downloads differs across age categories.

H3b. WTP for e-book loans and downloads is different for the general population and readers at the MLP.

3. Research methodology

To investigate the role of user preferences in WTP for e-books, two empirical surveys from August to November of 2019 were conducted. The first survey focussed on the general

population, whereas the second one was intended for readers at the MLP (the largest municipal library in the Czech Republic, with 43 branches, 1.8 million visits per year, 5 million books borrowed, and 2.8 million e-books downloaded in 2019). Both surveys were carried out using an online computer-assisted Web interviewing (CAWI) questionnaire.

To obtain reliable and representative results, quota sampling was used for the general population survey. Age category, education level, and gender were used as quotas based on the Czech Statistical Office data. The online Czech National Panel was used to sample respondents. The sample of respondents for the second survey were the readers of the MLP, aged 18+ years, with an e-mail address. The respondents were randomly selected from the library database of readers. An individualized e-mail was sent to each respondent along with a unique link to the questionnaire. The questionnaire was forwarded to 7,847 readers and 1,334 responded, generating a 17% rate of return. Detailed survey information is presented in [Table 1](#).

The questionnaire for the general population was structured into five main sections: reading print books; preferred ways of obtaining books; reading e-books; demand and WTP for e-book loans and downloads; and reasons for not using e-books. The questionnaire used for the sample was slightly modified to consider e-book services provided by the MLP.

4. Results

Concerning the basic demographic statistics of the sample, 51% of the respondents were men, and the average age of the respondents was 48.1 years. In addition, 72% and 13% of the respondents had secondary and university education, respectively. About half of the respondents were economically active and 30% were retired. More details on the descriptive statistics of the sample are provided in [Appendix](#). The use of quota sampling for the general population survey ensured that these statistics agree with those for the Czech population. In contrast, the demographic statistics for the sample of the readers of the MLP follow the structure of its registered readers, which includes a lower percentage of men (22 %) and a higher education level (56.7% with university education).

The first part of the research concerned distribution channels; namely, the preferred ways to obtain books (both paper and e-books). All respondents in the target group answered. When asked about the preferred ways of obtaining a book, they had the opportunity to state two options (ways) and their order ([Table 2](#)). Respondents most often bought books and preferred printed books. Another option is to borrow the book from the library or from relatives. Very few respondents answered that the first or second choice was to buy/borrow an e-book. This quite significantly describes the respondents' relationship to paper books and the specifically low popularity of e-books among Czech readers.

Among respondents who ranked any way to obtain an e-book as first, the most preferred ways to obtain e-books were further explored among different age categories. The results in [Table 3](#) show the traditional effort to obtain e-books on the internet (free of charge) or from the library (free of charge). Buying or borrowing an e-book (usually associated with a small

Table 1.
Survey information

Characteristics	General population	Readers from the MLP
Sample size	$N = 1,101$	$N = 1,334$
Sample selection	Quota sampling	Random sampling
Data collection method	Online survey CAWI from online panel	Online survey CAWI
Average time to fill out the questionnaire	9 min and 2 s	9 min and 12 s
Data collection	November 2019	August 2019

fee) is the least preferred option. Thus, readers behave in such a way as to obtain an e-book while simultaneously avoiding paying. Therefore, it is necessary to further address the determinants of behaviour and determine whether the behaviour of regular library visitors and the general population differs significantly.

The first crucial determinant that fundamentally influences reader behaviour is their age. Many studies have found that the information society is determined by age-related information literacy. This assumption was also confirmed by the research of readers in the basic group, where those most willing to read e-books were economically active between the ages of 26 and 65, followed by students and finally pensioners (Figure 1). The low proportion of students is surprising and can be explained by the fact that the Czech educational system rarely works with e-books.

Answer	Rank 1 [%]	Rank 2 [%]
Purchase a new print book	37	14
Purchase a used print book (in a bookstore, e-shop, etc.)	11	18
Borrow a print book from relatives, etc.	15	27
Borrow a print book from a library	20	16
Buy an e-book	2	3
Borrow an e-book from a library	3	5
Download a free e-book from the library website	5	8
Obtain a free e-book somewhere else on the Internet	6	7
Otherwise	1	1

Table 2.
Preferred way of obtaining books

Answer	Age category			
	18–25	26–45	46–65	> 65
Buy an e-book	1.0	1.8	2.8	3.3
Borrow an e-book from a library	1.0	3.6	3.2	3.3
Download a free e-book from the library website	5.2	5.8	5.2	4.6
Obtain a free e-book somewhere else on the Internet	6.3	5.1	5.6	5.9

Table 3.
The most preferred way (Rank 1) of obtaining e-books for different age categories

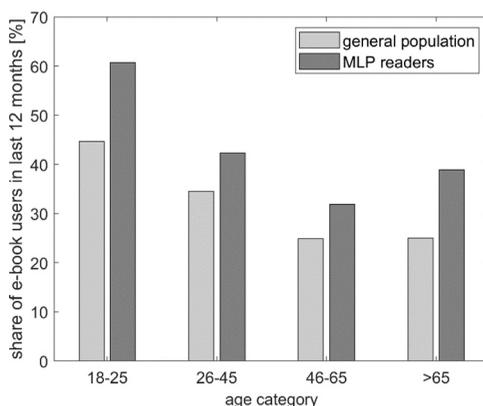


Figure 1.
Have you used any e-books in the last 12 months?

An important follow-up question was the number of e-books that the reader used in the previous 12 months. The results showed that the average number of books in all categories was approximately five for this timeframe (Figure 2). Other results support the previously described results. An exception is the category of pensioners; when they were able to read e-books, they read more than students.

For information society support, it is essential to know the source of the e-books that users obtain (Figure 3). Economically active respondents are willing to buy e-books to a small extent (maximum 20% of respondents). Most of the basic file can be downloaded for free from the Internet, which is in line with previous research (Stejskal and Hajek, 2015). It is less gratifying that public libraries in the Czech Republic play only a marginal role in the development of the information society; despite a relatively wide range of available e-books, very few readers download e-books from the libraries' websites. Students are more interested in e-books, which corresponds to the obligation to read a certain number of books for the leaving examination. In addition, it is possible to deduce from the answers that the methods of promotion or the technical side of downloading e-books are not user friendly for older age groups.

The results also confirmed that most respondents used e-books for relaxation and entertainment. Only a relatively small number of the respondents needed them for their jobs or business; they looked for professional publications (in the group of economically active, more than 10% of the sample used e-books for this reason). The results of the popularity of genre readers read as an e-book also corresponded to this finding. E-books are most often used as a source of foreign fiction and professional literature (approximately 60% of all respondents, regardless of age category). This result can, therefore, be used by public libraries for acquisition management.

An important piece of information is the result concerning the technical equipment that respondents use to read e-books (Figure 4). The most used equipment is smartphones, tablets, and computers. E-book readers are used only marginally.

4.1 Respondents: e-book non-users

An e-book non-user refers to respondents who indicated on the survey that they had not downloaded or read any e-book in the preceding 12 months. The first logical question for these respondents is why they do not use e-books. The results are provided in Table 4.

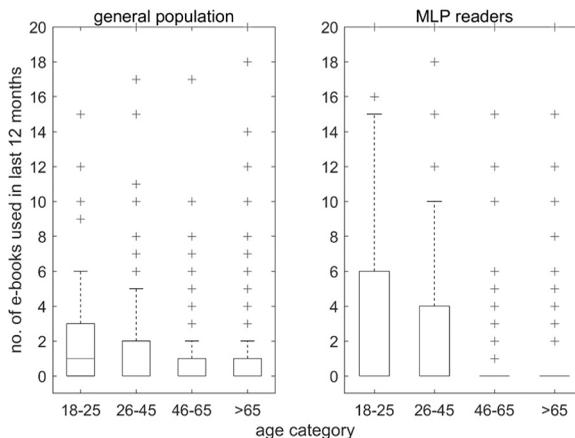
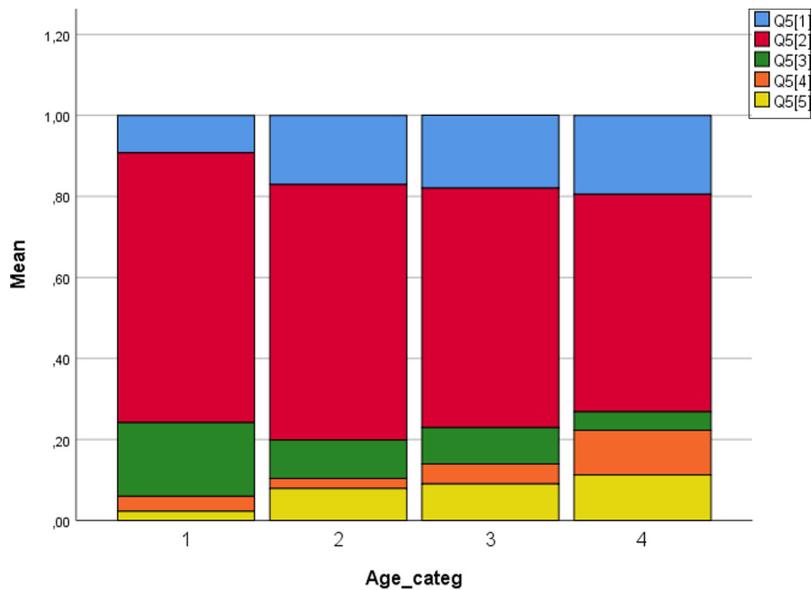


Figure 2.
Number of e-books
borrowed in the last
12 months



Role of library user preferences

Notes: 1) buy in an e-shop; 2) download free from the internet; 3) download free from a public library website; 4) loan from a public library website (only for registered readers); 5) another way

Figure 3.
Source of e-books

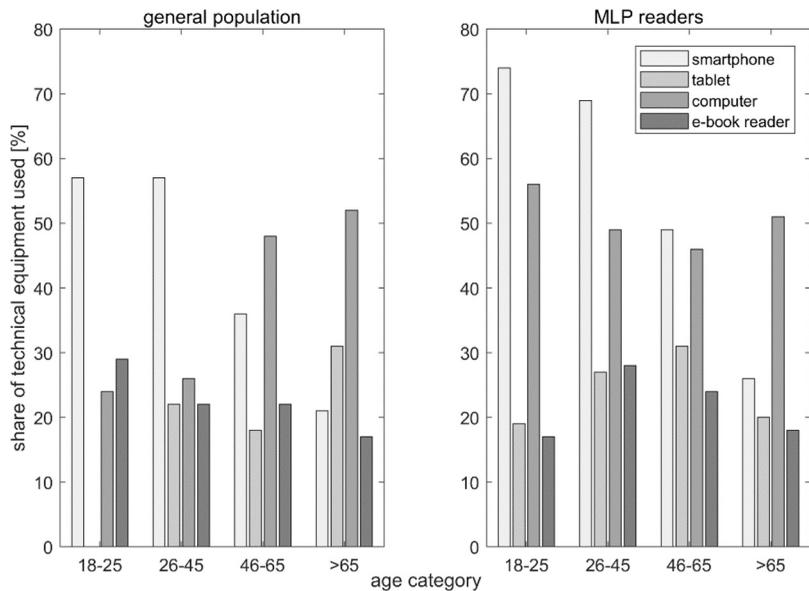


Figure 4.
Which of the following devices do you usually use to read e-books?

EL

The most common answer in all age groups was that respondents did not read books at all. The second most common reasons were the need to “hold a paper book in their hands” and the need to “smell and feel the paper”. This is a large sentimental group of readers who do not like electronic devices for leisure reading. The views of these respondents – potential readers – also need to be considered. Other options are marginal.

The second question asked of e-book non-users concerned their willingness to read e-books in the future (in the next 12 months; Table 5).

The results are not very encouraging. Most respondents did not feel motivated to read e-books. This result should be seen as a challenge for e-book producers and the public libraries that loan e-books. An empirical survey should be conducted among non-users to determine what needs to happen to motivate them to read e-books. Barriers to reading e-books include using IT technologies in other areas, such as e-government or other e-public services.

In existing research, the researchers have focused on only one potential barrier – most often the lack of availability of IT technology or equipment on which e-books can be read. Therefore, the question of the preference for e-reading followed.

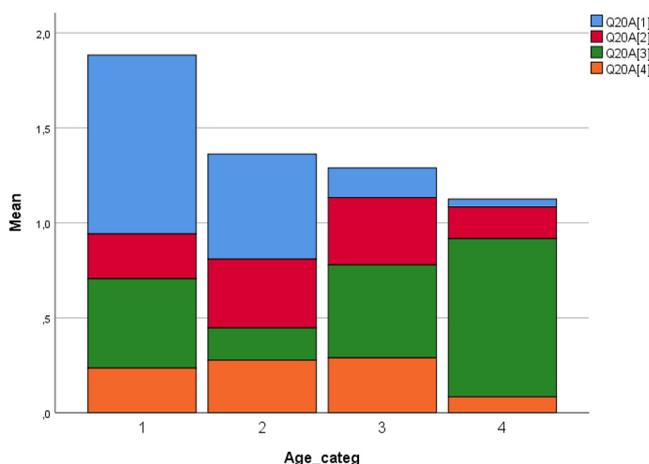
Youth read e-books using a smartphone, a tablet, or a laptop or PC, with an e-book e-reader being ranked last. Figure 5 shows the correlation between age and willingness to use IT equipment. Among Czech pensioners, the most widespread IT tool used is a computer or tablet, which pensioners would consider as a device for reading e-books. It is clear from this that IT literacy and the availability of appropriate equipment fundamentally affect both people’s access to e-books and e-information and their willingness to read e-books in an electronic form.

Table 4.
Reasons why respondents did not use e-books

Reason	General population				MLP readers			
	18–25	26–45	46–65	> 65	18–25	26–45	46–65	> 65
I do not read any books	3.9	6.2	1.3	0.0	0.0	1.7	0.0	0.0
I like paper books	80.0	87.7	81.9	87.8	90.9	89.8	89.4	86.4
I need to flip through the book	44.0	50.0	45.0	50.0	81.8	54.2	44.7	52.3
I need to make notes in a book	4.0	6.6	8.1	7.3	18.2	3.4	4.3	4.6
I like the smell and feel of paper	52.0	41.8	23.5	17.1	63.6	37.3	31.9	18.2
I do not have the appropriate equipment	8.0	9.8	20.1	29.3	27.3	18.6	12.8	15.9
I want a rest from PC screens	60.0	43.4	38.3	29.3	68.2	45.8	36.2	52.3
I don't know how to work with e-books	4.0	3.3	7.4	14.6	4.6	3.4	12.8	13.6
I don't know how to get e-books	4.0	1.6	4.7	7.3	13.6	3.4	4.3	9.1
The e-books I want to read are not available	12.0	2.5	3.4	8.5	0.0	3.4	2.1	2.3

Table 5.
Do you plan to read any e-book in the next 12 months? [%]

Answer	General population				MLP readers			
	18–25	26–45	46–65	> 65	18–25	26–45	46–65	> 65
Certainly yes	7.7	3.1	4.6	0.0	13.6	5.0	0.0	2.3
Rather yes	30.8	20.2	19.9	14.8	18.2	20.0	17.0	20.5
I don't know	15.4	17.1	13.9	13.6	9.1	20.0	8.5	20.5
Rather not	38.5	40.3	39.7	51.9	40.9	43.3	57.4	47.7
Certainly not	7.7	19.4	21.9	19.8	18.2	11.7	17.0	9.1



Notes: 1) A smartphone; 2) a tablet; 3) a laptop or PC; and 4) an e-book reader

Figure 5. Which of the electronic devices would you most likely use to read e-books?

4.2 Willingness to pay for e-book services

One of the key determinants of a willingness to read e-books is their price and readers' WTP for them. The results of the research highlight the willingness of Czech readers depending on their age group.

The first question concerned the possibility of borrowing an e-book for reading on a PC, tablet, or smartphone for 30 days. Respondents commented on whether they would be interested in such a service for free (Table 6).

Respondents across age groups answered mostly positively. A certain percentage of staunch opponents of e-books (identified as sentimental readers who require a paper book for maximum experience) is evident.

The same question was again asked, but this time with an e-book borrowing service charging a fee. To evaluate the effect of the fee on the willingness to borrow an e-book, Chi-square tests were performed. The results indicated that the introduction of a fee significantly affected the decision of all age groups except young readers (18–25 years).

A very small number of student and pensioner readers responded positively, which is mainly due to their social situation. A relatively high WTP for e-books was recorded among younger, economically active workers. A negative response was noted in approximately half of the respondents in the two oldest age groups (Figure 6). In this context, it should be noted

Answer	General population				MLP readers			
	18–25	26–45	46–65	> 65	18–25	26–45	46–65	> 65
Certainly yes	11.5	15.0	9.0	4.6	34.3	27.4	25.3	21.9
Rather yes	26.2	23.8	22.7	16.4	8.4	7.9	8.3	10.0
I don't know	8.2	13.2	15.7	15.1	15.1	14.4	12.0	18.1
Rather not	42.6	31.1	31.7	40.1	3.3	3.1	3.5	5.4
Certainly not	11.5	16.8	21.0	23.7	38.9	47.3	51.0	44.6

Table 6. Would you be interested in borrowing an e-book for 30 days for free? [%]

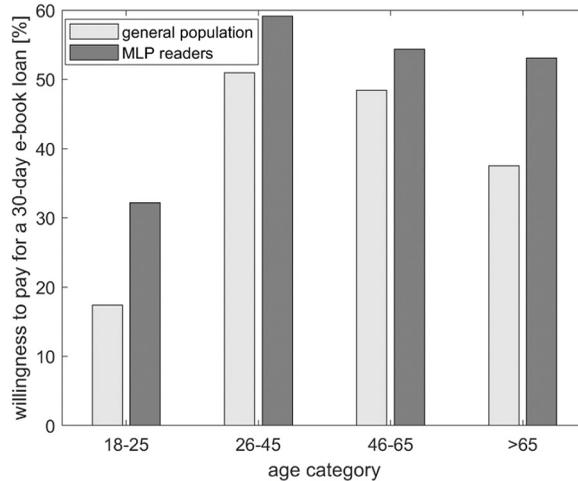


Figure 6.
Would you be interested in borrowing an e-book for 30 days for a fee?

that WTP could correlate not only to whether respondents are economically active or retired, but also to salaries earned.

For practical use, the most interesting answer is the WTP for one e-book for one month. The answers of those who were willing to pay are shown in [Figure 7](#).

The results showed that the WTP is limited to a maximum of CZK 50 per book per month (approximately 2 EUR), ranging between 0 and 100 CZK. The willingness decreases with increased age. An interesting finding is that the youngest respondents perceived the highest value of e-books (probably due to their knowledge of the value of other e-products, such as computer games or e-music).

The researchers hypothesized that “temporariness” (a one-month loan period) may also play a significant role in the WTP for an e-book. Therefore, respondents were asked about their WTP for downloading one e-book from the public library website.

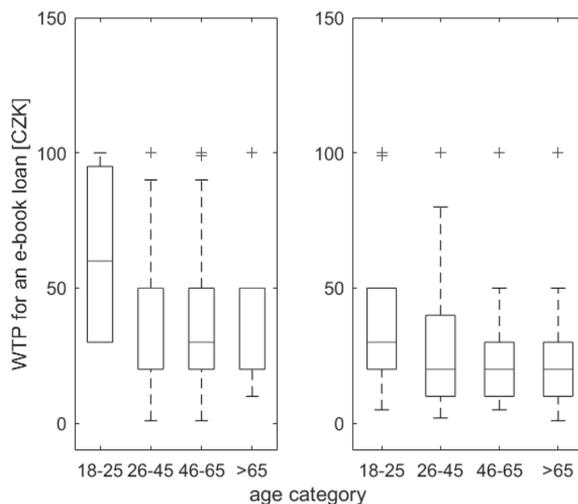


Figure 7.
How much would you be willing to pay for one e-book borrowed for one month?

The results confirmed the assumption that the “temporariness” of borrowing significantly reduces the WTP. This is a completely rational tendency confirmed by the results in Figure 8. The amount for permanently obtaining an e-book from the public library website has increased in all categories. For the youngest category, the maximum increased to CZK 100, while the average value was CZK 42.3.

An important part of the analysis was identifying the determinants that affect users’ WTP to borrow an e-book. An overview of the results is provided in Table 7. The results indicate that user behaviour is influenced by many factors and cannot be easily included in a single analysis, but the fundamental determinant was sex and education as well as the need to obtain a book for professional use.

Surprisingly, the results, compared to those of other studies, did not confirm the effect of economic activity, age, or income. Based on the presented results, further research is necessary in order to analyse individual categories of users separately as well as a wider range of WTP determinants specifically defined for individual categories.

Similar results were obtained when the question was modified and the determinants of WTP for downloading an e-book were examined (Table 8). Thus, even a change in the distribution channel of an e-book does not play a crucial role in users’ WTP to download an e-book.

The only significant results that increase the WTP to download an e-book is the use of the book to relax and if the reader has a tablet or PC. These results could be different during specific situations, such as the COVID-19 pandemic, which has not allowed users to go to bookshops. It can be assumed that the reasons for WTP would change significantly with this huge impact on people’s lives.

5. Discussion

5.1 E-Book preference

It was hypothesised that e-book preferences are different a) across age categories and b) for the general population and MLP readers. Hypothesis H1a was supported in that younger MLP readers prefer smartphones and computers for reading e-books while pensioners usually do not

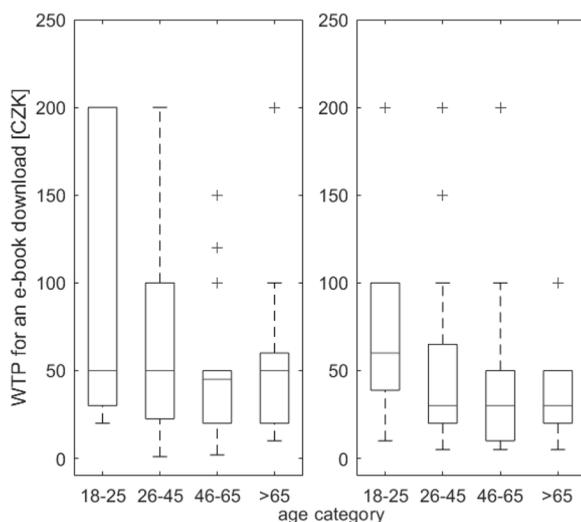


Figure 8.
How much would you be willing to pay for downloading one e-book from the library’s website?

Variable	Standardized coef.	<i>t</i> -value	<i>p</i> -value
Constant term		3.490	0.001***
Sex	-0.378	-2.993	0.004***
Education	-0.298	-2.852	0.005***
Reading activity – books	-0.125	-0.940	0.350
Reading activity – e-books	-0.019	-0.146	0.884
Preferred way of obtaining e-books – Buy an e-book	-0.008	-0.087	0.931
Preferred way of obtaining e-books – Download a free e-book	-0.071	-0.713	0.478
Preferred way of obtaining e-books – Loan an e-book from a library	0.100	0.995	0.322
Preferred way of obtaining e-books – Otherwise	-0.030	-0.303	0.763
Reasons for using e-books – school reading	-0.034	-0.289	0.773
Reasons for using e-books – professional literature	0.358	3.424	0.001***
Reasons for using e-books – reading to children	0.053	0.561	0.576
Reasons for using e-books – work duties	0.093	0.960	0.340
Reasons for using e-books – relax and other	-0.060	-0.654	0.515
Used device – smartphone	-0.123	-1.130	0.262
Used device – tablet	0.119	1.186	0.239
Used device – PC	-0.239	-1.788	0.077*
Used device – e-book reader	0.008	0.065	0.948
Registered reader	0.043	0.428	0.670
Economic activity	0.084	0.832	0.408
Income	-0.074	-0.699	0.486
Age category	-0.015	-0.098	0.922
<i>R</i>	0.620		
<i>R</i> ²	0.384		
Adj. <i>R</i> ²	0.229		

Table 7.
Determinants of
WTP for an e-book
loan

Notes: *Significant at $p < 0.10$; ** significant at $p < 0.05$; *** significant at $p < 0.01$

have access to these technical devices, which is an obstacle (and at the same time, this result raises the need for libraries to support these people). It can be generally concluded that a laptop or PC is the most preferred way to read e-books for an older population.

Information and communication technologies have a significant influence on user behaviour and preferences, even in the case of electronic public library services, which have been increasing their e-book offerings over the last ten years. They have been responding to the growing demand of users; namely, readers. However, this is not the case in all countries. For example, in the US, the share of e-books available in US libraries has almost doubled, from 38.3% in 2007 to 67.2% in 2011 and 90% in 2019 ([American Library Association, 2012, 2019](#)). In the EU, the situation is similar; now at a 92.3% rate ([Statista Research Department, 2020](#)).

However, the preference for e-books can also be measured by the e-book market share. In the EU, it was 21% in 2017, with the trend continuing to grow. Thus, the demand for these services and e-reading is higher and is likely to increase substantially. According to the [Statista Research Department \(2020\)](#), the share of e-book sales increased from 4.5% in 2013 to 21% in 2017.

This trend is also supported by [Hsiao and Chen's \(2017\)](#) research. The authors concluded that users who have an “e-reading habit” are more willing to influence readers’ intentions to use digital products or services. [Stejskal et al. \(2020\)](#) came to the same conclusion. Further research supports these claims and complements them with determinants of user preferences in favour of e-books. For example, [Wahid et al. \(2011\)](#) stated that e-book preference is greater when users combine their user behaviour with environmental

Variable	Standardized coef.	t-value	p-value
Constant term		1.228	0.222
Sex	-0.058	-0.489	0.626
Education	-0.134	-1.361	0.177
Reading activity – books	-0.095	-0.892	0.375
Reading activity – e-books	0.057	0.541	0.590
Preferred way of obtaining e-books – Buy an e-book	0.081	0.848	0.399
Preferred way of obtaining e-books – Download a free e-book	0.097	1.014	0.313
Preferred way of obtaining e-books – Loan an e-book in a library	0.272	2.702	0.008***
Preferred way of obtaining e-books – Otherwise	0.027	0.274	0.785
Reasons for using e-books – school reading	-0.006	-0.054	0.957
Reasons for using e-books – professional literature	0.093	0.925	0.357
Reasons for using e-books – reading to children	-0.091	-0.952	0.343
Reasons for using e-books – work duties	0.129	1.305	0.195
Reasons for using e-books – relax and other	0.269	2.895	0.005***
Used device – smartphone	0.152	1.507	0.135
Used device – tablet	0.168	1.719	0.089*
Used device – PC	0.200	1.671	0.098*
Used device – e-book reader	0.189	1.610	0.111
Registered reader	0.097	0.977	0.331
Economic activity	0.018	0.182	0.856
Income	0.041	0.403	0.688
Age category	-0.187	-1.401	0.164
R	0.509		
R ²	0.259		
Adj. R ²	0.102		

Role of library
user
preferences

Table 8.
Determinants of
WTP for an e-book
download

Notes: * Significant at $p < 0.10$; ** significant at $p < 0.05$; *** significant at $p < 0.01$

consequences. If they read e-books, the environment will not be burdened by the demand for paper books, which the industry must produce from natural resources. This is supported by the conclusions of [Chowdhury \(2012\)](#) and [Guccio et al. \(2017\)](#).

This trend is also confirmed by statistics from the Czech book market. In 2018 and 2019, this market recorded a significantly higher supply of e-books; compared to 2018, sales of e-books increased by 12% year-on-year ([Association of Czech Booksellers and Publishers, 2019](#)).

However, the current Covid-19 pandemic situation has significantly changed these results of the studies and statistics. Due to the restrictions, there has been a significant increase in interest in e-books, undoubtedly in all countries. The impact of this pandemic situation will be the subject of future research.

Young people and students tend to adopt new IT services, as confirmed by results of this study. Young people (i.e. up to 26 years) are more willing to consume e-books and use them on smartphones, primarily for school purposes; later (when they reach the older age category) they keep this habit and move from school reading to leisure literature as well as, to a lesser extent, professional literature. It can also be concluded that young readers are more willing to pay for the use of information services. [Hsiao and Chen's \(2017\)](#) findings support this conclusion, and they added that content is a decisive motivator for young readers and only then do young people evaluate it according to the value-on-money rule.

Based on the presented results, it is possible to recommend library management to focus their strategies on creating a sufficient supply of e-books for young readers, using appropriate communication tools and benefiting from the fact that young people are aware

of the library services value and are willing to pay for them. To increase the preference of other groups of readers in e-books, it is still necessary to make great progress in IT literacy, removing all barriers. Even in this case, it is not possible to expect a fundamentally large change in the share of e-book users among the older, economically active population. As the results show, cultural maturity, customs, traditions, and a certain degree of readers' sentiment play a crucial role here.

5.2 Number of e-books per year

When returning to the second hypothesis concerning differences in demand for e-books, it can be concluded that the hypotheses were supported; younger MLP readers were the most frequent users of e-books whereas the lowest demand was observed for the older MLP readers. For the general population, demand for e-books was more consistent across age categories.

[Gibbons \(2001\)](#) found that 67% of respondents read at least one e-book in a year (using e-reader devices); in addition, respondents prefer e-books when reading common popular fiction and nonfiction. The [Pew Research Center \(2014\)](#) determined that 47% of young Britons (aged 18–30) prefer e-books (reading at least one in a year). There is a growing trend in the popularity of e-books among young people; in 2012, 31% enjoyed e-books, compared to only 25% in 2011 ([Hsiao and Chen, 2017](#)).

In this discussion, users' overall willingness to use e-books was limited by individuals' traditions and strong habits. Some reject e-books because of the need to “feel the paper in their hands when reading”. This sentimental relationship to paper books was also described by [Sottong \(1999\)](#) when he wrote “the best imaging technology cannot surpass printing on paper” (p. 51). [Sellen and Harper's \(2003\)](#) conclusion also supports this finding. The results of the presented research record these results in the Czech environment.

Limits also stem from the availability of e-books, where a large number is protected by copyright, complex negotiations are needed, and the books would be electronically accessible ([Blades, 2005](#)). Therefore, for example, libraries produce e-books that are not protected (copyright has expired). This is the case with the Municipal Library in Prague which produces several dozen books every year. It provides them for free to everyone on its website. Newly published books are currently provided in all versions (i.e. both paper book and e-book). This research has demonstrated that readers prefer foreign language fiction and professional literature as well as books written in Czech as a substitute for paper books.

Another reason why the share of e-book users is so small is the barriers against the spread of e-books. [Chu \(2003\)](#) defined barriers against e-books as being hard to read and browse, needing special equipment, and facing additional costs on the user's side. A number of studies have related perceived barriers to a specific group. For example, [Pierard et al. \(2020\)](#) dealt with e-books in school teaching. Their results confirmed various barriers that make it difficult for students to orient themselves, copy, and create notes directly in the text. [Friedman \(2011\)](#) added three other reasons that reduce the willingness to obtain e-books, this time in a commercial way. One of the reasons is the accessibility of the e-book on the Web (for example, in an effort to limit borrowing to only a month, being difficult to register), as well as many formats and e-readers with which readers are unfamiliar. The last barrier is brand loyalty (e.g. Kindle or PocketBook). If a library or publisher's offer is not compatible with this brand, the user will not accept or purchase the e-book. Other reasons that limit shopping and user behaviour towards e-books are described in [Shim et al. \(2016\)](#). An important determinant of e-book consumption is price.

Czech e-book readers are quite a specific group. In the period when e-readers started to be available on the market, the low economic power of the population was a barrier to

expansion in the Czech Republic. In addition, the speed of technical devices development on which it is possible to read e-books and other documents is very fast. Today, everyone has a phone or tablet and can read e-books. During this period, the availability of e-books and their market price are the biggest barriers here. Czech readers have little awareness of the range of e-books provided by public libraries. In addition, readers are reluctant to pay for the e-book. This is one of the fundamental barriers to the spread of e-books in the Czech Republic.

5.3 Willingness to pay for e-book services

The third hypothesis was supported in that MLP readers are less willing to pay for downloading and borrowing e-books. The WTP of the youngest age category (18–25 years) was substantially higher than those of the remaining age categories.

Lu and Hsiao (2010) examined users' WTP for electronic services. In general, they found that users are willing to pay for this type of service if the services have a perceived value and positive attitude. Berger *et al.* (2015) used the WTP approach to analyse the WTP for information provided on the Internet (in the form of newspapers). They concluded that the low WTP is determined primarily by information provided free of charge. They also found that the lower WTP is also related to a lower appraisal of online formats. As in this study, WTP was determined by electronic devices for reading, desirability, and quality content. Acharya and Lee (2018) published similar results.

These results are consistent with those of Hsiao and Chen (2017), who suggested that content and price are the main advantage and victim of e-book subscription services. Their results confirmed that the expected electronic content has a significant effect on the perceived value of the e-book and the perceived price has a negative effect on the perceived value. Results present the novel approach of Czech readers, whose main determinant of WTP is not the content, but the price and method of payment (allocation). This supports the conclusions of Albanese and Milliot (2015), who postulated that an important factor in users' decisions is the method of payment for the e-service. Some people prefer a cheaper annual lump sum whereas others may charge small regular fees. The decision to pay depends on their reading or payment habits, as the results of this study show.

This finding implies that creators and producers of e-books (both commercial producers and public libraries) should be able to classify their users with the relevant payment preferences to offer those users a specific price as a reward. In addition, they should closely monitor the pricing strategies of their competitors so that they respond quickly to changes in the market.

6. Conclusions

This paper dealt with e-books, their use, barriers to greater dissemination and users' WTP for the use of e-books. The views of readers and the general population were compared in this case study conducted in the Czech Republic. This study was designed based on age categories to provide valuable information for library management. Based on these findings, it is possible to define recommendations for acquisition policy; book management can more responsibly decide whether to offer e-books or what to do for their greater dissemination among readers.

This study provides several contributions in terms of both theory and practice. At the theoretical level, the methodology used represents an extension of existing knowledge. It offers experience useful for designing other methodological approaches to analyse e-books or any e-content. Future researchers can use the published conclusions of this study and build their hypotheses or scientific questions on it. User behaviour of library services will

not change much depending on age; it is strongly determined primarily by upbringing and education, but also customs and culture in the country. The results of this study are, therefore, significant and can be used for international comparisons, as they clearly complement the current state of knowledge in this area.

The practical contributions of the study are as follows. As mentioned several times above, public libraries need to know readers' preferences to define strategic plans for the development of the library collection as well as other services (typically e-services) that public libraries will provide in the future. Even Czech libraries are faced with the question of whether to preserve paper books to a greater extent or start providing (or even producing on their own) e-books. The results of the study suggest that e-books still have a complementary function. For younger people, it is a welcome modern tool for obtaining and storing information. They are willing to pay for this service. This study also confirmed that barriers to expanding the use of e-books include the lack of availability of e-readers (or other equipment) and low IT literacy. The low WTP for an e-book at an older age also stems from social reasons (lower pensions). However, these reasons are also beginning to disappear, and significant changes can be expected in this area in the future. This should be further examined by future research dealing with the dynamically growing offer of e-books and public support for the accessibility of e-books in public libraries. This area must be examined to better understand the WTP for such a book (a suitable way to verify readers' interest in such a book) and simultaneously provide the basis for decisions on the effective allocation of public money. Future research may also be focused on changing user behaviour due to the Covid-19 pandemic. However, the study should focus not only on changing the behaviour and expectations of readers but also on changing the supply of public libraries, which has been modified under the pressure of this extraordinary situation.

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Further reading

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Variable	Frequency/Mean \pm St. Dev.
<i>a) General population</i>	
Sex	Male: 565, female: 536
Age	48.1 \pm 16.7 (18–25 years: 120, 26–45: 384, 46–65: 369, > 65: 227)
Reading activity in the last 12 months	No: 246, yes: 855 (14 books on average)
Registered reader	No: 786, yes: 314
Education	Primary: 163, lower secondary: 453, upper secondary: 344, university: 141
Economic situation	Retired: 331, economically active: 525, student: 71, other/unemployed: 174
Net income of household in CZK	< 15,000: 184, 15,000–30,000: 433, 30,000–45,000: 300, 45,000–60,000: 121, 60,000–75,000: 29, > 75,000: 33
City size	< 2,000: 241, 2,000–10,000: 251, 10,000–100,000: 376, > 100,000: 233
<i>b) Readers from the MLP</i>	
Sex	Male: 288, female: 1021
Age	44.9 \pm 17.0 (18–29 years: 220, 30–49: 559, 50–64: 338, > 65: 217)
Reading activity in the last 12 months	38.0 books on average
Education	Primary: 44, lower secondary: 46, upper secondary: 482, university: 742
Economic situation	Retired: 233, economically active: 786, student: 176, other/unemployed: 139
Net income of household in CZK	< 15,000: 73, 15,000–30,000: 252, 30,000–45,000: 302, 45,000–60,000: 227, 60,000–75,000: 106, > 75,000: 102

Table A1.
Respondents' basic
descriptive statistics

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