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ARE CROATIAN SCHOOL LIBRARY WEBSITES APPROPRIATE FOR CHILDREN AND YOUTH?

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Abstract

The purpose of this paper was to determine how well Croatian school (both elementary and secondary) websites are executed in terms of cognitive domain, affective domain and overall design. Checklist, introduced by Chow and Morris, was used for evaluating. The results of an analysis of 100 school library websites have shown that even the basic requirements were barely met in all three categories. The websites evaluated in this research are mostly not suitable for the users they are intended for, i.e. children and young adults.

Keywords: affective domain, cognitive domain, design, school library websites, website analysis

INTRODUCTION

Nowadays, a website is an indispensable part of the school identity and the school library as its integrative part which supports the curriculum and the overall mission of the school. It is also one of the first and most common ways one will use when inquiring about any institution. A website can quickly and efficiently help the students meet their information requirements while at the same time enabling parents easier collaboration with the school (Tavas & Bilač, 2011). Plenty of guidelines and checklists have emerged from various research dealing with interaction among children and corresponding website design (Large & Beheshti, 2005; Large, Beheshti & Rahman, 2002; Bar-Ilan & Belous, 2007; Bilal, 2013). School librarians should be guided by them during the entire process: while designing a website, testing its usability and/or redesigning it. School library websites are also dependent on the infrastructure, allocation and types of administrator privileges. L. S. J. Farmer (2002) already wrote about these issues eighteen years ago. She stressed the importance of strategic planning of technological infrastructure and stated some equipment and control issues. These are all important issues that need to be addressed at the competent ministry and civil service levels. Given that all schools in Croatia have had their own websites for a long while, schools and librarians should focus on increasing the quality in terms of design, usability and appropriateness. Thereby, the variety of users need to be considered: children of different ages and adults of different interests. It is a complex task because it is necessary to provide sufficient amount of information which also needs to be clear, precise and concise, because children strive to find information as quickly and as effortlessly as possible. Like everything else, they also like their information search to be short but accurate (pp. 93). An eye-catching design should be provided in a way that will not create a distraction from the content. The website content should be based on the curriculum and the mission of the school and the library as its integral part, as L. S. J. Farmer says. It should be informative enough, but not be made in a way which the youngest users may find boring. The school library also has a multiple function on the web: to present its profession to the public by providing information sources, catalogues and lists, while providing educational content in an entertaining context. In doing so, the stress should remain on the educational part of it, not the entertaining one.

This research seeks to determine to what extent school libraries in Croatia have used the potential of their websites. In order to get as accurate results as possible, library websites of both elementary (age 7-14) and high schools (age 14-18) in Croatia will be evaluated.

CHILDREN AND LIBRARY WEBSITE ANALYSIS

Design and usability

Many authors have already written about design in terms of usability (Chow, 2012; Becker & Yannota, 2013; Cyzyk, 2018; Large, Beheshti, Nesset & Bowler, 2004). Many studies have even involved children in the process of web designing and in evaluating of the existing ones (Large & Beheshti, 2005; Large, Beheshti & Rahman, 2002; Bar-Ilan & Belous, 2007; Bilal, 2013). A. S. Chow (2012) derived some elements of the usability design standards: consistency, compatibility, consideration of user resources, user control, visual clarity, prioritization of functionality and information, explicitness, match between system and real world, recognition rather than recall, and finally, aesthetic and minimalist design.

J. A. Large and J. Beheshti (2005) give some design guidelines derived from their research involving children. They noticed that children desire to find information as quickly and effortlessly as possible, so they recommend restricting of web portal's subject focus. They also recommend the use of metaphors which reduce cognitive effort and overload. When related to age and culture, metaphors can provide framework for web design. Regarding visual design, a search box is indispensable. Website layout should avoid clutter. On the other hand, children dislike white empty spaces; they like bright colours and the use of animation. One of the downside is that most of the elements that children love can cause distraction from information when used inadequately. *„Designer, then, must strike a balance between a plain and unimaginative but functional design on the one hand, and a gratuitously colorful and animated design that make sit both narrowly age specific and potentially distracting from its primary purpuse – information retrieval."* (Large & Beheshti, 2005, p. 328). Children prefer entertaining distractions on portals, but clearly identified routes to information retrieval as well (Large, Beheshti & Rahman, 2002).

The fonts used on interface are also important to children; they have the same preferences as the adult users: fonts should be clearly legible. When appropriate, mascot characters may motivate children in the educational use of web portals, but the overall experience is subjective. Visual identity is very important because it makes the content appealing. Terminology should be age appropriate. It is advisable to provide online help for children in a way that is intuitive and easy to handle. It would be commendable to provide children with an opportunity to personalize the interface (Large & Beheshti, 2005).

As designers of web directories, children have proved themselves as quite capable creators of coherent structures (Bar-Ilan & Belous, 2007). Bilal (2013) conducted research in which children designed web interfaces. Their products were content-related spaces which they divided into separate topics like Animals, Art, School etc. That is clear evidence of children`s ability to create coherent structures.

User-centred design arises by unifying usability testing and the design process (Becker & Yannota, 2013). „Usability, then is rooted in the operational experience of the user" (Large, Beheshti, Nesset & Bowler, 2004 p. 1140). *ISO 2500 Standards: software and data quality* (2019) defines usability as a „degree to which a product or system can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use".

IFLA Guidelines for Library Services to Children aged 0-18 (2018, p. 11) states that „library websites and digital content products should be compliant with WCAG 2.0" (Web Content Accessibility Guideline): *Strategies, standards, resources to make the Web accessible to people with disabilities*. It is good practice to ask people who use adaptive technologies to test equipment and services for usability".

Becker and Yannotta (2013) say that usability testing is one way to confirm user-centred design. But, according to Cyzyk (2018), user-centred design has some blind spots. Target user group is often not a comprehensive user group. Also, if user sample size is not large enough to be statistically valid, user studies lose their meaning. He states that user-centred design diminishes the expertise of librarians that know their users best.

We can hence conclude that school library websites do not have to be user-centred, but they certainly must be appropriate for children and youth.

School Library Websites

IFLA School Library Guidelines (2015) mention websites in the context of developing collections of digital objects and providing access to library information. School library websites could help student's learning by providing information (IFLA, 2012). School libraries are encouraged to incorporate web 2.0 tools and social networks on their websites. (Chew, 2008) IFLA 'Guidelines for Library Services for Young Adults' (1996) promote services for teens on a library young adult webpage. Guidelines also recommend including teenagers in a way that they write recommendations for the library's website.

A group of authors led by Chow and Morris (2016) conducted a comprehensive research of school library websites. Their analysis of school websites was based on two criteria: age appropriateness and usability. After reviewing the literature, they came up with three research domains: cognitive domain, affective domain and design. To evaluate websites` content, design and appropriateness for students, they used school website checklist they made. To evaluate usability they used a survey among school librarians. Their research has shown that school library websites are not fulfilling their potential in terms of design and appropriateness for children and youth. Farmer (2002) also discussed appropriateness of school library electronic resources, where the main issues are content, incorporation into the curriculum and access. She encourages school librarians and teachers to support age-appropriate websites that support school curriculum. It is also important for school library websites to be appropriate in terms of design and usability. Designers (and) librarians should be guided by recommendations derived from children website design and usability research. Chu (2001) conducted an examination of New York City public high school library websites that has shown that less than a third of high schools have school websites featuring links to their school libraries. The few that have links to the school library, she describes as „bearably satisfactory". Currently, there is little research and evaluation of school library websites and content for children available, in Croatia and the world likewise. Faletar, Golub and Sudarević (2002) analysed school library websites and made comparison between domestic, i.e. Croatian, and foreign examples of websites which received a school library web page award from the International Association of School Librarianship. They found that Croatian examples of school library websites were not made in accordance with the consulted guidelines, while the foreign examples usually were. At the time of writing the article, there were only eleven Croatian schools with websites. However, eight of them consisted of just one page without content organization. Therefore, they included only three Croatian websites in their research. The research results were therefore very unsatisfactory. Pavičić and Vrana (2018) studied content intended for children on the public library websites. The research has shown that a small and irrelevant number of libraries have any content for children on their websites. This could be explained by the fact that public libraries do not consider children as their primary users as school libraries do.

METHODOLOGY

An analysis of the web pages of Croatian school libraries was conducted.

Sampling. The sample consists of 50 elementary school library websites (age 7-14) and 50 high school library websites (age 14-18). The sample was randomized, and websites from each county were analysed. According to the official list provided by the Ministry of Science and Education in Croatia (Ministarstvo znanosti i obrazovanja Republike Hrvatske, 2019) There are 915 elementary schools, and 440 high schools which are located in 21 separate counties.

Instruments. Research instrument was the checklist, introduced by a group of authors led by Anthony S. Chow and Rebecca J. Morris (2016) in their research for rating three domains: cognitive, affective and design. The checklist uses 38 questions designed to evaluate these three domains. For the most part the checklist uses a Likert scale where grades are ranked from 1 to 10, where 1 means the lowest level of criterion realization, and 10 means the highest level of criterion realization. For the purpose of this specific research this checklist has been slightly modified.

RESULTS

The majority of schools' websites had a website module named "library" or "school library". Many of them were inadequate, composed only of a completely empty or a poorly filled module. There were 4 school elementary websites that did not even have a library website or a module, and the same was true in case of 15 high school websites.

After a detailed analysis was conducted, the majority of evaluated websites seemed to be more appropriate for adults (65%) than for youth (12%) or were appropriate for both (23%). Those webpages that are appropriate for both youth and adults proved to be the best ones because they satisfy requirements of wider school library user group.

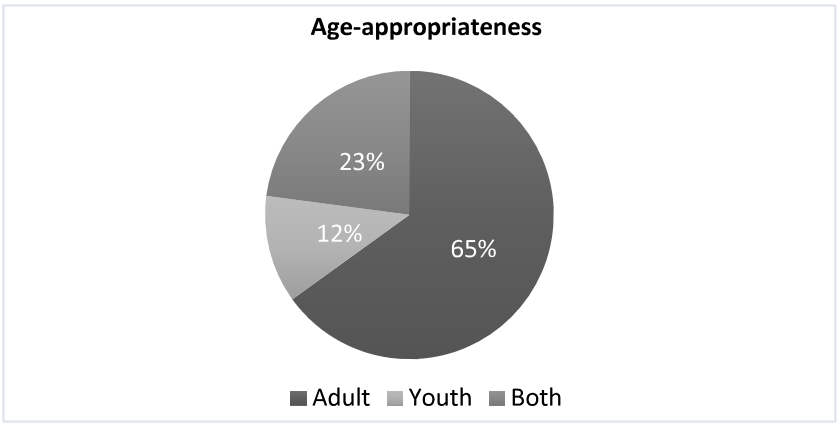

Figure 1. The structure of school library websites by age-appropriateness

Regarding websites' overall quality, most of them were categorized as "lower tier youth website" (81%), while some were categorized as "middle tier youth website" (19%). None of them were categorized as Top tier youth website.

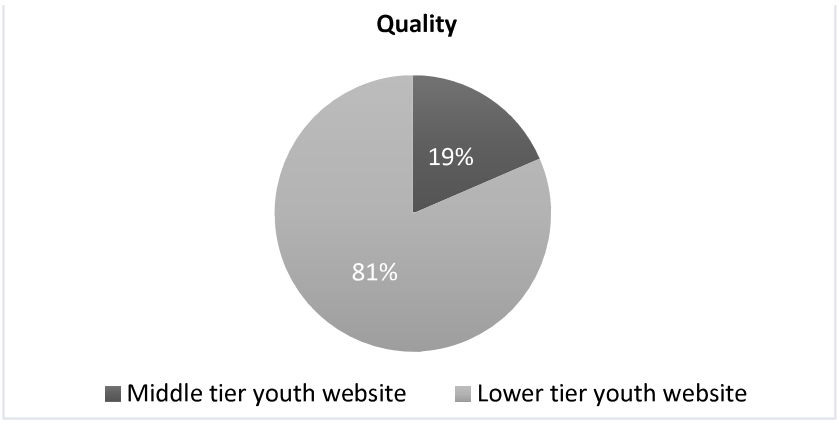

Figure 2. The structure of school library websites by quality

Cognitive, affective and design ratings for school library websites' modules.

Overall ratings on all three domains were very low and unsatisfactory. Design as a domain was the lowest rated of all three domains (*M = 1,2*), followed by the affective domain (*M = 1,3*) and then the cognitive domain (*M = 1,8*).

Cognitive ratings

The overall ratings for cognitive design were unexpectedly low (*M = 1,8*). On a ten-point scale (*1 = low, 10 = high*), the use of symbols related to concrete objects was rated *M = 3,09*; the use of bright and engaging colours was rated *M = 2,38*; age-appropriateness of graphics and vocabulary was rated *M = 2,96*; the use of animation was rated *M = 0,44*; the use of sound effects was rated *M = 0,09*; the use of creative and significant icons was rated *M = 1,07*; the presence of links to other information sources was rated *M = 2,86*; the presence of search tips or instructions for searching was rated *M = 1,9.*

Affective ratings

Affective ratings were also very low (*M = 1,3*), especially in terms of providing possibilities for users, like leaving their digital footprint (*M = 0,01*) and playing while learning (*M = 1,25*). The reduction of cognitive load by limiting distracting information was also low rated (*M = 2,55*). This criteria was difficult to assess in many cases when there was too little information on library websites.

Design ratings

Design ratings were overall the lowest ones (*M = 1,2*). Based on ratings, website designs do not emphasize user control adequately (*M = 0,87*). It also does not encourage exploration by being open-ended (*M = 1,74*). Websites' designs are not active enough (*M = 1,62*). They involve multiple senses insufficiently (*M = 1,31*). The balance between familiarity and novelty was rated *M = 2*. Most of the consulted websites do not allow users' input or encourage social interactions. Most websites do not allow for and respond to child input (*M = 0,01*). Not many websites allow for progressive levels of expertise facilitating competence while offering new challenges (M = 1,11). The majority of websites does not support social interaction (M = 0,71).

Table 1. Cognitive, affective and design ratings for school library websites' modules

Web factor	Mean Rating		
	Elementary schools	High schools	Overall
Cognitive			
Does the website use symbols related to concrete objects?	3,96	2,22	3,09
Does the site use bright and engaging colours that attract attention and keep the youth interested?	3,02	1,74	2,38
Are graphics and vocabulary age-appropriate?	3,74	2,18	2,96
Does the site use animation?	0,6	0,28	0,44
Does the site use sound effects?	0,18	0	0,09
Does the site use creative and significant icons?	1,18	0,96	1,07
Is there a link to access electronic resources including databases, online reference, and e-books?	3,12	2,6	2,86
Are there search tips or instructions for searching?	2,04	1,76	1,9
OVERALL COGNITIVE MEAN	2,23	1,5	1,8
Affective			
Does the site reduce cognitive load by limiting distracting information and presenting only the information desired in a prominent, singular fashion?	3,36	1,74	2,55
Can users enjoy themselves through play and learning?	1,54	0,96	1,25
Can users leave their footprint on the site?	0,02	0	0,01
OVERALL AFFECTIVE MEAN	1,6	0,9	1,3
Design			
Does the website design emphasize user control?	0,94	0,8	0,87
Does the website's design encourage exploration (by being open-ended)?	1,9	1,58	1,74
Is the website design active?	2,06	1,18	1,62
Does the website involve multiple senses?	1,64	0,98	1,31
Does the website balance familiarity with novelty?	2,38	1,62	2
Does the website allow for and respond to child input?	0,02	0	0,01
Does the site allow for progressive levels of expertise facilitating competence while offering new challenges?	1,2	1,02	1,11
Does the site support social interaction?	0,82	0,6	0,71
OVERALL DESIGN MEAN	1,4	0,9	1,2

School Library Website Content and Services

Sixteen out of fifty elementary school websites have access to OPAC, which makes 32%. Out of fifty high school websites, only sixteen have access to OPAC, which also makes 32%. Regarding library contact details (phone and mail), only 24% of consulted elementary school websites and only 22% of high school websites provide this information.

On elementary school library websites, users are able to: access an OPAC (16 websites), sign-up for a class with the librarian (1 website), access information literacy resources (19

websites), find library working hours (34 websites), view library policies (4 websites), view library news and events (25 websites) and find book recommendations or reviews (1 website).

Likewise, on high school websites, users are able to: access an OPAC (16 websites), access information literacy resources (15 websites), find library working hours (22 websites), view library policies (6 websites) and view library news and events (10 websites).

Only one school library has its own logotype and it is an elementary school library.

Comparing Elementary and High School Websites

Elementary school websites have better overall ratings in all three domains: cognitive, affective and design (*Table 1*). They also offer access to more content and services. It is possible that these institutions appreciate their young (and adult) users more and adapt to them.

When it comes to elementary school websites analysis, 10 of them were categorized as "middle tier youth website", while 36 of them were categorized as "lower tier youth website". Four elementary schools did not have a library website at all.

When it comes to high school library websites analysis, 5 of them were categorized as "middle tier youth website", while 30 of them were categorized as "lower tier youth website". Fifteen high schools in total did not have a library website at all.

None of the websites met the requirements to be categorized as "top tier youth website".

Based on this evaluation, school library websites are considered somewhat better than high school library websites.

FINAL THOUGHTS

It is disappointing that a considerable number of school libraries do not have a website or a module on the school website at all. It is also defeating that only 32% of school websites has links to OPAC. Contact details like phone number or e-mail address are also not nearly as presented as they should be (only 23%). A serious lack of basic library information on the site indicates a lack of libraries' influence as institutions in schools. The lack of visual identity also contributes to the questionable identity of the library. Only one school library has its own logo, while all the others have mostly bad and outdated design based on a content management system developed for schools by Croatian Academic and Research Network in the period from 2006 to 2009. Only a small fraction of schools does not use this content management system, but some other. However, even though it is a step forward, they are not fulfilling the full potential of it. When addressing the infrastructure issues, one returns to the beginning: providing of conditions for any development. Only after meeting the requirements of the digital age will school libraries be able to begin offering advanced services such as reserving library resources online, scheduling classes, online research help from a librarian, digital collections and so on.

Research limitations manifest themselves in an inability to implement the usability test involving users. More studies involving users, especially children and young adults, should be conducted. School library websites should then be redesigned in accordance with their insights. They could even include their users in the design process itself. School websites should be user-centred, but also reflect expertise and librarians' experience. Many websites categorized for children included in this research are bellow any decent level, and some of those categorized for adults are very uninteresting and plain. Those that are categorized for both are most balanced. The reason why elementary school websites analysed in this research got better ratings could be because in high schools it is harder to counterbalance the website with the cognitive and affective level of students, and also because of more demanding school curriculum.

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