Faculty of Informatics and Design

Cape Peninsula University of Technology (CPUT)

This document is a working paper, summarizing a presentation at a conference. It was delivered at the SAICSIT 2012 Academic Conference in Irene, Pretoria, South Africa, at the Masters & Doctoral Symposium. The abstract has been reviewed and accepted, and it has been edited for basic grammar and accuracy. Kindly consider this document as a working paper, to be used for basic referencing. It could be useful for research in the field of Website Usability.

Investigation of the relationship between Website usability and Web metrics

Author: Brian Malakhiwe Ntlangula

Student-Number: 206243103

Supervisor: Prof M. Weideman (CPUT)

Subject: Website Usability

Harvard Reference:

Ntlangula, BM. and Weideman, M. 2012. Investigation of the relationship between Website usability and Web metrics. Working Paper. Presented as an M&D Conference Paper at SAICSIT 2012, Pretoria, South Africa. 1 October 2012.

http://cput.academia.edu/MeliusWeideman/Papers

ABSTRACT

Website usability and the use of website metrics are both methods which could be used to indicate popularity and/or success of a website. For commercial websites, being successful in terms of listing on search engine result pages is of paramount importance. Prior research on website usability has indicated that a number of elements can be used to make up usability from the user's point of view. At the same time, programs that provide website metrics are freely available, and their output give many indications of website activity and performance. The purpose of this paper is to propose a method of determining whether or not there is a link between the results of measuring usability, as opposed to website metrics.

1. INTRODUCTION

This paper seeks to investigate if a relationship exists between website usability and web metrics. Website usability has become a buzz word when it comes to websites. Commercial opportunities can be lost if a low degree of website usability exists on websites (Barnard and Wesson, 2003). This is simply because website users want to spend time on websites that are generally appealing and user-friendly. Website owners in the e-commerce industry find themselves having to consider usability as one of the most important components when they design their websites in order to attract users and retain them as their customers. Many authours describe website usability in many different ways. According to Wang and Huang (2008), website usability is the ease of use of all website components whilst Nielsen (2003) describes it as a way of making a website usable. Eisenberg (2008) believes that website usability is the approach of removing all obstacles that may obstruct a user's positive experience. E-commerce experts Green and Pearson (2006) agree that poor website design is one of the major reasons for the recent dot.com failures, and over half of online traffic was driven away due to poor website design. At the same time, some contradictions were found to exist between website usability and visibility (Visser and Weideman, 2011). On the other hand, Web metrics are seen as indicators of website usability. However, it is not known whether any relationship exists between the two.

2. OTHER RESEARCH

2.1 Website Usability

Website usability is the degree of use with which a user can perform a task through a website interface. There are certain attributes of website usability that can be considered when measuring usability, including:

- Ease of use
- Friendliness
- Ease of navigation
- Value of content
- Efficiency
- Customer conversion rate

- Time savings
- User satisfaction

If these attributes have been considered, it makes it easy for any website user to accomplish a task without any difficulty and fulfil the goal of the website owner to have more traffic on the website. This can ultimately result in high customer rate conversion and the increase of sales.

2.2 Website Metrics

Web metrics are measures that reflect on how customers are using websites (Weischedel & Huizingh, 2006). They are used by companies for further improvements of their websites. They give a reflection to the company to see the user's behaviour when they visit their websites. Website owners are able to understand the needs and expectations of their users through web metrics as these give them an insight of their websites.

There are many reasons why metrics are important in websites, including:

- Traffic – they help owners to track traffic to and from their websites.
- Tracking bounce rate – It becomes easy to track users who come and leave the website without going to other pages of the site.
- Session duration – these have become more popular as they are assumed to be offering more accurate data than page views. It is not possible to tell whether the user was interacting with a website for the entire recorded session length: they could have been engaged in something else or been busy on other websites through website tabs.
- Web metrics can help to see how users actually do things compared to how we think they do.

2.3 Measuring Usability

It is difficult to measure usability as compared to measuring metrics as user's behaviours are measured in the latter. There are factors that are taken into consideration when measuring usability. They include the following:

- Efficiency – this defines how quickly the users can perform tasks once they have learned the design.
- Effectiveness – is the user able to use the successfully without any difficulties?

- Satisfaction – the degree of "pleasantness" of using the site.
- Error frequency – refers to the number of errors users make, how severe are they and how easy can they recover from those errors.
- Memorability – how easy it is for the user to remember how s/he got to the page.

2.4 Usability Testing

Usability testing is defined as one method to measure how users visiting your site will see and interact with your design (Liebel (2006)). Usability testing provides the detailed insight of how a website works from the customer point of view.

These are some of the ways that usability can make a difference to the organization:
- It delivers the type of feedback designers can use
- It tells you what your customers really do, not what they say they do.
- It lets your customers show you how you can improve your proposition
- It lets you iterate towards the right answer.

3. METHODOLOGY AND RESULTS

Generally web analytics are used to measure web metrics. They help to measure, collect and analyze date about a website. These metrics are also used to monitor and report on a site to check its effectiveness. They help website owners to understand their users and offer them what they need.

Google Analytics is a popular free set of tools which procides some measurements of website activity. They also help to see if the site prove the necessary information to visitors. Google analytics can help to track user conversions to customers. Studies show that 55% of the 10 000 most pupular websites have used Google Analytics.

The author plans to use do an empirical study where website usability will be tested through user testing and Google Analytics will be used to measure various elements of behaviour.

The two results will be compared to see if there is any relationship between the two. Is the website with many visitors/low bounce rate, many pages per visit necessary well designed (high degree of usability)?

4. CONCLUSION

The research is at the begining stage and it is expected that the author will complete a litarature review on website usability and metrics. The testing will be conducted and relevant metrics measured. The expected results are unknown at this stage. As indicated earlier, it is expected that there might be a positive relation between the two. The expectation is that websites with a high degree of usability, have metrics which indicate a high degree of popularity.

REFERENCES

Barnard, L & Wesson, J.L. 2003. Usability issues for E-commerce in South Africa: an Empirical Investigation. In *Proceedings of the 2003 Annual Research Conference of the South African Institute of Computer Scientists and Information Technologists on Enablement Through Technology (SAICSIT 2003)*, 258-267.

Eisenberg, B., Quarto-von Tivadar, J., Davis, L.T. & Crosby, B. 2008. *Always be testing: the complete guide to Google Website optimizer*. Indianapolis, IN: Sybex.

Green, D and Pearson, J.M 2006. Development of A Web Site Usability Instrument Based on ISO 9241-11. *The Journal of Computer Information Systems*, 47(1): 66-72.

Liebel, G. 2006. A guide to usability testing, *About.com guide* http://usability.about.com/b/2006/09/13/how-many-usability-test-participants-do-you-need.htm [25 July 2012].

Nielsen, J. 2003. Usability 101: Introduction to Usability. http://www.useit.com/alertbox/20030825.html [1 August 2012].

Visser, E.B. & Weideman, M. 2011. Search Engine Optimisation versus Website Usability – conflicting requirements. *Information Research*, 16(3). September.

Wang, X. & Huang, W. 2009. Lund University Website evaluation: focus on homepage and English research pages. Unpublished Master's thesis, Lund University, Lund, Sweden.

Weischedel, B. & Huizingh, K.R.E. 2006. Website Optimization with Web Metrics: A Case Study, In: ICEC ,Vol. 156ACM, 463-470.