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# Effects Of Information Literacy Skills On Student Writing And Course Performance

By: **Xiaorong Shao and Geraldine Purpur**

**Abstract**
This study documents the information literacy skills of college freshmen at a mid-size comprehensive university. It also examines the association between students' information literacy skills and their writing abilities as well as their overall performance in a class. A major finding of the study is that information literacy skills were positively correlated with both student writing scores and final course grades. The findings of this study call for well-integrated library instruction programs and services to improve student information literacy skills.

# Effects of Information Literacy Skills on Student Writing and Course Performance

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## a b s t r a c t

This study documents the information literacy skills of college freshmen at a mid-size comprehensive university. It also examines the association between students' information literacy skills and their writing abilities as well as their overall performance in a class. A major finding of the study is that information literacy skills were positively correlated with both student writing scores and final course grades. The findings of this study call for well-integrated library instruction programs and services to improve student information literacy skills.

## INTRODUCTION

Developing student critical thinking skills has become essential to the mission of institutions of higher education as employers look for those skills in their new hires. One of the key findings from a national survey of business and nonprofit leaders by the Association of American Colleges and Universities (AAC&U) was 93% of surveyed employers would like their future employees to demonstrate critical thinking, communication and complex problem solving skills, and the business leaders considered these skills more important than a student's major (AAC&U, 2013).

Information literacy (IL) and critical thinking are higher-order intellectual skills required for academic, professional and personal development and success. These two sets of skills share common goals and intersect in many areas. Information literacy includes the ability to locate information, evaluate and use it effectively whereas critical thinking involves the process of exploring and evaluating ideas in order to make a decision or form an opinion on a topic or problem (Wertz et al., 2013). Doyle (1994) stated that "while critical thinking skills provide the theoretical basis for the process, information literacy provides the skills for practical, real world application."

In addition, two similar studies conducted by librarians and faculty members at Oregon State University and Purdue University, suggested the strong connections between information literacy and critical thinking and writing skills (Deitering & Jameson, 2008; Wertz et al., 2013).

In response to a major priority of the University of North Carolina (UNC) System's five-year strategic plan, "Our Time, Our Future: The UNC Compact with North Carolina," the UNC General Education Council was formed in 2013 and charged with developing general education goals and assessment tools for system's 16 higher education institutions. Two core competencies, critical thinking and written communication skills, were recommended as system-wide fundamental requirements for successful mastery in all academic disciplines (Ortega & Stewart, 2014).

To facilitate the implementation of general education goals and the two core competencies, librarians at Appalachian State University (Appalachian) in North Carolina began seeking ways to improve student information literacy skills and started working with teaching faculty members to assess these skills. Examining the relationship between information literacy skills and student academic performance was one of many initiatives librarians undertook.

During the spring and fall semesters in 2014, librarians at Appalachian conducted a study to document freshmen information literacy skills. The premise of this study is that information literacy skills, as part of critical thinking skills, can be learned through library instruction sessions and when students utilize library resources and services. The findings of this study will help librarians better understand the correlation between student information literacy skills, writing abilities and course grades. The ultimate goal of the study was to improve

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information literacy instruction and library services in order to align library teaching and services more closely with the UNC General Education goals for developing student critical thinking and written communication skills.

This information literacy skills study follows new directions of higher education reforms, which emphasize teaching for understanding and critical thinking rather than information imparting. Librarians have been seeking new ways to help their institution strengthen academic quality, improve access, and increase retention and graduation rates.

## LITERATURE REVIEW

In the Framework for Information Literacy for Higher Education by the Association of College and Research Libraries (ACRL), information literacy is defined as "the set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning" (ACRL, 2015). The ACRL Information Literacy Competency Standards for Higher Education indicated that information literacy competency expands learning beyond formal classroom settings and provides individuals with self-directed investigations as they move into internships, professional positions, and growing responsibilities in all aspects of life. Information literacy forms the basis for lifelong learning, which is essential to the mission of higher education institutions (ACRL, 2000). Information literacy helps develop individuals' intellectual abilities of reasoning and critical thinking and enables them to learn how to learn (ACRL, 2006).

The International Federation of Library Associations and Institutions (IFLA)'s *Guidelines on informational literacy for lifelong learning*, asserts that information literacy skills are key competencies in lifelong learning. They are the first step toward achieving educational goals. The development of such skills should take place throughout citizens' lives, and especially during their formative years, when librarians, as part of the learning community and as experts in information management, should assume the key role of facilitating information literacy (Lau, 2006).

By all accounts, becoming information literate is important for individuals to succeed both academically and professionally. In a report entitled *What matters to student success: A review of the literature*, Kuh, Kinzie, Buckley, Bridges, and Kayek (2006) suggested that information literacy is one of the emerging indicators for student success.

The major issue for librarians, however, is to empirically assess the impact of information literacy skills on student success. In this context, the following literature review looks briefly at the methods of assessing information literacy skills and their attempts to gauge the impact of information literacy skills on student academic success in institutions of higher education.

### INFORMATION LITERACY ASSESSMENT

Several studies indicated that writing portfolios and research paper bibliographies are useful tools to evaluate students' information literacy learning outcomes. The bibliographies proved to be a good representation of student work because they are reliable and understandable to both librarians and teaching faculty. Knight (2006) and Samson (2010) from two different academic libraries, used grading rubrics, which was developed based on the course learning objectives and the ACRL Information Literacy Competency Standards, to evaluate and score the research bibliographies to reflect the student's level of information literacy.

Scharf, Elliot, Huey, Briller, and Joshi (2007) found a high correlation between the writing scores and information literacy scores, resulting from a writing portfolio study of graduating seniors at the New Jersey Institute of Technology. In addition, a writing project which incorporating information literacy components by White-Farnham and Gardner (2014) at the University of Wisconsin-Superior, showed an improvement in both student writing and information literacy.

### EFFECTS OF INFORMATION LITERACY INSTRUCTION ON GPAS AND RETENTION RATES

Several recent studies focusing on the impact of information literacy on the academic performance of students indicated that information literacy instruction and student information literacy skills were positively correlated with the student grade point averages (GPAs), retention and graduation rates.

Vance, Kirk, and Gardner (2012) at Middle Tennessee State University examined the relationship between formal library instruction and student retention rates and grade point average. Two years of student demographic data and library instruction records were used to correlate retention rates and grade point averages among first-year students. Data analysis showed that library instruction had no impact on student retention. However, a statistically significant result indicated that students who had received library instruction had a higher GPA than students who did not. The results imply the existence of positive influence of formal library instruction on student academic achievement.

A similar study took place at the University of Wyoming (Bowles-Terry, 2012) where librarians used a mixed-method approach to determine whether a correlation existed between information literacy instruction and grade point average at graduation. Academic transcript analysis showed a significant relationship between upper-level library instruction and higher GPA at graduation. In a focus group interview, participants mentioned specific skills or resources learned in library instructions sessions were helpful for research assignments throughout their academic careers, supporting the premise that information literacy increases student success.

### EFFECTS OF LIBRARY USES ON STUDENT PERFORMANCE

Some studies also showed that the number of library services and resources students used was correlated with their GPAs and retention rates. Researchers at the University of Minnesota (Soria, Fransen, & Nackerud, 2014) found a positive association between library uses (such as interlibrary loan service, number of check-outs, database access logins) and GPAs as well as student retention rate from first to second semesters. An interesting finding from a study conducted by Kot and Jones (2014) at Georgia State University Library, suggested that those who used library study rooms and attended research clinics had the largest utilization of the library resources, and therefore had a higher first-term GPA.

Zhong and Alexander (2007) and Cherry, Rollins, and Evans (2013) reported that those who utilized library services and resources (e.g., reference service, research assistance, database logins) more frequently had a higher GPA.

### COLLABORATION AMONG LIBRARIANS AND FACULTY

A recurring theme in the literature regarding successful implementation of information literacy instruction and assessment is the importance of librarians and faculty working together. Knight (2006); Samson (2010), and Scharf et al. (2007) all reported that librarians and faculty jointly developed effective information literacy measurement tools, resulting in significant improvements in the delivery and systematic integration of information literacy skills into the curriculum. Other examples include an initiative at Carleton College (Leebaw, Partlo, & Tompkins, 2013), where librarians solicited the help of faculty in their information literacy in a student writing project or portfolio assessment project. Faculty provided input on the grading rubric design and participated as writing paper readers and graders. This cooperation resulted in a much deeper and richer assessment. This was also the case at Middlesex County College in New Jersey (Thompson, 2013) where

librarians and faculty partnered to develop effective lessons incorporating information literacy and critical thinking as well as writing skills altogether. According to Thompson (2013), collaboration yielded improvements in the work of their students.

The literature review showed that the majority of the studies examined the relationship between information literacy skills and student academic success, which equates to better student retention rates and higher GPAs (Vance et al., 2012; Bowles-Terry, 2012; Soleymani, 2014). Many of the studies highlighted the benefits of using student work, such as annotated bibliographies and writing portfolios in the assessment process (Knight, 2006; Samson, 2010; Scharf et al., 2007; Leebaw et al., 2013). Another factor which emerged was the positive outcome resulting in the collaboration of librarians and faculty on information literacy assessments (White-Farnham & Gardner, 2014; Knight, 2006; Samson, 2010; Scharf et al., 2007; Leebaw et al., 2013). Many of these collaborations between librarians and writing faculty, showed that integrating information literacy skills into writing assignments has proven to be an effective strategy for improving both skill sets. However, only a few studies specifically looked at the statistical correlation between information literacy and writing skills. A study conducted in 2007 by Scharf et al. revealed a major correlation between the writing scores and information literacy scores. Therefore, the need for further research in this area is warranted.

## PURPOSES AND OBJECTIVES

The purpose of this study is to examine the association between student information literacy skills and their writing abilities as well as their overall performance in a class. The study's objectives are to:

• analyze the correlation between student information literacy skills and their writing skills;
• describe the association between student information literacy skills and their course grades;
• identify the most important information literacy skills affecting the student writing ability and overall performance;
• and assess the effect of library uses on student performance.

## PROCEDURES AND METHODS

### POPULATION OF THE STUDY

The population for this study included freshman students at Appalachian State University who were taking either basic English writing class (ENG1000) or First Year Seminar course UCO1200 (UCO stands for University College) during spring and fall semesters in 2014. Approximately 3000 freshmen were enrolled at Appalachian in 2014. Library instruction is a required component for all the First Year Seminars courses. Although it is not required, most of ENG1000 course instructors choose to have one-shot library instruction for their classes.

To ensure that UCO1200 classes meet General Education Outcomes, a set of common expectations has been developed which includes: "involving students in problem-based learning with a research/library component" (Appalachian State University, 2016). Although a writing assignment is not a requirement for UCO1200 courses, many of the UCO1200 instructors assign a research paper as the final project. The research and writing process is very similar to the ENG1000 classes. All of the UCO1200 classes included in this study required the students to write a research paper and meet the source and page-length criteria.

The UCO1200 and ENG1000 curricular are charged with supporting Appalachian State University's General Education Program Goals, which includes developing critical and analytical thinking skills and cultivating effective communication skills (writing, speaking, and visual). Additionally, information literacy skills are built into the assessment criteria for

both of these General Education goals. Each student is required to take three General Education courses (i.e., nine credit hours).

### INFORMATION LITERACY SKILLS TEST DEVELOPMENT

The information literacy skills test for this study was developed based on an extensive literature review, study of the 2000 ACRL information literacy standards, and the library research skills assessment surveys used for UCO1200 and ENG1000 during 2009-2013 period. The test included five parts: Research strategies (6 questions); Resource types (5 questions); Scholarly vs. popular (6 questions); Evaluating websites (3 questions); and Demographic information (3 questions). In addition, the test collected information about students' major and class levels during the spring 2014 semester. In fall semester 2014, two questions were added to the test: the number of library instruction sessions received and other library services (e.g. individual consultations, online tutorials, service desks, library research guides) students used in order to complete their writing assignments. All questions were multiple choice questions. See Appendix A for the information literacy skills test.

Thirty undergraduate students took the test in a pilot study early in each semester in 2014. Cronbach's alphas, measuring the internal consistency of the test questions, for four parts (Research strategies, Resource types, Scholarly vs. popular, Evaluating websites) were 0.974, 0.873, 0.814 and 0.871 respectively. Five librarians reviewed the test questions. Minor revisions were made to the questions based on the pilot study and librarians' feedback.

The information literacy skills test was posted online through SelectSurvey. The test was administered by librarians and instructors during regular class meeting times.

### SAMPLE OF THE STUDY AND WRITING ASSIGNMENTS

During both spring and fall semesters 2014, librarians contacted the instructors teaching UCO1200 and ENG1000 and explained the purpose of the study. Ten classes met the criteria for the study in spring 2014. Seven classes decided to participate in the study. In fall semester 2014, 12 classes were able to participate in the study.

In this study, each participating class project must contain a minimal 5-page writing assignment that cites at least five sources. The sources cited must include one book, two scholarly articles, and two additional reliable and credible sources chosen by the students. All classes incorporate a variety of writing assignments which are geared toward developing critical thinking, reading, and writing skills, and one of them must focus on information research. Students are usually required to begin the process by finding background information on their topic using encyclopedias. The next step is to develop a thesis statement based on the answer to a question they have posed related to their topic. Students then search for books and media in the library catalog and articles in the library databases to support their thesis statement and arguments. They may also search the Internet for additional sources. In this study, participating classes requested students analyze the sources they found and compile an annotated bibliography. The annotations must include a summary, evaluation, and reflection. The information research parts were 20 to 30% of their final writing scores.

### DATA COLLECTION AND ANALYSIS

The librarians involved in the study offered the same information literacy instruction for the participating classes that they do for other classes. The only difference for this study was that the librarians involved in the study administered the online information literacy skills test toward the end of the semester to allow students time to use other library services as they work on their writing assignments.

The information literacy skills test scores were collected from 398 students in 19 classes taught by eight instructors. The participating

students' writing scores and their course scores were obtained through the course instructors. The weight of the writing scores in their final course grades ranged from 10% to 75%.

Data were analyzed using the Statistical Package for Social Sciences (SPSS). Both descriptive and inferential statistics were employed to summarize the data.

FINDINGS

*DEMOGRAPHIC INFORMATION OF PARTICIPANTS*

In this study, 398 students from 19 classes completed the information literacy skills test during two semesters in 2014, of which 386 were freshmen and 12 were sophomores. The average information literacy score was 78.5 out of 100 points. The intended majors of participants were across the board, with 16.3% in social sciences, 13.6% in natural sciences, 10.3% in humanities, 23.6% in business, and 22.4% in health sciences. 13.8% students reported "undecided" on their majors.

*ASSOCIATION BETWEEN INFORMATION LITERACY TEST SCORES, WRITING SCORES, AND FINAL GRADES*

The Pearson product-moment correlation coefficients were computed to examine the association between information literacy skills scores, writing assignment scores, and final course scores. The results indicated that information literacy scores were positively and strongly correlated with students' writing scores (n = 344, r = 0.153, p = 0.004). In addition, the information literacy scores were positively related to students' final course scores (n = 345, r = 0.112, p = 0.037). The findings suggested that those who had higher information literacy scores tended to do better both in writing and their overall performance in a class. Table 1 presents the results of Pearson's correlation coefficients and descriptive statistics for information literacy scores, writing scores, and final course scores.

The Pearson product-moment correlation coefficient is a measure of the strength of the linear relationship between two variables. Pearson's r value can range from − 1 to 1. An r of − 1 indicates a perfect negative linear relationship between variables, an r of 0 indicates no linear relationship between variables, and an r of 1 indicates a perfect positive linear relationship between variables (Lane, n.d.).

*EFFECTS OF DIFFERENT PARTS OF INFORMATION LITERACY SKILLS*

The results of the Pearson's correlation coefficients between different information literacy skills sets and the student writing and final grades showed that the writing scores were strongly associated with the students' knowledge of "scholarly versus popular sources" (n =

344, r = 0.145, p = 0.007). The final course scores were significantly correlated to two sets of information literacy skills: type of sources (n = 345, r = 0.124, p = 0.021) and website evaluation (n = 345, r = 0.117, p = 0.029).

*EFFECTS OF OTHER LIBRARY SERVICES*

An independent-samples *t*-test was conducted to examine whether or not using certain library service by students, such as, library research guides, online tutorials, research advisory program (RAP), library desk service (LDS) would have any effects on their information literacy scores, writing scores and final scores. There were no significant effects found between the variables. However, those who used a research advisory program and library desk service tended to have slightly higher information literacy scores, writing scores and final course scores than those who did not use the two services. See Table 2 for more information.

In addition, a one-way ANOVA was conducted to compare the effect of number of library instruction sessions attended by students on information literacy skills, writing and final course scores. The results indicated that the number of one-shot library instruction sessions was not significantly associated with students' information literacy skills [$F_{(3, 267)}$ = 0.908, p = 0.437], writing scores [$F_{(3, 232)}$ = 0.706, p = 0.549] and final course grades [$F_{(3232)}$ = 1.426, p = 0.236].

It appears that the students who received more than one instruction session may become uninterested. Freshman students at Appalachian usually have two to three library instruction sessions from three required General Education courses they take.

CONCLUSIONS

The findings from this information literacy skills study validate those of previous similar studies and support that information literacy skills, which are part of critical thinking skills, can help improve student writing ability and academic performance. While most previous studies focused the effects of information literacy skills on indicators of student academic success, such as retention rates and GPAs, this study not only examines the association between students' information literacy skills and their course performance, but also the correlation between information literacy skills and writing abilities.

In addition, this study and other similar studies support that using library services and resources enhances student information literacy skills and thus their overall academic performance (Kot & Jones, 2014; Soria et al., 2014; Zhong & Alexander, 2007). Therefore, it is important for librarians to provide well-integrated library instruction programs and services to improve student information literacy skills.

Table 1
Correlations and descriptive statistics of IL skills, writing scores and final grades

|  |  | Information literacy skills scores | Writing assignment scores | Final course scores |
|---|---|---|---|---|
| Information literacy skills scores | Pearson correlation | – | 0.153** | 0.112* |
|  | Sig. (2-tailed) |  | 0.004 | 0.037 |
|  | N | 398 | 344 | 345 |
| Writing assignment scores | Pearson correlation | 0.153** | – | 0.367** |
|  | Sig. (2-tailed) | 0.004 |  | 0.000 |
|  | N | 344 | 344 | 344 |
| Final course scores | Pearson correlation | 0.112* | 0.367** | – |
|  | Sig. (2-tailed) | 0.037 | 0.000 |  |
|  | N | 345 | 344 | 345 |
| Means |  | 78.47 | 83.788 | 89.674 |
| Standard deviation |  | 11.996 | 14.3052 | 7.8389 |

Note:
* p b 0.05.
** p b 0.01.

Table 2
Means and standard deviations (SD) of library desk service and research advisory program

|  | Service | | N | Mean | SD |
|---|---|---|---|---|---|
| Information literacy skills scores | LDS | Did not use | 187 | 78.24 | 11.901 |
|  |  | Used | 84 | 78.43 | 11.736 |
|  | RAP | Did not use | 225 | 78.14 | 12.062 |
|  |  | Used | 46 | 78.95 | 10.712 |
| Writing assignment scores | LDS | Did not sue | 164 | 85.11 | 9.2396 |
|  |  | Used | 72 | 86.60 | 7.9080 |
|  | RAP | Did not use | 195 | 85.55 | 9.0404 |
|  |  | Used | 41 | 85.68 | 8.0779 |
| Final course scores | LDS | Did not use | 164 | 90.36 | 6.7304 |
|  |  | Used | 72 | 91.86 | 5.7295 |
|  | RAP | Did not use | 195 | 90.72 | 6.5796 |
|  |  | Used | 41 | 91.27 | 5.9565 |

The study also provides an argument for librarians and faculty members to work together to maximize the benefits of teaching students information literacy skills in order to improve their written communication and academic performance. McCracken and Johnson (2015) at St. Edward's University have offered a good example in their pilot study that librarians and instructors can work collaboratively and successfully on incorporating new information literacy threshold concepts into information literacy sessions focusing on students writing projects. Through partnering with faculty to create curriculum-integrated programs, librarians can actively contribute to students' learning processes in their quest to enhance the skills, knowledge and attitudes needed to become lifelong learners (Lau, 2006).

Today's academic library, as a learning center on campus, does not just collect, preserve, and organize information. It also conducts teaching, research, and creates knowledge (ACRL, 2006). Furthermore, the academic library helps students develop transferable skills such as critical thinking and effective communication, which are much needed for their education and career. In this sense, the library has become an integral part of student learning, development, and success.

APPENDIX A

## Information Literacy Skills Test

Dear Student,
This test is designed to help us improve our library instruction program and the resources and services we provide. The test only includes 25 questions and it should take less than 15 minutes. You are among 200 students completing the assessment.

If you have any questions, do not hesitate to contact us. Thank you for your participation.

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**1.** _____
    **Please type your name**.

**2.**
a. **Which of these broad areas contains your major?**
b. Social Sciences
    Natural Sciences
d. Humanities
e. Business
f. Health Sciences
    Undecided

**3.**
a. What is your current class level?
b. Freshman
c. Sophomore
    Junior
d. Senior

**4.**
a. **How many library instruction sessions have you had?**
    1
b. 2
d. 3
    more than 3

5. library services you have used In order to complete your writing assignments (choose all that apply):
a. Individual consultation (e.g. RAP session)
b. Online tutorials
c. Library service desks
d. Others (e.g. library guides, chat, phone, email, texting...)

6. When beginning library research, the FIRST step of creating a search strategy is to:
a. Locate books using the library's online catalog
b. Search a library database for journal articles
c. Analyze your topic to identify keywords or phrases
d. Locate a newspaper article on your topic

7. You are doing library research for a 10-page argumentative research paper advocating pet therapy for the elderly. Which of the following is the MOST LOGICAL ORDER in the research process?
a. Locate books, conduct a web search, follow leads from web sites, and brainstorm keywords.
b. Conduct a web search, locate subject encyclopedia(s), locate magazine articles, and locate books.
c. Locate scholarly journal articles, locate books, conduct a web search, and follow leads from sources.
d. Brainstorm keywords, conduct a quick web search, locate books, and locate scholarly journal articles.

8. Which of the following keyword examples may yield the best results for the statement below in a library database search?

Statement: "Describe the effects of automobile emissions on air quality."
a. Automobile and effects
b. Automobile and emission and air quality
c. Effects and emission and quality
d. Emission and air quality

9. Which source would most likely provide you with objective and non-biased information for the main concepts in the following statement?

Statement: "Describe the effects of automobile emissions on air quality"
a. The latest annual report from a major automobile manufacturer
b. A study featured in a peer-reviewed journal
c. A personal interview with an influential lobbyist
d. A web site that advocates clean air

10. You searched for information using the terms world population AND growth. If you add the term China to your search, (world population AND growth AND China) your search will yield:
a. Same results
b. More results
c. Less results
d. None of the above

11. Go to the library homepage to find the BOOK Men in Black by John Harvey. Which of the following is the correct call number for the book?
a. PN 1997 ENGL .C87 1998
b. BF789.C7 H37 2013
c. PR 149.C67 H37 1996
d. PN 1997 ENGL .M457 2008

12.    Edwards, P. N. (2010). A vast machine: Computer models, climate data, and the politics of global warming. cambridge, Mass: MIT Press.

Which of the following best describes the above citation?
a.    Journal article
b.    Book
c.    Chapter in a book
d.    Web document

13.    Chandrasekhar, S Sorial, G., & Weaver, J. {2006). Dispersant effectiveness on oil spills impact of sallnity. ICES Journal of Marine Science, 63(8), 1418-1430.

Which of the following best describes the above citation?
a.    Journal article
b.    Book
c.    Chapter in a book
d.    Web document

14.    Blanchard, S. (2007): Polley analysts: Shaping society through research and problem-solvlng. USA.gov Retrieved from: http://www.bls.gov/opub/oog/2007/spring/art03.pdf

Which of the following best describes the above citation?
a.    Journal article
b.    Book
c.    Chapter in a book
d.    Web document

15.    Gonzalez, V. (2012). Assessment of bilingual/multilingual Pre-K-grade 12 students: A critical discussion of past, present, and future Issues. Theory hto Practice, 51(4), 290-296.

Which of the following best describes the above citation?
a.    Journal article
b.    Book
c.    Book chapter
d.    Web Document

16.    Which of the following best describes an academic book?
a.    Book does not include bibliographic references
b.    Publisher is often a university press/publisher
c.    Book is written for the general public
d.    Author is a lay person, rather than a subject expert

17.    Which of the following best describes a popular article?
a.    Article is written by journalists
b.    Article is written by a subject specialist or expert in the field
c.    Article is peer-reviewed
d.    Article is written for professors and students

18.    Which of the following best describes a scholarly article?
a.    Article is written in non-technical language
b.    Article includes a bibliography or list of sources
c.    Article is written for a general audience
d.    Article often reports on current topics or events

19.    Is this artlcle scholarly or popular? Cilek on the citat on below to view the articleh a new window:

Ouellette, G., & Senechal, M. (2008). Pathways to literacy: a study of invented spelling and its role in learning to read. Child Development, 79(4), 899-913.
a.    Scholarly
b.    Popular

**20.** **Is this article scholarly or popular? Click on the citation below to view the article in a new window:**

Paul, A. (2011). The Uses and Abuses of Optimism (and Pessimism). Psychology Today, 44(6), 56-63.
a. Scholarly
b. Popular

**21.** **Is this article scholarly or popular? Click on the citation to view the article in a new window:**

MacGillivray, L., Ardell, A., & Curwen, M. (2010). Supporting the literacy development of children living in homeless shelters. Reading Teacher, 63(5), 384-392.
a. Scholarly
b. Popular

**22.**
a. **Which of the following types of information does NOT need to be cited?**
b. A quotation from the New York Times online
c. A photograph of Rosa Parks that you found from a Biography Dictionary
d. A paragraph you wrote summarizing information from a journal article
   A summary of your ideas on a research topic

**23.** **Who is the publisher of this site?**

Click on the following URL and view the website to answer questions #23 and #24:
http://www.healthmetricsandevaluation.org/
a. Department of Health and Human Services
b. Institute for Health Metrics and Evaluation
c. World Health Organization
d. Institute for Human Development

**24.**
a. **Which of the following suggests that this is a reliable website?**
b. The site contains data, statistics or other facts that you can check
c. The author or publisher is indicated
d. Sources of the research are given
e. Links are current
   All of the above
f. b and d only

**25.**
a. **Which of the following would you use to evaluate a webpage?**
b. Accuracy. If a webpage is free of errors and provides reliable information...
   Authority. If a webpage lists the author credentials, qualifications and contact information...
c. Objectivity. If a webpage is objective in presenting the information with limited advertising...
d. Currency. If a webpage is current and updated regularly...
e. All of the above

Note: Embedded links in Questions #19, #20, and #21 are no longer showing in this Word document.

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