e-Lumination - Evaluating the Quality of Free Online Information for Decision-making

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Abstract
Information is the basis of all communication and decision making. This paper explores free and fee based sources of information on the World Wide Web. The perception exists that if you pay for it, it has to be acceptable. The free sources tend to be doubtful in that the content has not been reviewed or undergone academic rigor; however, there is valuable free information available online. A number of evaluation techniques were examined and a new e-lluminator model has been developed as a new approach to evaluating free online information sources. The model promises quicker and easier evaluation of online information. For researchers and decision makers on a shoestring budget, proper evaluation of free information can reap rich rewards.

Keywords: Online Information, Evaluating Free Information, Integrating Free & Fee Information Sources, Information Overload

Introduction
In 1994, in his report, Bangemann spoke about creating a revolution based on information that would change the way people work and live together within the information society. American Vice President Al Gore (1996) proposed a Global Information Society where every person, even the remotest parts of the globe, would have access to the largest advanced library in the world that existed in cyberspace. The Internet is the window on the world of

information. Using a search engine or other web search tool, one can obtain information on just about any topic.

According to Owen (2002), Americans are literally drowning in information. Information is being churned out and broadcast to them via the Internet, cable TV, e-mail, faxes, print media and cellular phones. This phenomenon he calls the information glut. Lake (2002) suggests that 'information chaos' reached its peak in 1996/7, when the explosion of the Internet took place. He goes on further to suggest that sorting out the wheat from the chaff is the challenge facing online information users. He, however, suggests that businesses are learning to cope with this 'superabundance' of data. According to Saffo (2002), the information glut is not the cause of problems, but the inability to process that information into useful knowledge is. This is supported by Mulling (2002), who suggests that even though the electronic age allows one to possess all the knowledge in the world, one is not capable of processing all of it.

The late Pope John Paul (2002) described the Internet as an unending flood of information. However, he warned that whilst the net offered access to immense knowledge, it did not necessarily provide wisdom. He went on further to ask that authorities take responsibility for ensuring that the Internet served the common good of man and did not become a source of harm.

It is evident that the Internet has made access to information more efficient, which, if used properly would empower people with knowledge to be more effective and efficient in what they do. Information on the Internet can be accessed from free and fee based sources. Due to the ease with which one can publish online one asks the question, is the information on the Internet reliable and how does one measure this? In answering this question, this paper examines the following issues:

- Who are the users of information and what are their information needs?
- What are the differences between Free and Fee- based sources?
- What are the pros and con's of the sources of information?
- How does one evaluate free information?

In addition to the above, recommendations are sought for conducting effective searches.

Users of Information and their Information Needs

In trying to answer the question 'who are the users of information?' the answer is simply everyone. The users of information could be anyone ranging from individuals to groups and special interest groups, doctors, lawyers, teachers among others need information. For the purposes of this study, there are four groups that were identified, into which users of information could be categorised, Governments, Businesses, Academics and Recreational users. The information needs of these groups differ from very basic 'fun stuff' to very important strategic information.

Governments: Require information regarding changes in legislation in other countries, in order to ensure that their own governance structures and practices are in-line with international best practice. The information sought has to be absolutely accurate, reliable, and sourced directly from the producers of the information.

Business: Managers require information to take decisions (Mintzberg 1979). Some decisions require minimal information and do not have to be very accurate, as intuition plays a major part in the decision. However, long-term strategic decision making requires highly reliable information (Steiner, Miner & Grey 1989). This would require paying for information which impacts on the bottom line.

Academics: Academics are generally poorly paid lecturers or unemployed students who need fairly accurate information. The information does not have to be very accurate because it serves as a background for their studies and provides a broad understanding of a topic which the researcher could use to conduct an empirical study or experiment that would test the validity of the existing findings.

Recreational Users: These users have no clear purpose for using information and take a haphazard approach to obtaining it. Information gained from the newspaper and informal sources are selected according to one's interests. Authenticity and reliability are not a pre-requisite. The more dramatic or sensational the information, the 'juicier' the conversation, one merely has to visit the Internet to get juicy information. Some recreational users have a

purpose for finding information especially information related to hobbies such as baking, sport, stamp collecting among others. These users take a more structured approach to obtaining free information.

It is evident from the above that information needs differ among individuals and among the groups of users, which would suggest that they would consult different sources of information. The ability and willingness to pay for information, or obtain it free, would differ as well.

Free and Fee-Based Sources

It is clear from the terminology that free information has no cost attached to the acquisition of information whereas fee based information suggests that information can only be obtained if it has been paid for. This distinction is very simple, and is no different when applied to Internet based sources of information except that mounds of information have to be sifted through in order to find valuable information (Tillman 2003).

Free Information

'Free information is an illusion. But it would take a far greater act of magic than I can conjure to take away this popular myth' (Kaser 2000). Information has been free of charge ever since information was made available in public domains such as the library. All that the Internet has done is set free information free, making it more accessible than in the past (Kaser 2000). The 'free area' of the Internet is accessed through subject directories such as Yahoo and search engines such as Google (Is the Internet … 2001). The hidden web which is not accessed by search engines and subject directories provides up to 95% of free information (Bergman 2001). Free information is made available by individuals who have personal web pages, governments who provide Acts and Bills online at no cost and businesses who put 'appetisers' online with the intention of attracting new business. Kaser (2000), makes free text available on the web with the hope that people will subscribe to his newsletters or purchase his books.

Advantages of Free Information

Most information on the net is unedited and does not undergo peer reviews, resulting in quicker publication than being published in journals, books or magazines. Current topical issues, company information and articles by authors who do not have access to mainstream publishing are provided an avenue for information dissemination (Advantages and Disadvantages … 2004). Some organisations make draft information available online which surprisingly may be enough to satisfy the users' needs. Being free, the information will not impact on the bottom line or on the pockets of independent users.

Disadvantages of Free Information

Very often, sources are not acknowledged due to the lack of bibliographic standards on the Internet. The age of information is often untraceable because authors deliberately or accidentally leave out publishing details such as dates. The accuracy and authenticity is also doubtful as some information may have been incorrectly transcribed from original sources, or the information may be biased according to the author's perception of the topic (Advantages and Disadvantages … 2004).

Does free information really bear no costs? Decisions based on doubtful information may result in poor or incorrect decisions being taken which could impact on perceptions and the credibility of the decision maker and the organisation. Business lost as a result of uninformed or poorly informed decisions will impact on the bottom line (Steiner *et al.* 1989). Furthermore, the opportunity cost of free information can be considerably more burdensome than the cost of paying for it in the first place, valuable time is lost, and delays in going to market give your competition an advantage (Scheiber-Kurtz 2004).

Although it may seem that free information is bad information, according to Harnad and Brody (2004), free information or open access information (as they call it), dramatically increases the number of potential users. As a result, the impact of free, quality articles would be far greater.

Fee-Based Information

The fee based areas of the Internet are not covered by subject directories and search engines, instead, their databases are accessed directly for a fee (Is the Internet... 2001). The web pages of a fee-based source will contain abstracts of articles that are available. The researcher will have to pay to access the complete article. Most publishing houses allow students who have purchased a textbook and lecturers who have prescribed the book, are allowed access to the publisher's online resources such as PowerPoint slides, test banks, and links to useful sites among others.

Advantages of Fee-Based Information

The publishers of information generally edit and review documents, checking their accuracy and reliability before making the information available. This protects the user against poor quality information. Due to the use of proper bibliographic standards, the search for information is quicker and easier saving money and time that would be spent sifting through pages and pages of free information.

Disadvantages of Fee-Based Information

The proprietary nature of material could add to the time spent searching through different databases. As mentioned previously, private databases and their content are not normally found by search engines, they are often referred to as the deep web/hidden web/invisible web (Impereitos & Gravano 2002). Therefore, searchers often have to hop from database to database until they find what they were looking for. The additional time spent database hopping could possibly equate to the costs of sifting through articles found by a search engine. The cost of fee-based information makes information unavailable to some, adding to the digital divide of information haves and information have-nots, for example, a Harvard Business Review page costs $5. In South Africa, this equates to R37.25 ($1 = R7.50). A twenty-page article would cost R745-00. However, authoritative sources such as the Harvard Business Review provides reliable information which would result in better decisions being taken which could enhance the reputation of the

decision maker and the organisation, which in turn could generate new business and have a positive impact on the bottom line. However, paid for information is hidden and the reach and impact of the information is severely limited (Harnad & Brody 2004).

It is clear that both free and fee-based information has their merits and satisfy the information needs of different stakeholders. According to Kaser (2000), there is a double standard when it comes to purchasing information. A person could borrow a book at the library, use the information and return the book, at no cost. However, there are others who would purchase the book due to the value that it has for them. Kaser (2000) concludes that people are willing to pay for the medium and not the message. On the Internet, people are willing to pay for access (medium) but not the information (message). In order to integrate these two sources of information, it is necessary to examine the implications that these sources have for users.

Implications for Business

According to Steiner, Miner and Grey (1989), managers adopt two approaches to decision making namely maximising and satisficing. With the satisficing approach, managers make do with whatever little information they have readily available and rely more on intuition to take decisions. However, with the maximising approach, they use a rational decision making process where all possible information is sought to take near perfect decisions. The maximising approach is generally used when taking strategic decisions to gain a competitive edge over ones rivals. Competitive intelligence is the use of publicly available information to develop an edge over the competition. Developing a competitive advantage requires very reliable, highly accurate, and timeously available information to take proper decisions. Strategic decisions therefore require fee-based information that as previously discussed meets the criteria of reliability, accuracy and timeousness. The fee-based approach adds to costs. However, any cost incurred in the short term is an investment in the future.

According to Andersen (2002), the type of information that businesses want is not always available on the free Internet. Furthermore, although the net provides valuable competitor information, the searcher has

to guard against disinformation that is the deliberate publication of incorrect and deceptive information, meant to mislead users of that information Kaser (2000). Not all organisations have the ability to pay for information and as such rely heavily on free sources.

Implications for Academics

Academics are expected to publish research papers as part of their job descriptions in order to beat the threat of 'publish or perish' (Harnad & Brody 2004). Traditionally, research has been done in libraries, which meant that the researcher had to make many sacrifices at night, over weekends, and during holidays. The search for authoritative sources meant sifting through stacks of journals, until a satisfactory match was made. Today, academics can sit in the comfort of their homes or offices and surf the Internet. A search engine would be able to match key words within seconds and make the sites available on the screen. The researcher could access each link and determine the relevance of the information. If the information is inadequate, more links are available for inspection.

Academics can be divided into two groups' namely undergraduate and postgraduate researchers. Due to their financial constraints, undergraduates are limited to free information generated by search engines. Not all free information is bad. Some information such as academic research contained in online journals like the South African Journal of Information Management are of superior quality, properly researched, follow proper bibliographic standards, and have been reviewed by experts in the field of information management. Undergraduate researchers have a haphazard approach to searching, which is more akin to surfing the web (Cmor & Lippold 2001). This is due to their lack of understanding and experience of the research process, and search skills. According to Cmor and Lippold (2001), undergraduate students use the Internet for everything, believe that everything on the Internet is (or should be) free, spend hours aimlessly sifting through sites, are uncritical of the information, are guilty of plagiarism (merely cut and paste information), and opt to use the Internet due to its ease rather than the quality of information it provides. However, they recommend that students are encouraged to use the Internet because quality information is growing, the Internet develops their critical analysis and

assessment skills, and the web has the potential to stimulate new ideas, this is supported by Harnad and Brody (2004).

Postgraduate researchers on the other hand are more mature, systematic, possess superior research skills, are critical searchers and have access to research funds giving them access to fee based information sources. However, in some institutions, even senior researchers are untrained in the use of the Internet, search tools, search tool features, and tend to display similar haphazard search behaviour as undergraduate researchers.

Cmor and Lippold (2001) are of the opinion that the web is a valid research tool if researchers know what it contains, when to use it, and how to search it effectively. Students need help in developing evaluation skills and search techniques when accessing free information sources.

Integrating Free and Fee Sources

It is evident from the scenarios presented that there is merit in both approaches to information gathering. Organisations need to balance the use of both environments. In organisations where accuracy, reliability and relevance are important, a larger percentage of fee-based sources should be consulted. However, in organisations where quantity is important and financial resources are limited, the emphasis should be on using free sources of information. Integrating the two sources is not enough; it has to be managed properly.

Organisations big and small should have a Chief Information Officer, Corporate Librarian, Vice President of Information Systems, or someone, immaterial of the title, dedicated to managing the information resources of the organisation (Stair & Reynolds 2005). These individuals should be responsible for providing policies and guidelines to ensure that information from whatever source is relevant, reliable, and leads to better decisions (O'Brien 2001). CIO's determine the organisations information needs and ensure that they are met to support the organisations goals (Stair & Reynolds 2005). Corporate Librarians are a strategic part of the organisation and they manage a company's information resources whilst providing guidelines for best practices (Carlson 2004). The librarians need to take a proactive role in educating new and established employees with regards the use of online sources of information. Some of the tasks they should perform include

amongst others: teaching search skills, use of online databases, identifying online sources for the user, and providing a help desk function (Katz-Stone 2000). Lake (2002) suggests further that Information Management Policies will lead to more efficient use of information. However, he also suggests that policies should not add to existing problems, and therefore need to be practical and easily applied.

Evaluating Online Information

As mentioned earlier, the Internet is rich with information both good and bad. According to Tillman (2003), 'within the morass of networked data are both valuable nuggets and an incredible amount of junk'. It is for this reason that information needs to be evaluated before it is used. However, mere evaluation is not enough. Researchers need to determine what is considered to be quality information. Information quality can be measured along three dimensions, Time, Form and Content (O'Brien 2003). The Time dimension requires that information must be current and available when necessary, Form requires information to be clear, detailed, structured in an orderly fashion and presented in an easily understood format, Content requires information to be accurate, relevant (to the reader), and complete. According to Ballard and Ingersoll (2004), good information must be accurate, complete, objective, authoritative and timely (at the time of publication). These five criteria are common among most evaluation guidelines. Understanding what quality information is makes it easier to evaluate information sources as there is a benchmark against which to compare. Just as there are many sources of information online, there are just as many evaluation techniques that can be used to determine the quality of the information. The following are some of the evaluation techniques that are available online.

Harris's Criteria (1997)

According to Harris (1997) using the CARS checklist (credibility, accuracy, reasonableness and support), researchers are better equipped to evaluate the information they have collected in order to put it to use.

Credibility

When determining the credibility of a document, one has to interrogate the author's credentials, and the evidence of quality control. The author's credentials such as qualifications, employer, job status and years of experience are key to determining the credibility of a document. The work of highly qualified authors working for reputed organisations tends to be more credible. Furthermore, if the document has undergone some review or editing process by reputed editors, lends greater credibility to the information, which can be accepted as being of high quality and can be used. Documents that are anonymous, lack evidence of quality control, does not have a list of references and are poorly presented with spelling and grammatical errors, should be avoided.

Accuracy

When determining accuracy of information, one has to consider the detail of the content, the currency of the information, reference to other credible sources, whether statements can be backed up, and the factual content. More detailed documents show that the author has applied his/her mind to the subject. Old information that has not been updated in the last two or three years may no longer be accurate. Referencing is important in ensuring accuracy. Works that have been properly referenced can be compared with previous work to determine the accuracy of the current work. Documents that merely state opinions without being backed up with facts and empirical evidence should not be trusted as being an accurate representation of facts.

One should guard against documents without dates, documents that have old dates in fields where information is changing regularly, links to other documents that no longer exist, and statements that can't be backed up with statistics and facts.

Reasonableness

Reasonable information is tempered with fairness, objectivity and consistency (Harris 1997). An author reviewing a company or product or service must be fair in his criticism. He should not only emphasise the negative, but should look for some merit in what the organisation is doing. In

being objective, the article should look at all sides of the issue, and the author should not allow personal bias to prejudice his report. An author that swings from one extreme to the next and contradicts himself is being unreasonable, and his document should be treated with grave suspicion.

Support

All documents must be clearly referenced in order that readers can read the source documents for a greater understanding of a subject. Links to discussion groups, related sites, PowerPoint presentations and other online resources add to the credibility of a document. The presentation and format of the document is also an important consideration. Documents should be user friendly and easy to read, for example, red text on a black background is very harsh on one's eyes.

The CARS checklist with its related questions is a very easily understood tool that is easy to use. However, going through all the questions could be laborious and time consuming when trying to evaluate multiple sources of information.

Kapoun's Criteria (1998)

Kapoun (1998) developed five criteria for evaluating web pages. These criteria he named accuracy, authority, objectivity, currency and coverage. Table 1 summarises the goals of each of the criteria.

CRITERIA	**GOALS**
Accuracy	• Who wrote the work? • What is the purpose of the document? • Is the author qualified to write the document?
Authority	• Who published the work? • What is the affiliation of the writer/publisher? • What are the writers' qualifications?
Objectivity	• How detailed is the information? • What opinions are expressed by the author?

Currency	• When was the document produced? • Has it been updated? • Are the links still operational?
Coverage	• Is the work cited? • Do the links complement the content? • Can the document be read easily with most software?

Table 1: Five Criteria for Evaluating Web Pages (Adapted from: Kapoun 1998: 522-23).

It is evident from Table 1, that some of the goals do not match the criteria. The author and his/her qualifications certainly do not match the criteria of accuracy, and would fit more closely with Authority. Similarly, citations or references should not fall under Coverage, but would lend itself to the criteria Objectivity. This model is comprised of fifteen simple, easy to understand questions.

Grassian's Criteria (2000)

In her help guide for students, Grassian (2000) recommends four criteria, which could be used to evaluate online sources of information, namely content and evaluation, source and date, structure and other which are illustrated in Table 2. It is evident from Table 2 that this Model examines unique criteria such as the audience, the completeness of the information, concern for the disabled, and site interactivity.

CRITERIA	**GOALS**
Content & Evaluation	Who is the audience? What is the purpose of the document? How complete and accurate is the information and links?
Source & Date	Who published the work? Is the author qualified to write the document? What is the affiliation of the writer/publisher? What are the writers' qualifications/expertise? Is there any form of bias in the work? When was the document produced/revised?

Structure	Is the text well written in terms of grammar, spelling and literary composition? Is there an element of creativity? Is attention paid to the disabled?
Other	Is appropriate interactivity available Are there links to search engines or a site search facility?

Table 2: Thinking Critically About WWW Resources (Adapted from: Grassian 2000).

Table 2 is a mere summary of Grassian's original guide, which covers about forty questions, which could be very cumbersome to use if one is evaluating multiple documents.

Ballard and Ingersoll's Criteria (2004)

Ballard *et al.* (2004) recommend a five criteria checklist illustrated in Table 3 below.

CRITERIA	**GOALS**
Identify the Source	Who owns the domain? Is the website authentic?
Sources Expertise	Who authored/published the work? Is the author qualified to write the document? What other work has the author published? Is the grammar and spelling accurate? Is the author an expert?
Level of Objectivity	Is the viewpoint balanced? Are there facts and analysis to support arguments?
Date of Publication	Is the information current at time of publication?
Verify Claims	Do other reliable sources provide same or similar information? Are references cited? Are reliable sources quoted?

Table 3: How to Evaluate Information (Adapted from: Ballard & Ingersoll 2000).

Like all the previous criteria, this is equally long and time consuming. Some of the criteria are very technical such as checking scripting, and detecting spoofing. However, of all the models, this is the only one that provided examples of each criterion.

Singh's Criteria (2005)

Based on the criticism of the previous models, Singh (2005) proposed the e-lluminator model which was meant to be as simple as ABC and easy to use (Table 4). The model draws on the previous models and adapts the common criteria into a workable solution. The model is made up of three assessment criteria each for the A and B, and four criteria for the letter C.

	CRITERIA	**EXPLANATION**
A	Authority	This refers to the qualifications and expertise of the writer.
	Accuracy	Is concerned with technical aspects such as grammar, spelling, in-text referencing and factual basis of the document.
	Accessibility	How easily is the document accessed? Is it available at a reputable site that provides long term archiving facilities?
B	Breadth	Does the content cover a broad spectrum of issues or does it narrow down to a specific subject?
	Bias	Does the author write objectively or is the work very one sided?
	Bibliography	Does the writer acknowledge his/her sources using a proper bibliographic standard?

C	Content	Is the content informative, provocative, and objective? Does the writer follow a proper sequence of thoughts and support his ideas with references, graphics and tables?
	Comment	Has the paper undergone some kind of review or editing process with comment from other authorities in the field?
	Credibility	This refers to the credibility of the website where the information resides. Is it a website of a reputable company, institution or individual?
	Currency	Is the information updated on a regular basis?

Table 4: The ABC Approach to Evaluating Online Information

The ABC approach proposes ten tasks that need to be performed in evaluating an online document as discussed below.

Authority

The credentials of the author are key to the quality of information being presented. A work of a highly qualified author with extensive academic or industry experience can be easily accepted. However, the work of a relatively new writer would have to go through greater scrutiny before being accepted. Many websites, especially electronic journals do not provide sufficient information about the author.

Accuracy

Documents that are inaccurate with regards spelling, grammar, and referencing should be treated more circumspectly, as it shows that the author has not paid attention to detail. However, a person for whom English is not his/her first language, the factual content should be considered more important than the technical issues.

Accessibility

Documents that require a trail of links to be reached are often not worth the chase. It is important to check the archiving policies of the host site. When sites are updated, readers should still be able to access the document using the original URL.

Breadth

This criterion is subjective and depends on the needs of the reader. Some readers want a topic to be discussed in broad terms (e.g. Online Searching), others want information specific to a topic (e.g. Online Search Tools) and others want information that is described in broad terms and then narrowed down to specific issues (e.g. Online Searching and Online Search Tools and Techniques).

Bias

Documents that are deliberately biased should not be overlooked or discarded, as they are controversial enough to stimulate debate and discussion, provided it does not bias the readers of the document. For example, 'HIV does not cause AIDS!' This statement is controversial and worthy of debate. However, some readers could begin to believe the statement or a document that 'justifies' such a statement.

Bibliography

Online everyone is an author! Unless an author is a well-recognised writer, all quality documents must be properly referenced within the text, with a detailed list of references or a bibliography at the end of the document acknowledging all sources consulted when drawing up the document.

Content

Writing style lends to the appeal of a document. Quality documents are written in a smooth flowing sequence with difficult terms explained or clearly defined. A document that contains statistics and facts should contain self-explanatory figures and tables. The content should as much as possible be informative, be as objective as possible and should provoke discussion

and debate. Users should also be wary of the author contradicting him/herself in the document.

Comment

A document that has received some form of professional comment from either reviewers or editors can be accepted with little doubt. Editors and reviewers are expected to ensure the quality of a document with regards content and technical issues. However, sometimes, they themselves are biased towards the viewpoint of the author and may support a view that may differ from others.

Credibility

The originating website of a document could add to the credibility of a document. University, company and government websites are considered credible sources of information. Some personal websites, such as wilsonweb.com, belong to individuals who have established themselves as authorities in a subject and information can be trusted with little or no risk. The URL (uniform resource locator) is an indicator of the origins of a document. Documents that have an .ac or a .gov extension are associated with academic institutions and governments and could be accepted as credible. A credible website will allow users to provide feedback or contact the author of an online document.

Currency

This is a subjective criterion and its use would depend on the user and the information sought. Old documents such as outdated legislation, legal precedents and historical accounts of events need not be updated as their content or the underlying principle may be of importance to the reader, for example a clause in an Act of 1965 may serve as a guide for amendments in 2004. However, statistical information that is required for decision-making would require current and updated facts. In order to prove the worth of a new model, it is necessary to test it.

Testing the e-lluminator Model

The objective for testing the e-lluminator model was to prove firstly that it

was easy to use, and secondly it was a time saving model. The e-lluminator model was tested in an Information Systems Honours Class. The class was comprised of forty students who had previous search experience and were using Internet resources on a regular basis. The respondents were given two unseen documents, one that came from a reliable source and the other from an unknown source. They were asked to evaluate the documents using the CARS method and the ABC method. The CARS method was used as the comparator as the respondents were taught how to use the CARS model and some were using it. After conducting the exercise, the respondents were asked to make a choice between the two models. Table 5 illustrates the responses where it was found that 27 respondents preferred the e-lluminator model compared to the 13 respondents who preferred the CARS model.

Positive Feedback	**No of Responses**
Comprehensive	9
Easy Steps	5
Structured	2
Good Results	2
Understandable	4
Good Features	
Accessibility	2
Bibliography	1
Site Credentials	1
Update of Site	1

Negative Feedback	
Lengthy and time consuming	7
Does not allow for intuition	2
Too detailed	4
	N = 40

Table 5: Student Impressions of the ABC Model for Evaluating Online Information

It is evident from Table 5 that nine of the respondents liked the comprehensive evaluation provided by the ABC model. The objectives that were being tested namely ease of use and time consumption did not get the desired responses. The ease of use was seen as a positive; however, it was not the main feature that the respondents identified. The majority of the respondents (7) who preferred the CARS model found that the ABC model was too time consuming.

In order to meet the original objectives, a worksheet Table 6 was devised. The worksheet consisted of simple questions that merely required a 'yes' or a 'no' answer. Each question was developed to answer the ten criteria of the model. In order to help the researcher a scoring key was provided for the number of 'yes' answers. The greater the number of yes answers, the more reliable is the source.

Two weeks after the first test, the same group of respondents were given a five page Internet document and asked to use the ABC worksheet to evaluate the document. Apart from different reading speeds, the average time to complete the worksheet and arrive at a score was 7.8 minutes.

Criteria	**Question**	**YES**	**NO**
Authority	Is there evidence to suggest that the author is skilled and has expertise in this field?		
Accuracy	Is the document accurate with respect to grammar, spelling, in-text referencing and facts?		
Accessibility	Is the document easily accessed, from existing pages or archives?		
Breadth	Does the content cover a broad spectrum of issues?		
Bias	Does the author write objectively?		
Bibliography	Does the writer acknowledge his/her sources using a proper bibliographic standard?		

Content	Is the content informative, provocative, and objectives and does the writer follow a proper sequence of thoughts and support his ideas with references, graphics and tables?		
Comment	Has the paper undergone some kind of review or editing process with comment from other authorities in the field?		
Credibility	Does the document originate from a website of a reputable company, institution or individual?		
Currency	Does the document have a date of publication/date it was last updated?		

ABC Worksheet Scores

10 Yes	Excellent Source
8/9 Yes	Very Good Source
6/7 Yes	Good Source

5 Yes	Average Source
3/4 Yes	Poor Source
1/2 Yes	Extremely Poor Source

Table 6: Worksheet for Evaluating Online Information using the ABC Model

When asked what their impressions were, the respondents all felt that using the e-lluminator Model worksheet was quick and easy.

Conclusion

The Internet has heralded a new era in the search for, and use of information. This paper has demonstrated that there are both negatives and positives associated with this new 'wonder tool'. However, if used properly, the benefits outweigh the negatives. It is not often that knowledge workers interrogate the documents they use. However, with the rise in misinformation and disinformation on the World Wide Web, users have to be more prudent in their approach especially when using free information. The e-lluminator Model lists ten tasks which may seem like a lot of work when reading the list. However, most of the attributes can be seen at a glance whilst scrolling

through a web document. The worksheet provided with the e-lluminator Model ensures that evaluation of online information is a quick and easy process. In order to prevent bias, the respondents were never told that they knew the developer of the ABC Model.

Although this paper has made recommendations' regarding search strategies and evaluation techniques, the Internet experience is unique to every individual. Therefore, individuals have to use a mixture of recommended strategies and what makes sense to them, in order to get the best of what the Internet has to offer. The e-lluminator Model is by no means fully tested and proven as an evaluation tool. However, it provides researchers with yet another tool in their quest for quick and easy evaluations of online information.

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