

School Librarians and Web Usability: Why Would I Want to Use That?

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Abstract

The usability of a statewide curriculum website was evaluated involving 876 participants. Site usage differed based on user group and overall site content and relevance was found to be good along with high levels of satisfaction with graphic design. Usability problems with ease-of-use, however, were identified leading to the suggestion that many potential users do not use the site because of difficulty finding the information they are looking for. Implications of the research center on the articulation of a usability evaluation framework that could be generalized for testing the usability of other websites as well as redesign considerations for the site examined for the study.

Introduction

The world of a teacher or school librarian is busy, bustling, and ever diverse. Time is of the essence and the demands on their time are constant. A state department of public instruction wanted to know what the state's teachers, students, and school librarians thought of its curriculum resource center. Were they even aware of it? If so, how did they use it and how usable was it for them? A university research team was tasked with answering these questions. According to Nielsen and Loranger a website only has between 25-35 seconds to convince a user that they will be able to find what they are looking for and stay on the site (Nielsen & Loranger, 2006).

Information Seeking and Web Usability

Users searching for information are restless with a need for attaining the information that they seek. According to Taylor (1968), information seekers have a "vague sense of dissatisfaction" (as cited in Case, 2007, p. 72) that causes them to seek out information that will help alleviate this need. Belkin, Oddy and Brooks (1982) also refer to a user's information need as a "... recognized anomaly in the user's state of knowledge" and Derwin describes the quest for information as "sense-making" (Case, 2007; Chow & Bucknall, 2011). Pirolli and Card (1999) refers to the information need as information foraging where humans are informavores (Denis, 1991, as cited in Pirolli & Card, 1999) that hunt for information. Well designed websites high in usability therefore need to be both high in relevance and ease-of-use (Nielsen, 2005) and possess information architectures that have clear and strong 'information scents' so users can satisfy their hunger for information and find what they are looking for as efficiently and effectively as possible (Chow & Bucknall, 2011; Morville & Rosenfield, 2008).

One of the most commonly cited definitions of usability is the International Standards Organization's standard 9241-11, which defines *usability* as the "extent to which the product can be used by specified users to achieve specified goals with *effectiveness*, *efficiency* and *satisfaction* in a specified context of use" (11) (ISO 9241-11, 1998; Jordan, 1998; Alshamari & Mayhew, 2009; Alonso-Ríos, Vázquez-García, Mosqueira-Rey, More-Bonillo, 2010). *Effectiveness* is the "percentage of goals achieved, percentage of users successfully completing tasks and average accuracy of completed tasks," *efficiency* is the "time to complete a task, tasks completed per unit time and monetary cost of performing the task," and *satisfaction* is a "rating scale for satisfaction, frequency of discretionary use and frequency of complaints" (ISO 9241-11 as cited in Alonso-Ríos, et. al., 2010, p. 54). Jordan (1998) further defined subcategories for effectiveness - which is comprised of task completion and quality of output - and efficiency - which is defined by error rate, time-on-task, deviations from the critical path, and mental effort.

There are also significant differences between needs and preferences of adult and youth information seekers. Research has found that children's information-seeking behavior is characterized typically by browsing rather than searching for information using keywords (Large, Beheshti, Clement, Tabatabae, & Yin Tarn, 2009). A typical high school aged information seeker (14-18 years old) tends to have a short attention span, gets easily bored, scans rather than reads material (Fidel et al, 1999), and prefers larger font sizes (DiMichele, 2007; Nielsen, 2005). Pre-adolescent information seekers similarly prefer visual cues to just text and in general do not like to scroll. Information seeking emphasizes more exploration than hunting for specific information. The typical middle school student likes bright and engaging colors (Large, Beheshti, & Rahman, 2002) and sites that include animation, sound effects (Neilson, 2005), and bright colors throughout the background and the foreground of the site.

The emotional or affective state in particular of youth information seeking has also been identified as an important factor (Dubroy, 2010) as negative reactions to a site or high levels of uncertainty may cause children to more likely abandon their information search altogether (Kuhlthau, 1991). In contrast, feelings of excitement, happiness, and enjoyment have been found to increase overall information seeking persistence (Bilal, 2005). The field of human computer interaction (HCI) has embraced the affective state as usability and cognitive processes have become more salient variables to consider in developing more highly usable websites and information spaces. According to Norman (2002), “A human being’s affective system is judgmental, assigning positive or negative valence to the environment”; immediate emotional reactions to interfaces, emphasizing “engagement, pleasure, and delight rather than just functionality” (Deng & Poole, 2010, p. 712). Emotional reactions to websites in fact, may be a more significant factor to information spaces users tend to use than task efficiency (Bucy, 2000 as cited in Deng & Poole, 2010). Schwarz labeled a user’s general affective reaction as “affect as information”, which represents a, “halo effect of emotional response toward an object carries over to the evaluation of object characteristics and general attitude to the object” (Schwarz 1986 as cited in Deng & Poole, 2010, p.712).

In response to the growing research on usability in the literature, usability design standards have been developed that guide both preliminary design as well as serve as a checklist for existing sites. Ten usability design standards have been identified in particular as taking precedent (Jordan, 1998; Nielsen, 2005) with *compatibility* – designing a product compatible with user expectations – and *prioritization of functionality and information* – the most important functionality and information are easily accessible to the user – identified as the two most important usability design criteria to be aware of.

Table 1 - Usability Design Standards

Usability Heuristics (compiled from Jordan, 1998; Nielsen, 2005)

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1. **Consistency:** Designing a product so that similar tasks are done in similar ways.
 2. **Compatibility:** Designing a product so that its method of operation is compatible with users’ expectations based on their knowledge of other types of products and the “outside world.”
 3. **Consideration of User Resources:** Designing a product so that its method of operation takes into account the demands placed on the users’ resources during interaction.
 4. **User Control:** Designing a product so that the extent to which the user has control over the actions taken by the product and the state that the product is in is maximized.
 5. **Visual Clarity:** Designing a product so that information displayed can be read quickly and easily without causing confusion.
 6. **Prioritization of functionality and information:** Designing a product so that the most important functionality and information are easily accessible to the user.
 7. **Explicitness:** Designing a product so that cues are given as to its functionality and method of operation.
 8. **Match between system and real world:** The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order
 9. **Recognition rather than recall:** Make objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.
 10. **Aesthetic and minimalist design:** Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

The purpose of the study is to determine the overall impact of a statewide curriculum resource center website utilizing a usability framework. Three research questions guide the study:

RQ₁: Is the website relevant and easy-to-use for users?

RQ₂: How does the website rate in terms of efficiency, effectiveness, and satisfaction?

RQ₃: How does the website compare to recommended web usability design standards?

Method

The concepts of effectiveness, efficiency, and satisfaction are typically experienced differently based on user status and perspective. Therefore, in order to ascertain overall usability, both the site's users and the overall relevance and ease-of-use in which they can seek and find information must be determined. To understand the authentic perspectives of the diverse set of users the site is designed to serve school librarians, teachers, and students at the elementary, middle, and high school level were asked to participate. The study's collected data from 876 participants utilizing a statewide online survey, six focus groups (three teacher and three student), and 21 usability tests of teachers, students, and school librarians.

Online Satisfaction Survey (n=816)

A 13-item online survey was administered over a two week period to school librarians and teachers sent via email list serves as well as a link placed on the DPI home page. Overall, 816 participants completed the survey. Demographics of the respondents were not diverse as the sample was comprised of 90% female and 90% white. In terms of user group representation 50% were school librarians, 30% teachers, 12% students, and 8% parents. Elementary school participants represented the majority (41%) followed by middle school (31%) and high school (29%). The majority of respondents reported having access to broadband connectivity, 74% (n=602), while 20% reported still using a dial-up connection at home. In terms of prior experience with the site, 57% (n=466) reported being expert users (visited 20+ times) and 25% reported being at least familiar (visited 5-19 times) with the site (n=200).

School Site Visits (n=60)

Sixty teachers, students, and school library media specialists also took part in six focus groups and 21 usability tests. Three different on-site visits to schools were conducted in different regions of the state: One elementary school (n=22), one middle school (n=12), and one high school (n=23). Usability testing with school librarians was also conducted at a local state conference (n=3). All were samples of convenience with the teachers and students being selected by the school's media specialist and oftentimes under the auspices of availability. The participants at the conference were volunteers who agreed to participate in the study.

Focus Groups

At each of the three site visits a focus group of teachers and students was conducted using a series of 13 questions designed to collect their main impressions of the site in terms of usability – relevance, ease-of-use, and overall satisfaction – while walking them through the site using an LCD projector.

Usability Tests

At each site six usability tests took place, three with teachers and three with students. Only three tests were conducted with media specialists.

Usability test procedures. Each participant was asked to sign a consent form (18 years or older) or an assent form (under 18) along with a demographic survey. A brief introduction was read explaining the testing process and then the test began. The sessions were video-taped and timed using the usability software Morae. After completing five tasks deemed to be representative of major tasks a typical user might attempt to complete,

participants were then debriefed using an instrument that measures their overall thoughts on the site's effectiveness, efficiency, and their overall satisfaction.

Usability Tasks. Teachers, students, and media specialists were asked to complete five representative tasks using think aloud protocol (TAPs) which is a protocol where the tester “thinks aloud” by verbalizing her/his thought processes as they attempted to complete each task. Examples of tasks used include for teachers, *find reflective learning activities and icebreakers*, for students, *where would you go to learn how to properly cite a source?*, and for school librarians, *find grade level competencies for computer skills*. (See Appendix A).

EES Post-Evaluation Form. Based on ISO Standard 9241 definition of usability – how effective, efficient, and satisfying a product or service is - each respondent was interviewed and debriefed about their thoughts after each test. Utilizing Jordan's more specific breakdown, each participant was asked to rate each usability factor on a scale of 1-10 (1=lowest, 10=highest). See Appendix B.

Usability Heuristic Evaluation. One final tool used to evaluate the overall usability of the site was each member of our three member team conducted a usability heuristic evaluation which rated how well the site compared to 10 of the most prominent usability design heuristics or standards including *consistency*, designing a product so that similar tasks are done in similar ways; *compatibility*, designing a product so that its method of operation is compatible with users' expectations based on their knowledge of other types of products and the “outside world”; and, *consideration of user resources*, designing a product so that its method of operation takes into account the demands placed on the users' resources during interaction. The ten standards and instrument used are attached as Appendix C.

Results

Survey Results

Survey respondents used the site mainly for research (27%), lesson plans (23%), professional development (17%), or school work (16%).

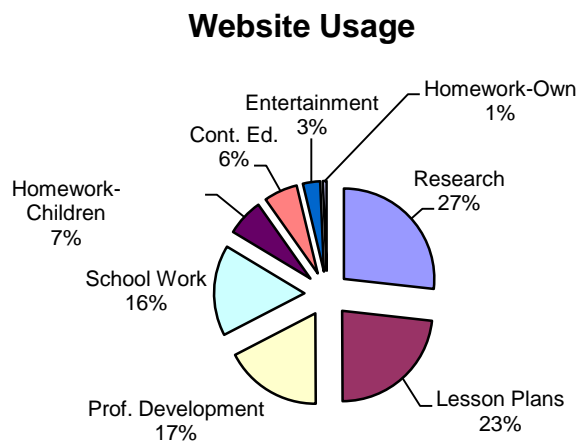


Figure 1 - Website Usage

The most visited areas of the site involved references source (n=517), the professional zone (508), and parent zone (400). In terms of age groups served, the elementary school zone (n=331) and middle school zones (n=298) were much more frequently used than the high school zone (n=128). Overall, the site received a cumulative satisfaction rating of 8.1, which suggests that most participants were satisfied with the site.

Table 2 - Most Visited Areas of the Site

Most Visited Areas of the Site	(f)
Reference sources	517
Prof. Zone	508
Parent Zone	400
IMPACT	382
Elem. Zone	331
Middle Zone	298
Kaleidoscope	279
eBistro	214
SAS in School	173
Media/Tech Zone	168
High School Zone	128
Other	83
Hovercraft	79

Focus Group Results

Teachers. Teachers associated the site for information about workshops (which many have previously used the site for), research, and lesson plans. When looking at the site's home page it was unclear to them at-a-glance what its purpose was and what it could offer them. In terms of strengths and weaknesses of the site, teachers felt that the site was "student friendly" and relatively well organized. In addition, a number of teachers mentioned that they liked the simplistic yet elegant graphic design. They noted, however, that some of the language is not age-appropriate (i.e. elementary students are not going to know what a "citation" is in the elementary school zone) or well organized as they recommended breaking up the zones into grade levels when appropriate.

In terms of overall purpose and reasons for using the site, use of the citation maker and access to online databases were most commonly mentioned and it was noted that the use of the site appeared to be much more prevalent on the elementary and middle school levels in contrast to the high school level. Many noted that they did not get a sense that people were using it and a number of teachers confirmed their own lack of use derived from not being aware of what is available to them and are unable to understand what there is "at-a-glance" and therefore they just use other sites. Other barriers toward using the site was it was "too professional" in appearance and did not really speak to either teachers or students. So for example, instead of having "zones" the main channel labels could be changed to "students" or "students and teachers," which would go a long way in telling them what the site is about without the need to have attended a workshop.

In general, teachers felt that the information and content the side provided was good but too distributed and not organized enough for them to understand what was available and remain on the site for very long. Time is extremely precious for them and if they cannot find it quickly they will move on to another resource. As one teacher put it:

"I don't know who would use this. It's too much work to find things. We're so curriculum driven that you've got to have things laid out with that in mind. As a teacher, we have so little time we need to see BAM let's hit it let's go there. Too much searching, we're not going back there. When you're searching you click on the top three and never make it past page two or three EVER" (teacher focus group response).

Students. For the most part, students were not very familiar with the curriculum site but their overall opinions were similar to the teachers in terms of satisfaction with the overall graphic design and use of colors but having difficulty finding information in an efficient, effective manner. Students reported having used it for class research in social studies as directed by teachers in-class. Overall, students were unable to clearly identify the site's purpose from the home page. Several students thought it may be a school locator organized by grade level. In terms of

general strengths students felt it appeared very organized with a nice graphic design. They could not really identify weaknesses as most had never used it or knew anyone that had used it.

One of the primary aspects of the site students really liked was its graphic design – both in terms of graphics (the owl and clouds are a big hit) and color in terms of simplicity and tasteful use of blue and white space. Some felt that the lack of use of color was a strength and “not like all the other Web sites designed for kids” with “crazy” colors everywhere while others said they wanted more color and animation like they are used to on other kids-oriented sites.

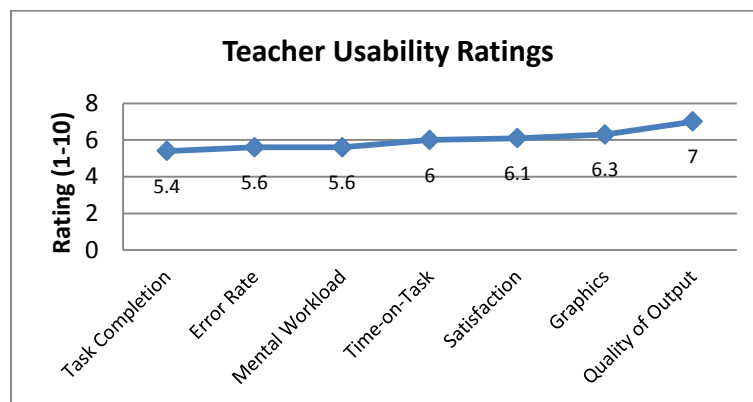
Usability Test Results

Teacher Results. Overall, teachers were able to complete Task 3 (*Find grant writing tips and list of grant opportunities*) and Task 4 (*find reflective learning activities and icebreakers*) successfully 89% of the time, Task 1 (*find information about different student learner profiles*) 78% of the time, Task 2 (*Return back to the home page*) only 33% of the time, and Task 5 (*find a lesson plan*) was not completed successfully by any participants. Also, as would be expected, the two tasks where teachers had the least success also had higher error rates and took longer than the other tasks.

Table 3 - Teacher Usability Tests
Teacher Task Completion

Task	Error	Time	Success?
1	1.5	41.6	78%
2	2.8	55.0	33%
3	2.4	49.8	89%
4	2.1	43.9	89%
5	4.0	77.0	0%

When examining usability ratings the site’s cumulative rating across all teachers was a 6.0 at of 10. The site’s highest rating was a 7.0 for quality of output and it received its lowest ratings for task completion, error rate, and mental load. In terms of the usability factors, overall *satisfaction* (6.2) and *effectiveness* (6.2) were the highest rated while *efficiency* (5.7) was the lowest rated.

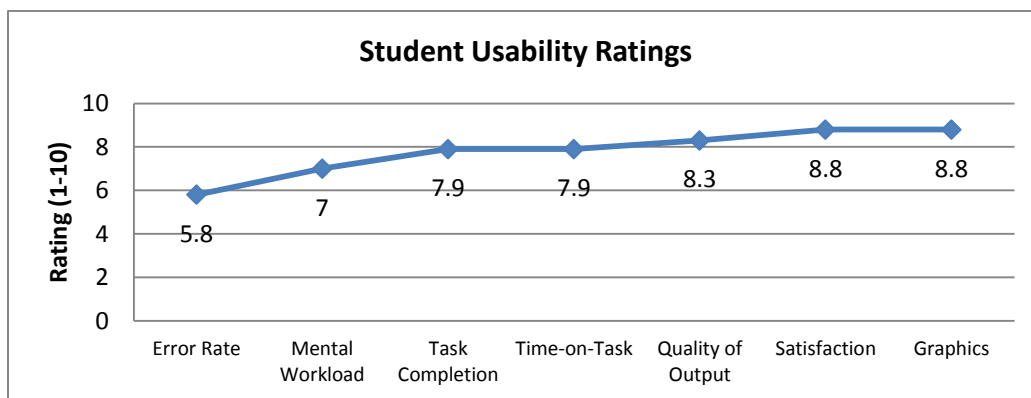


Student results. Task 2 (*Return to the home page*) was completed the most successfully at 75% while Task 3 (*Look up an encyclopedia article about Australia*) and Task 4 (*Find the first governor of North Carolina*) were completed 63% of the time. Task 1 (*Where would you go to learn how to properly cite a source?*) was completed only 38% of the time and Task 5 (*Find information on internet safety*) was only completed by 13% of students.

Table 4 - Student Usability Testing
Student Task Completion

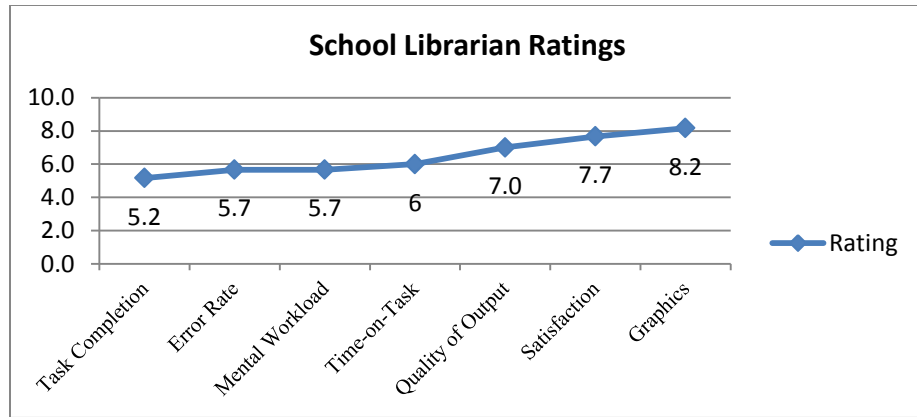
Task	Time	Error	Success?
1	5.1	117.3	38%
2	2.6	67.6	75%
3	2.0	37.3	63%
4	2.5	39.3	63%
5	6.5	125.0	13%

Student usability ratings conducted after the usability tests suggest that they liked the site graphics (8.8 out of 10) and were highly satisfied (8.8 out of 10) with the overall site. Error rate (5.8) and mental workload (7) were the lowest rated usability factors.

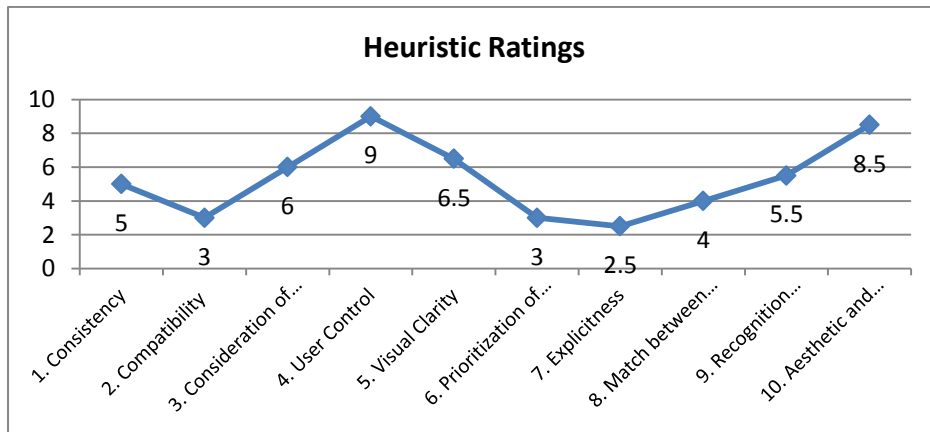


Students overall found the site to be *satisfactory* (8.8) and *effective* (8.1) with a higher need for improvement in terms of *efficiency* (6.9).

School librarians. The school librarians that tested the site liked the graphics (8.2), were generally satisfied (7.7), and liked the quality of the output (7.0). Overall *efficiency* (5.8) in terms of error rate (5.7), mental workload (5.7), and time-on-task (6.) and *effectiveness* (6.1) in terms of task completion (5.2) appeared, however, to be problematic.



Heuristic Evaluation. The site was examined by three researchers independently utilizing 10 usability heuristics. The site rated high on user control (9) and aesthetic design (8.5), moderate in consideration of visual clarity (6.5) and user resources (6), and low in explicitness (2.5), compatibility (3), and prioritization of functionality (3).



Conclusions and Recommendations

Overall the site does not appear to be used by many of the user groups it is designed to serve. Students currently use the website when they are assigned to by their teachers. Teachers use it primarily for research and information about workshops and lesson plans. School librarians use it for professional development and resources. Overall, the data suggests that across users they find the site to be relatively effective (6.8 out of 10) and satisfying (7.6 out of 10) while overall efficiency is lower (6.1 out of 10). Students appear to like the site at higher levels than teachers and school librarians and we surmise this may be the case because teachers assign specific tasks within the site so they do not have to search for information very often.

Table 5 - Cumulative Usability Ratings

EFFECTIVENESS	Student	Teacher	SL	TOTALS
Task Completion	7.9	5.4	5.2	6.2
Quality of Output	8.3	7	7.0	7.4
	8.1	6.2	6.1	6.8
EFFICIENCY				
Error Rate	5.8	5.6	5.7	5.7
Time-on-Task	7.9	6	6	6.6
Mental Workload	7	5.6	5.7	6.1

	6.9	5.7	5.8	6.1
SATISFACTION				
Satisfaction	8.8	6.1	7.7	7.5
Graphics	8.8	6.3	8.2	7.8
	8.8	6.2	7.9	7.6
OVERALL	7.9	6.0	6.6	6.8

Comparing the site on usability design standards also suggests that the overall graphic design is good but in terms of prioritizing information and having an information architecture where it is easy to search for and find information the site does not rate as high. The data allows each of the study's research questions to be answered.

Research Question 1: Is the website relevant and easy-to-use for users?

The site is currently used for discrete purposes by students (for homework and assignments), teachers (research, workshops, and lesson plans), and school librarians (professional development) and overall out of 814 responses the average satisfaction rating was 8.1 out of 10. The site does appear to be relevant based on the survey and focus groups more for teachers and school librarians than for students (few reported having been on the site at all) but ease-of-use seems to be more problematic as the site is rated highly on its clean graphic design and use of color but reserves low marks on the ability to either understand the purpose of the site at-a-glance or find information quickly.

RQ₂: How does the website rate in terms of efficiency, effectiveness, and satisfaction?

All three groups find the site usable in terms of content and quality of graphic design but do not find it easy-to-use in terms of efficiency as it received the lowest overall ratings on task completion, time-on-task, and mental workload. Furthermore, when examining the usability tasks the results were telling that none of the nine teachers were able to successfully find a lesson plan on the site during the usability tests and that they also had difficulty finding their way back to the home page (no home button on the site). Feedback from the teachers suggest that the site is not being used as much because they are having a hard time finding what they are looking for in an efficient and effective fashion.

RQ₃: How does the website compare to recommended web usability design standards?

The overall composite score for the independent heuristic evaluations was 5.3 out of 10. Rank ordering the ratings suggest that the site scores high on user control (no automated videos or sounds) and aesthetic and minimalistic design. Visual clarity (6.5) and consideration of user resources (6.0) were rated moderate suggesting again that the graphic design and overall content was minimalistic and easy to download. The remaining six heuristics, however, were rated low including the two primary standards of compatibility (3.0) and prioritization of information (3.0).

Table 6 - Heuristic Ratings

Heuristic	Avg.
4. User Control	9
10. Aesthetic and minimalist design	8.5
5. Visual Clarity	6.5
3. Consideration of User Resources	6
9. Recognition rather than recall	5.5

1. Consistency	5
8. Match between system and real world	4
2. Compatibility	3
6. Prioritization of functionality and information	3
7. Explicitness	2.5
Composite Score	5.3

Implications and Future Research

The usability factors of effectiveness, efficiency, and satisfaction (ISO 9241, 1998) serve as a useful framework in which to conceptualize and understand the relationship between user information seeking needs and website design and effectiveness as it relates to user relevance and ease-of-use. This framework can be used to introduce a vocabulary and set of viable and measurable user outcomes that can gauge what are otherwise vague and hard to quantify questions such as “are our users satisfied,” “is our site being used,” or “how effective and useful is our site?” Designing highly usable websites is more than a professionally designed graphic exterior but rather requires as well a robust, relevant, and easy-to-access and use content specifically designed for its intended users. Youth seek more exploration than straight information seeking (Fidel et al, 1999) where adult teachers and school librarians require relevant content and highly efficient and effective pathways as informavores (Pirolli & Card,1999) with little time for unsuccessful information hunting. The general concept of “affect as information” (Schwarz 1986 as cited in Deng & Poole, 2010) suggests that the emotions users experience when visiting a site are created through a balance of aesthetic pleasure with the graphic design and the ability to either explore and/or find the information that is relevant and useful in as an efficient and effective manner (subjective based on the information seeker).

The implications around this research centers on establishing a preliminary process around identifying user needs and then using quantitative and qualitative operational definitions of usability to test the overall efficiency, effectiveness, and satisfaction of users and their ability to complete typical tasks. The methodology can be repeated for general websites as well.

Future research will involve further empirically testing the validity and reliability of this process and the instruments used so that they can serve as valid methods for measuring and testing website usability.

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Appendix A – Usability Tasks

Usability Tasks

I. (Students)

Scenario: Your teacher has asked you to go to NCWiseOwl to access various resources needed for a report.

1. Where would you go to learn how to properly cite a source?
Critical path: home>elementary/middle/high>citation machine or citation maker
2. Now return to the home page.
3. From the home page, look up an encyclopedia article about Australia.
Critical path: home>elem./middle/high>lands & people database
4. From the home page, find the first governor of North Carolina.
Critical path: home>elementary/middle/high>north carolina web sites>nc governors
5. Find information on internet safety.
Critical path: home>kaleidoscope>nc students>web wise kids on internet safety

Critical path: home>parents>internet safety

Open ended questions:

1. Take them to the home page and ask them their overall reactions to it (like it, dislike it?)
2. Take them to the appropriate subsection for the user and again ask them their general reactions.
3. Take them to appropriate zones and get their general reactions to each (Kaleidoscope, Hover Craft, TechKnow Park)
4. Ask them what they might like to see added to the site
5. In general, rate the following on a satisfaction scale from 1-10 (1=lowest, 10=highest):
 - a. Graphic design
 - b. Use of color
 - c. How about the information?
 - i. Do you find it useful? Confusing?
6. Ask them what they might change

II. (Parents)

Scenario: Your son/daughter's teacher has asked you to help him/her go to NCWiseOwl to access various resources needed for a report.

1. Where would you go to learn how to properly cite a source?
Critical path: home>elementary/middle/high>citation machine or citation maker
2. Now return to the home page.

3. From the home page, look up an encyclopedia article about Australia.

Critical path: home>elem./middle/high>lands & people database

4. From the home page, find the first governor of North Carolina.

Critical path: home>elementary/middle/high>north carolina web sites>nc governors

5. Find information on internet safety.

Critical path: home>kaleidoscope>nc students>web wise kids on internet safety

Critical path: home>parents>internet safety

6. Where would you go to find a full curriculum for 5th, 6th, 7th, or 8th grade?

Critical path: home>kaleidoscope>browse by topic>curriculum bulletin boards> grade level

Open ended questions:

7. Take them to the home page and ask them their overall reactions to it (like it, dislike it?)

8. Take them to the appropriate subsection for the user and again ask them their general reactions.

9. Take them to appropriate zones and get their general reactions to each (Kaleidoscope, Hover Craft, TechKnow Park)

10. Ask them what they might like to see added to the site

11. In general, rate the following on a satisfaction scale from 1-10 (1=lowest, 10=highest):

a. Graphic design

b. Use of color

c. How about the information?

i. Do you find it useful? Confusing?

12. Ask them what they might change

III. (Teachers)

Scenario: You would like to visit NCWiseOwl to access various supplemental resources to assist you.

1. Starting at the home page, find information about different student learner profiles.

Critical path: home>kaleidoscope>nc educators>2. learner profiles

2. Return to the home page

3. Find grant writing tips and list of grant opportunities.

Critical path: home>ebistro>grant resources

4. From the home page, find reflective learning activities and icebreakers.

Critical path: home>ebistro>reflections on learning

5. From the home page, find a lesson plan:

Critical path: home>kaleidoscope>grade 5/techknowpark>for teachers only! hut>for teachers only magazine>content colesium>lesson plans

Open ended questions:

6. Take them to the home page and ask them their overall reactions to it (like it, dislike it?)
7. Take them to the appropriate subsection for the user and again ask them their general reactions.
8. Take them to appropriate zones and get their general reactions to each (Kaleidoscope, Hover Craft, TechKnow Park)
9. Ask them what they might like to see added to the site
10. In general, rate the following on a satisfaction scale from 1-10 (1=lowest, 10=highest):
 - a. Graphic design
 - b. Use of color
 - c. How about the information?
 - i. Do you find it useful? Confusing?
11. Ask them what they might change

IV. (School Librarian/Tech)

Scenario: You are visiting NCWiseOwl to access various resources needed to assist you.

1. From the home page, find grade level competencies for computer skills.
Critical path: home>kaleidoscope>nc tech. facilitators>comp./tech skills standard course of study
2. Return to the home page.
3. Locate local/professional conferences and dates.
Critical path: home>media/tech zone>conferences
4. From the home page, find a review of a technology-based instructional tool.
Critical path: home>media/tech zone>evalutech

Open ended questions:

5. Take them to the home page and ask them their overall reactions to it (like it, dislike it?)
6. Take them to the appropriate subsection for the user and again ask them their general reactions.
7. Take them to appropriate zones and get their general reactions to each (Kaleidoscope, Hover Craft, TechKnow Park)
8. Ask them what they might like to see added to the site
9. In general, rate the following on a satisfaction scale from 1-10 (1=lowest, 10=highest):
 - d. Graphic design
 - e. Use of color
 - f. How about the information?
 - i. Do you find it useful? Confusing?
10. Ask them what they might change

Appendix B – EES Post Evaluation Form

Criteria	Rating	Comments
Effectiveness: extent to which a goal or task is reached		
<p>1. Task Completion</p> <p>Rate your satisfaction level with how effective you were in completing the tasks you were asked to perform.</p>		
<p>2. Quality of Output</p> <p>Rate the overall quality of the output you encountered upon completion of your tasks.</p>		
Efficiency: amount of effort required		
<p>3. Error Rate</p> <p>Rate your overall satisfaction level in terms how easy it was to complete each task without making errors or false starts.</p>		
<p>4. Time on Task</p> <p>Rate your overall satisfaction level in terms of how easy it was to complete tasks in a timely fashion.</p>		
<p>5. Mental Workload</p> <p>Rate your overall satisfaction level in terms of how easy it was to complete tasks without too much mental effort.</p>		
Satisfaction – level of comfort user feels in being able to attain goals.		
<p>6. Quantitative</p> <p>Rate your overall satisfaction level with the Web site you evaluated.</p>		
<p>7. Qualitative</p> <p>Please tell us some of the major reasons for your rating.</p>		

Appendix C – Usability Design Heuristics

Heuristic	Comments	Rating (1=lowest, 10=highest)
<p>1. Consistency Designing a product so that similar tasks are done in similar ways.</p>		
<p>2. Compatibility Designing a product so that its method of operation is compatible with users' expectations based on their knowledge of other types of products and the "outside world."</p>		
<p>3. Consideration of User Resources Designing a product so that its method of operation takes into account the demands placed on the users' resources during interaction.</p>		
<p>4. User Control Designing a product so that the extent to which the user has control over the actions taken by the product and the state that the product is in is maximized.</p>		
<p>5. Visual Clarity Designing a product so that information displayed can be read quickly and easily without causing confusion.</p>		
<p>6. Prioritization of functionality and information Designing a product so that the most important functionality and information are easily accessible to the user.</p>		
<p>7. Explicitness Designing a product so that cues are given as to its functionality and method of operation.</p>		
<p>8. Match between system and real world The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order</p>		

<p>9. Recognition rather than recall Make objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.</p>		
<p>10. Aesthetic and minimalist design Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.</p>		