Are We Preparing Students for the Web in the Wild? An Analysis of Features of Websites for Children

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Abstract

Research processes for most of today's learners include online searches. Readers must understand how to navigate online texts to conduct research effectively, while applying critical thinking to determine the reliability of online information. A systematic content analysis of teacher recommended children's websites revealed features of children's websites that sometimes differed from those designed for the general population on the "Wild Wide Web." This comparison uncovered differences that may not serve elementary students well in learning to conduct online research. Recommendations prompt teachers to consider searches beyond the "walled garden," as well as ways to handle the "messiness" of the internet explorations.

Keywords: web literacy, children's websites, hyperlinks, hyperlinked texts, online texts, online research

Introduction

Imagine Daryl, a third grader, as he begins his research on a self-selected topic within a science unit on animals and their habitats. He is excited to get to "play" on a computer. As he begins his search, he proceeds to Google and types "dolphins" in the search bar. When asked how many search results were generated, he touches the screen, counts the websites that appeared on the screen, and replies that there were five. In actuality, the search generated 93 million results. When asked which of the websites looked like it would provide good information, he says, "The first one." He does not realize this site is an ad. When prompted to pick a site to try, he picks one on the Miami Dolphins, not understanding that a search for dolphins also generates results about a football team. After clicking on it, he realizes it is not one that will help his research, so he tries another more relevant website. While reading some of the online text, he mistakes a hyperlink for an online glossary entry, such as those found in an eBook. When exploring webpages, he seems confused by the amount of information on each page and does not know where to start. Daryl did not get frustrated--he loves searching the internet. However, his searches were inefficient and ineffective.

This scenario is typical of many we encounter as we observe students conducting internet searches. Although Daryl is familiar with the idea of "surfing the internet," he has spent much of his time using teacher-selected websites, designed to keep children safe. These websites, referred to in this article as "walled gardens," are designed to keep children in the hosts website by preventing links to outside sources. Time in walled garden environments has resulted in Daryl's development of pseudo concepts (Vygotsky, 1962) about how the Web works.

Daryl is a composite of many children we encounter who realize the potential of the

internet but have limited understanding of website features and internet searches. This trend has

been recognized by others in the literacy community. The Progress in International Reading

Literacy Study (PIRLS) recently included its first assessment of online reading, ePIRLS. While

U.S. 4th graders ranked fifth out of 15 countries, online reading expert Donald Leu expressed

concern about the construction of the test lacking the "messiness and complexity of the actual

internet" (as cited in Herold, 2018, para 25). When taking the PIRLS, students were not asked to

conduct an authentic search using a search engine or determine the reliability and validity of

sources because the test's simulated class project uses preselected websites that have already

been curated for reliability.

According to the Common Core State Standards (CCSS) (2010), third graders like Daryl

are expected to "use text features and search tools (e.g., key words, sidebars, hyperlinks) to

locate information relevant to a given topic efficiently" (para. 1). Yet, we consistently see

misunderstandings about website features such hyperlinks, multimedia, menu bars, and

embedded advertisements (Pilgrim, Vasinda, Bledsoe, & Martinez, 2018), unless explicitly

taught. There is so much for students to understand and navigate in the "Wild Wide Web."

Syncing Digital and Traditional Literacy Skills

Because online information is readily available to children both in and out of the

classroom as part of *the present,* it is time to move past the charge to prepare our students for the

future. We need to prepare them for their future and *their present*, and "online reading and

learning should be our focus" (Leu, Forzani, Timbrell, & Maykel, 2015, p. 139). The

International Society for Technology in Education echoes and supports this recommendation

with technology standards for *today's* students that identify digital skills which focus on learning

through exploring and analyzing so that they can use technology to "work, live, and contribute to

the social and civic fabric of their communities" (ISTE, 2012, para. 2). Yet, literacy research

continues to find that overall, students' online reading skills are limited (Coiro, 2005; Coiro,

Knobel, Lankshear, & Leu, 2008; Leu et al., 2015; November, 2008).

Increased use of the internet will continue to impact the role of the literacy teacher (Leu,

Kinzer, Coiro, Castek, & Henry, 2013). The teacher's role in preparing students for research on

the internet includes providing opportunities for student exposure to online information so they

become proficient in today's literacies and the literacies of their future (International Reading

Association, 2009; Leu, et al., 2015). Skills required for evaluating online information are often

referred to as Web literacy skills (Leu et al., 2015; November, 2008) and encompass knowledge

necessary for students to be productive and savvy consumers of this information, including the

ability to locate online material and to synthesize and evaluate the material using specific

criteria. Dalton (2015) emphasizes the importance of these skills and redefines the literacy

teacher of today as a teacher of Web literacy. "Web literacy is huge. It's everything we do on

the Web" (p. 605).

Children's Websites versus the Web in the Wild

Over the past two years, we have been collecting data to determine elementary students'

knowledge of Web literacy skills (Pilgrim, et al, 2018). After noting consistent challenges

students experience while navigating the internet, we wanted to understand how effectively they

search and critically evaluate online information. This work led to the pursuit of websites to use

with children in our data collection as we observed them navigating and evaluating information

on the Web. In our initial work, we noted that many text features on children's websites work

differently than the way they work in what we have come to call the "***Wild*** Wide Web." For

example, hyperlinked words sometimes linked to a glossary-like definition instead of another

website. We wanted to know more about children's websites. This led us to explore the

question: *How do children's information websites compare to adults' information websites?* To

start, we searched for and chose a reliable and well-known website developed for both the

general public that also had a website specifically designed for children. We analyzed and

compared National Geographic (http://www.nationalgeographic.com/) and National Geographic

Kids (NGK) (http://kids.nationalgeographic.com/) examining online text features, organization,

and layout.

National Geographic (NG). NG's primary site's tagline is "A world leader in

geography, cartography, and exploration". Throughout the site, users find engaging photographs

and informative articles. A horizontal menu on the landing page included: Photo of the Day,

TV, Perpetual Planet, Latest Stories and a search bar. A side bar contained a variety of topics:

photography, video, science, travel, adventure, animals, environment, history, and cultures. A

drop-down menu offered tabs to "Nat Geo Sites," including a link to their corresponding

children's site.

The NG search tool enabled quests leading to resources both within and outside of the

website. Hyperlinks embedded within each informative article led to additional pages within the

site and outside of it. These additional linked articles also included hyperlinks connected to still

more resources. Additionally, hyperlinked ads directed users to commercial sites outside of

NG's organization as well as ads to subscribe to National Geographic magazine. Upon scrolling,

readers can select videos or articles as well as "follow" NG on Facebook and Twitter.

National Geographic Kids (NGK). Although the "About Us" page on NGK stated,

"We teach kids about the world and how it works, empowering them to success and make it a

better place" (para. 1), the first entry when conducting a Google search for NGK advertised the

following: "Play games, watch videos, learn about animals, and places, and get fun facts on the

National Geographic Kids website." The menu bar reflected this statement as well. It had

brightly-colored buttons with pictorial symbols for the following: Videos, Games, Animals,

Shop, Subscribe, and Search. There was also a menu button in the upper left corner with

dropdown options that offered the same menu items along with Homework Help and an

Interactive World Map option. At first glance, one might think the only information to find on

this site would be about animals, since there is a specific button for this information, but using

the search bar, children can find information for geographic and social issues such as recycling,

climate change, and endangered species. We explored the options linked to the animal menu

button. These links were arranged in an array of colorful boxes that included a photo or realistic

drawing of each animal as well as a "like" heart button. After clicking on several animal links

and finding no hyperlinks within the texts, we clicked on the first 100 of the animal posts. Of

these short articles, only 11% contained hyperlinked text leading to other webpages within the

site. None included hyperlinks leading outside of the site. Using the search tool, we conducted a

search on "climate change." Of the 10 online texts generated, 50% had hyperlinked text and

50% did not. As with the animal searches, the hyperlinks led to content within the site.

NGK also included ads. These ads were hosted by NG for NGK commercial items and did not navigate away from the organization's site. NGK did not include links leading to social media but did include features that reflected social media platforms. For example, children may click on a heart icon to "like" a topic, just as Twitter users can click on a heart icon to like a tweet or Facebook users can react to a post.

Comparing More Children's Websites

Our National Geographic comparison of their primary and children's websites enabled us to develop initial criteria for a systematic analysis of additional children's websites to see if their resources and texts were reflective of typical resources and tools found on the Wild Wide Web. Using this information and the literature about online reading (Coiro & Dobler, 2007; Leu et al., 2015), we developed a checklist of online text features. Our checklist included information related to website domain, visuals, hyperlinks, copyright, ads, and other related appearance and navigation tools (Appendix A). To find additional websites to examine, we turned to our elementary teacher colleagues. Using a Facebook post, we asked teachers for recommendations of research websites used in their classrooms. A total of 30 website recommendations were collected. We conducted a content analysis on these websites (Appendix B). Some websites recommended by teachers were commercial, subscription-based sites requiring an account. In these cases, we created temporary accounts to access the website's content.

As we examined the recommended websites, we found that many included features that did not function in the same way as websites "in the wild." In addition, commonly used website features were absent. We noted differences in the following categories: audience and purpose, website features, appearance, and navigation tools.

Audience & Purpose

The children's websites targeted a wide range of grade levels. All but one website, How

Stuff Works, targeted grades K-5. Although we asked for research websites, at least one third of

these websites were designed to reinforce basic math, reading, or writing skills. Of those, 85%

focused on science or math. Thirty-two percent included social studies content and 39.3%

included Reading/English content. Twenty-five percent of the websites included cross-
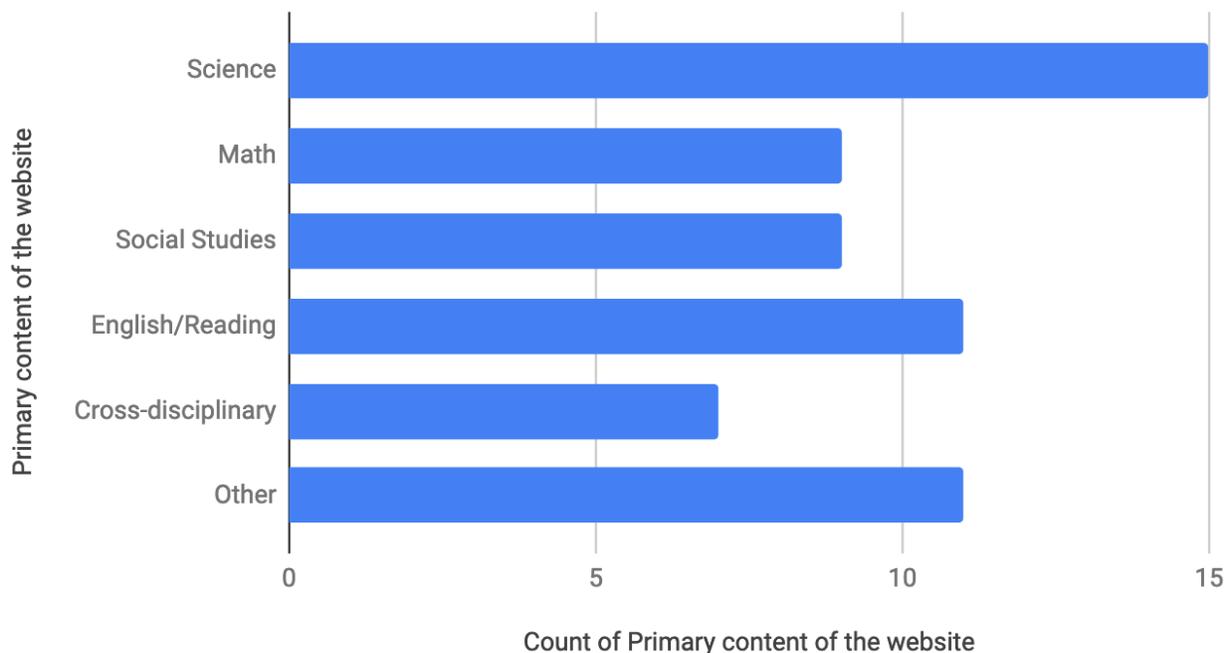
disciplinary skills practice (Figure 1).

Figure 1. Educational content focus of children's websites

The purpose of the websites varied according to the nature of the website host. For

example, teacher recommended sites like NASA Kids and National Geographic enable students

to research science, geographical, and environmental topics. Teachers also recommended

websites like Time for Kids, which offer a wide variety of informational texts. The purpose of

these websites is essentially to provide up-to-date, multimodal resources for teachers, parents, and students. According to the subscription-based Discovery Education (2017), their resources help transition "classrooms to a 21st-century learning environment, or to replace textbooks with modern digital resources" (para. 3). The primary purpose of most websites was for education or school purposes (66.7%), although 56% of website offerings included games and play. These websites use interactive games to reinforce skills taught in the classroom.

Subscription Sites. Almost 27 % of the recommended websites required a paid subscription and included login access for users. These commercial websites, such as Pebble Go and Discovery Education, are designed to provide safe searches as well as math and reading skill work from which teachers can collect assessment and achievement data. These subscriptions enabled personalized practice and learning through teacher management of learning systems. The sites tracked student and class progress. Even though safe researching was a component, it appeared many of these websites were used for skill practice rather than for informational searches.

It seemed that in order to protect students from outside content, site searches led to vetted content within the search engine. Of the subscription-based websites reviewed, the publisher information was located on all but one website. In order to determine the trustworthiness of a website, a user must be able to find information about the website, including author, publisher, and copyright information. Of the websites analyzed, 23.3% did not include an "about us" link or any other way to check the website for reliable information.

One popular subscription website was PebbleGo: The Emergent Reader Research Solution (https://pebblego.com/). The site developers claim that this resource builds a

foundation of research skills. This site contains databases for animals, science, biographies,

social studies, and dinosaurs, featuring leveled text and navigation designed for beginning

researchers. The website searches are fairly reflective of a typical internet search, but the teacher

maintains a safe environment by assigning topics included within the website databases.

Searches generate minimal information. For example, if a student searches for "tiger" within the

animal database, the results include tabbed information about the body, habitat, food, life cycle,

fun facts, or related short excerpts. Students select from these tabs. If a student chooses "body,"

four sentences describing the tiger are provided on an easy readability. Searches provide

students with a way to print or cite materials, which is a valuable research skill. Visuals are

used, since the site focuses on young readers. Another valued feature is the text-to-speech

reading option so emerging readers can use the website for research.

Website Features

   Appearance. The content and features of children's websites reflected both visual and

information differences. Children's websites were primarily cartoon-like (76.7%). Websites

included life-like photos as well (66.7%), but the life-like photos were generally embedded

within a cartoonish context. Less than one-third (27.6%) of children's websites included

commercial ads, as often seen on adult pages.

   As in websites for general use, some children's websites embedded social media or social

media-like features. Almost 40% of the children's sites included icons which led to social media

sites like Facebook or Twitter. In addition, one-third provided options for "liking," polling, or

interacting with other children, similar to popular social media platforms.

Search tools. The whole point of researching is to get information. Adults search the

internet scanning text to find needed information (Nielsen, 2010). We found that 50% of the

websites included a search tool which enabled students to explore the site, represented by either a

search box or magnifying glass icon. Yet, most of the searches on children's websites yielded

multi-modal information, with very little informational text for children to read. For example,

the NASA Kids' Club site

(https://www.nasa.gov/specials/kidsclub/nowinspace/expedition56/index.html) provided visual

entertainment with very few links to informational text. We encountered some reading material

by clicking on "Find Out Who Is on the Space Station," which led to a slide with a photo of the

astronauts, accompanied by 3 sentences describing the picture. Overall, only 43.3 % of the

recommended websites included informational articles for children to read. CBS Kids, Canadian

Geographic Kids, DOGO news, and Time for Kids all provided substantial informative articles

for students to read.

One recommended website was a search

engine designed for children. KidRex is a kid-

friendly search engine, powered by Google. The

search box has the appearance of a child's crayon

drawing (Figure 2). The search engine works just

Figure 2. KidRex Search Engine

like Google, where a search is typed in the box and

results are generated based on keywords. KidRex searches "emphasize kid-related webpages

from across the entire web and are powered by Google Custom Search™ and use Google

SafeSearch™ technology" (www.kidrex.com, para.1). The website also screens out

inappropriate content and excludes these sites from search results.

Navigation

Website navigation involves knowledge about how to attend to information on a page

when first arriving at a site (Coiro, 2005). Web pages contain unique features that may require

knowledge of website layout and organization in order to navigate a page and to effectively

locate information. Of the websites we examined, 80% of the websites required scrolling, 27.6%

included commercials, 50% allowed students to search the site, 37.9% included Facebook or

Twitter icons or messages, and 33.3% enabled "liking" features. Yet, 33.3 % of the websites

were difficult to navigate. For example, we found it difficult to return to the home page on some

sites. Other sites included navigation buttons not labeled with words. Scrolling, discerning ads

from content, and recognizing social media are among many Web literacy skills students need in

order to navigate the internet. The ability to locate author and publication information is

essential as well, and in our analysis, 24% of the websites did not include copyright information.

Hyperlinks. In most general public websites, hyperlinks are words that appear to be a

different color and take users to another place on a webpage or, most often, to a new webpage

within the site or outside the site. The hyperlink is one of the distinguishing features of online

texts (Warlick, 2009). About 33.3 % of the websites included hyperlinked words within the

content of the website (Figure 3), but of these hyperlinks, only 33.3% took students to outside

sources (Figure 4). So, in other words, only about 11% of hyperlinks in children's website

function the same as they do in general websites. In the children's websites analyzed, we

encountered "walled gardens," in which hyperlinked texts, if there were any, linked only to other
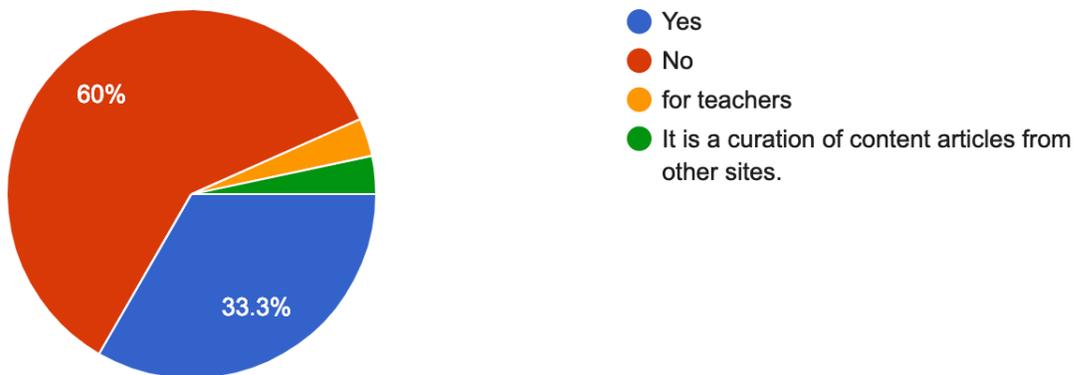
texts within the host site.

Legend:
- Yes (blue)
- No (red)
- for teachers (orange)
- It is a curation of content articles from other sites. (green)

Chart values: 60%, 33.3%

Figure 3. Children's websites that contain hyperlinks within text

Legend:
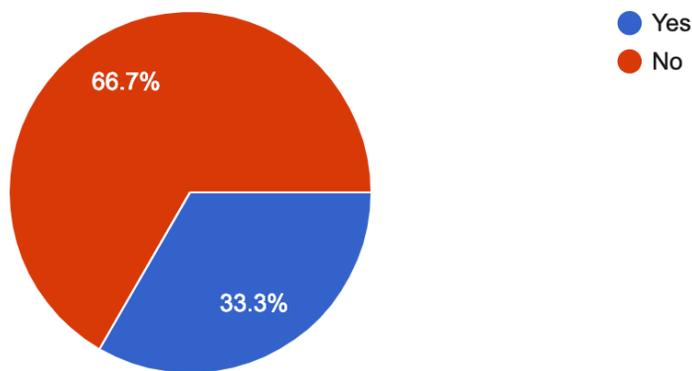- Yes (blue)
- No (red)

Chart values: 66.7%, 33.3%

Figure 4. Hyperlinks in children's websites that lead to external web pages

We found that children's websites frequently used visuals or "buttons" to link to information, rather than hyperlinked words, for easier use, like the NGK animal buttons. These hyperlinks most often took users to another page within the site as a safe search design. Additionally, some hyperlinked words in many children's websites, such as Dallas Symphony Orchestra (DSO), provide definitions, which is more like an electronic dictionary feature on eBooks (Larson, 2015).

Beyond the Walled Garden

According to Nielsen (2010), "little is known about how children actually use websites or how to design sites that will be easy for them to use" (para. 2). Designers typically create children's websites with entertainment and usability, including age appropriateness and ease of navigation, in mind (Nielsen, 2010). We found this to be true in our study. These children's websites are obviously on the World Wide Web, but they often do not function the same way as the Web in the wild, as there is little to navigate. Many lack the navigation features typically found on the internet, such as hyperlinks, copyrights, and ads, and recognizing these features and their functions is an important skill specific to online reading (Coiro & Dobler, 2007; Leu et al., 2015). Navigation differences could relate to other findings of the Nielsen Norman Group (2010), which reported that children visit websites for entertainment, are quick to judge and leave a site, do not use back arrows, and skim rather than read.

Although entertainment may be the initial goal for children's personal time online, they do spend some time researching, and standards across the globe articulate expectations that elementary-aged children should become proficient online readers and researchers (ISTE, 2012). Content in children specific websites was geared toward younger ages in terms of the amount of information provided. Expository text excerpts were short and simple. For example, on the National Geographic for Kids website, there is very little text about each animal as compared with a nonfiction picture book. According to Nielsen (2010), children are quick to judge and leave a site. This may have something to do with the appearance of many children's websites lacking abundant text.

Findings from our study also indicate that the sites teachers recommended to us often reflected the use of neat and tidy walled gardens where the data bases are preselected, the information has already been vetted for reliability, and there are few distractions. In a walled garden environment, searches are restricted to content within the host's website (Technopedia, n.d.), which limits experience such as choosing resources and evaluating their trustworthiness and does not pose the same "messy" challenges of discerning between relevant content and ads or hyperlinks that lead away from a topic. This walled garden phenomenon was evident in our content analysis. Many websites required subscriptions or prevented students from leaving the host site, thus avoiding the "messiness" of the Wild Web. While we are not advocating for turning children loose in a complex online environment unequipped, we do recommend that teachers understand the potential effects of searches that lack the authentic challenges of the Wild Wide Web.

Hyperlinks and other "messy" online text features. The organization and text features of traditional, paper-based texts written for adults vary little from texts written specifically for children. The variation is in text complexity, but text features are dependable and consistent. Authors use features like examples, pictures, and descriptions to support the reader (Lapp, Moss, Grant, and Johnson, 2015). Therefore, it makes sense that websites designed for children should mimic the authentic features of the Wild Web, with text levels that are accessible for children, even if they stay in a walled garden. On websites in the wild, hyperlinks take readers to other pages within and outside the host site. When there are no hyperlinks in a children's website or when hyperlinks function as a glossary, students develop a pseudo concept about how hyperlinks work (Pilgrim, et al., 2018).

In addition to offering access to further content, hyperlinks also offer the potential for distractions as they lead to more and more hyperlinked texts, related or unrelated to the research focus. Advertisements also pose distractions in the Wild Web, often appearing to be additional content, but leading to online commercials, instead. In order to gain understanding of website features and online text, students need some exposure to research in Wild Wide Web type environments, with all of its distractions and fallibility.

Opportunities to assess reliability and trustworthiness. There is no question that teaching students to discern the accuracy of online information is critical. If students remain in a walled garden, they do not receive opportunities to critically evaluate online information. Overall, only 44.8% of the teacher recommended websites mimicked websites in the wild. It seems logical that exposing students to authentically designed websites and explicitly teaching Web literacy skills would improve critical reading skills. This can be done with well-chosen online texts and adjustments in website design to mimic the Wild Web while still keeping children safe.

Implications and Conclusions

While providing safe search environments is a priority in the classroom, authentic experiences with online information is important as well (Dwyer, 2015). One of our most concerning critiques of sites designed for kids is either the absence of hyperlinks or hyperlinks that don't function as those on the Wild Web. Websites used in the classroom should include hyperlinks that function as paths to other pages, rather than a glossary. We found that subscription sites like PebbleGo replicate authentic searches at a very basic level, but most provided limited exposure to features and navigation tools required for online reading.

Additionally, subscription sites are expensive and may not be a resource for schools with limited budgets. Online reading expert, Jill Castek, expressed concerns about online search proficiency and access in her critique of the ePIRLS assessment, as students reporting the most access to the internet scored better in online reading (Herold, 2018). Therefore, search engines like KidRex, Google's kid-friendly search engine, serve as effective tools for authentic searches. National Geographic Kid's walled garden also has the potential to mimic authentic searches. It has ads for NGK products and when hyperlinks are present, they offer both relevant information and some tangentially related information that could be used to determining relevance to the task. A recommendation we offer to NGK is to include more hyperlinks in more of the provided texts.

Just as teachers carefully choose mentor texts for explicit teaching of reading and writing (Dorfman & Cappellini, 2017), online mentor texts are important. When teaching with online texts, it is wise to select texts with hyperlinks, ads, and other distracting features in order to model navigation of internet searches. Students like Daryl, our third grader searching for information about dolphins, benefit from the modeling of effective search strategies. Students need instruction on how to navigate past the distraction of ads and how to return to a previous page when finding themselves reading unrelated content through hyperlink link explorations. Modeling the use of back arrows, "About" tabs, copyright information, and other "messy" features is a part of literacy instruction in today's classroom.

Understanding the differences in websites designed for children and those of the general public helps us choose our online texts with greater knowledge and purpose. As educators, we have a responsibility to keep our young readers safe, and we also have a responsibility to equip them to handle the discoveries and distractions of wild online reading. Reiterating his concern

about students' abilities to navigate a Wild Web, Leu concluded that the performance of US

students does not likely demonstrate, "a level of performance adequate to be fully successful in

learning during online inquiry" (Herold, 2018, para. 24). Learning to research online needs the

same careful and explicit teaching we use for teaching research skills with paper texts, in

contexts that mimic the Wild Wide Web.

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Appendix A

Children's Website Evaluation (Google Form)

Website Name

Website URL

Recommended by Teacher
Yes
No

Primary audience is children
Yes
No

Primary content of the website
Science
Math
Ss
Eng
Cross-disciplinary

Primary purpose of the website
Games/play
Education/School
Information/scholarly/content-related
Estimated grade/age level
Preschool-K
K-5
6-8
High School

Publisher
Found on home page

Unable to locate

Domain

Education Institution, typically higher education (.edu)

Any organization (org)

Commercial (.com)

Government (.gov)

Military institution (.mil)

Academic institution (.ac, not in US)

Other

Visual/website material (check on answer which reflects the appearance of the website)

Cartoon-like

Life-like photos

Charts/graphs

Hyperlinks

Navigation of website

Description (optional)

Navigation of website:

Navigation requires use of a scroll bar

Navigation requires knowledge of the menu bar

Navigation requires the ability to click on buttons

Navigation requires knowledge of hyperlinks

Navigation requires reading skills

Other

Which of the following does the website use on the home pages as a website "menu?"

Buttons with visuals

Headings and subheadings students must read

The following questions required yes/no answers:

The website includes information articles students can read.

If yes, do the links take students to outside sources?

The website contains commercials children can click on

The website contains videos students can watch

The web site enables students to search the website (search box)

The website contains icons leading to social media sites (FB, Twitter)

The website includes features such as "liking," polling, or interaction with other children

The website provides speech to text capabilities

The read text is highlighted (follow-along text)

The website includes an "about us" or another way to check the website for readabilit9y

The home page or main menu is easy to locate

The website is comparable to sites adults use to find information on the internet (if applicable)

The website requires a subscription or login to use
Yes
No
Free trial option
Other

Ease of navigation (comments);

Note distractions (lots of noise, lots of busyness on page, movement, lack of movement):

Appendix B

Name	Website	Login Required	Description
ABC Ya	www.abcya.com	Yes	Includes math and language arts games for children in K-5, sorted by grade level.
Animal facts - Canadian Geographic Kids	https://www.canadiangeographic.ca/kids	No	Shares animal fact sheets for many Canadian animals
BBC Kids	www.bbckids.ca	No	Provides free online games sponsored by BBC Canada and children's videos on demand (VOD) with subscription to local television company.
Brain Pop Jr.	https://jr.brainpop.com	Yes	Provides cross-disciplinary movies, quizzes, games, and activities for K-3 students.
Build with Chrome	www.buildwithchrome.com	No	Enables an online building platform.
CBS Kids	www.cbc.ca/kidscbc2	No	Includes educational games, videos, and informational articles for children.
DSO. Kids (Dallas Symphony Orchestra)	http://dsokids.com/	No	Provides games, music, classroom activities, and information about going to the symphony.
Discovery Education	www.discoveryeducation.com	Yes	Provides STEM content for teachers and students using instructional videos, skill builders, games, audio files, images, writing prompts, and encyclopedia articles.
DOGO News	http://www.dogonews.com/category/world		Provides a way for kids to engage with digital media. New news items are posted daily.
EcoKids	https://ecokids.ca/	No	Offers free environmental learning activities and resources for teachers, students, parents and communities.
Education Galaxy	www.educationgalaxy.com	Yes	Provides standards-based and teacher-managed platform for elementary

			student science assessment and activities
FunBrain	www.funbrain.com	No	Provides educational games that focus on math, reading, traditional games, and others.
Funology	www.funologycom	No	Provides parent/teacher resources with ideas to entertain kids offline.
GoNoodle	www.gonoodle.com	No	Provides hundreds of both fun and content-based videos with music and dancing, for designed to get students up and moving in the classroom or at home.
How Stuff Works	http://www.howstuffworks.com/	No	Answers and explanations of how the world actually works. Designed for all audiences- older children through adults.
KidRex Search Engine	www.Kidrex.org	No	Provides a safe-search option. This search engine is produced by Google.
Moby Max	www.mobymax.com	Yes	Addresses learning gaps in K-8 subjects, including math, reading, language, writing, and science. Students complete tasks and are rewarded with opportunities to play games.
NASA Kids	www.nasa.gov/audience/for kids/kidsclub/flash/#.V2Vjf ZMrJE6	No	Includes games and information about NASA.
National Geographic for Kids	http://kids.nationalgeograph ic.com/	No	Includes games, videos, and facts about animals and places.
Pebble Go: The Emergent Reader Research Solution	www.pebblego.com	Yes	Enables students to search for and read information about animals, science, biographies, or social studies (includes videos, citation information, and activities).
Prodigy	www.prodigygame.com	Yes	Provides teachers with a way to track students' progress on math skills as students move through assignments/ activities.
Reading A-Z	https://www.readinga-z.com	Yes	Provides teachers with information/resources about levelled

			books. Includes activities, worksheets, and stations which can be used with guided reading groups.
ReadingEggs	www.readingeggs.com	Yes	Provides games songs, and activities that promote basic reading skills.
Reflex Math	www.reflexmath.com	Yes	Promotes (and tracks) practice of math facts through a game-based approach.
Science Bob	https://sciencebob.com	No	Includes science information as well as ideas for classroom science experiments and projects.
Starfall	www.starfall.com	Yes	Promotes practice of reading ranging from emerging to advanced reading skills. The online materials include interactive features to engage students.
Sumdog	www.sumdog.com		Provides teachers with a way to track students' progress on math skills through game-based practice.
Time for Kids	www.timeforkids.com	No (some content requires login)	Includes some free digital news content and printables with graded reading levels.
Vocabulary Spelling City	www.spellingcity.com	Yes	Includes games and activities students use to practice reading/language arts skills.
Wonderopolis	http://wonderopolis.org/home		Includes daily postings of a new "wonder" with videos and articles to explore the topic in several ways.