BLG 374E
TECHNICAL COMMUNICATION FOR COMPUTER ENGINEERS

CRN: 22513

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ASSIGNMENT #2

Submission Date: 28.02.2015

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Exploring Usability Discussions in Open Source Development

M. B. Twidale and D. M. Nichols, "Exploring Usability Discussions in Open Source Development," *Proceedings of the 38th Annual Hawaii International Conference on System Sciences*, pp. 198, Jan. 2005.

This study discusses usability issue on open source software. Researchers investigate several open source projects' bug reports and they characterize how developers solve usability and interface design issues. They study how bug tracking systems can be improved to establish connection with developers and bug reporters. The research is mainly focused on usability analysis and interface design to find the root of usability problems. They come up with an observation that usability problems are not unique to open source software development methods. They choose to analyze open source software because it is easier to find bug reports, user statistic and source code. Also open source software has larger developer and bug reporter community. So accessibility of resources is main reason of this open source choice. Researchers realized that usability problems are very difficult to describe because of the complex nature of usability issues. Thus large discussion and development system of open source development makes it difficult to manage. Researchers state that developers, bug reporters and users rarely agree on usability discussions.

DOI: http://dx.doi.org/10.1109/hicss.2005.266

Measuring software usability - a methodology and case studies

A.S. Neal, "Measuring software usability - a methodology and case studies," *Proceedings of the 1988 IEEE International Conference on Systems, Man, and Cybernetics*, vol. 1, pp. 189-192, Aug. 1988.

A.S. Neal describes a process to measure software usability in a computer system. He used a secondary intermediate computer that records the users' keyboard activity and then this logged activity is later played back on host system for analysis. The experiment was done by variety of software packages. He describes a methodology to measure software usability for different software packages. Researcher explains his methodology's advantages as data collection programs are independent from software being evaluated and there is no need to modify recorder software to evaluate different products.

DOI: http://dx.doi.org/10.1109/icsmc.1988.754271

Assuring Quality and Usability in Open Soruce Software Development

H. Hedberg, N. Iivari, M. Rajanen, and L. Harjumaa, "Assuring Quality and Usability in Open Soruce Software Development," *First International Workshop on Emerging Trends in FLOSS Research and Development (FLOSS'07: ICSE Workshops 2007)*, pp. 2, May. 2007.

This study mainly focuses on quality and usability assurance in open source software development, especially software which has large user community. Researchers specified that this kind of development processes are needed to consider non computer professional users when discussing usability issue of open source software. Researchers say that software quality is undeniably important and software usability is very significant issue to be assured. They investigate well known quality and usability practices of open source software development community with perspective of software engineering and human computer interaction. Developers made some observations and they made some suggestions over these observations. Researchers observed that users are assumed to report bugs and users assumed to have technical background when they report bugs. They suggest that developers should understand users' work practice and context of use software so developers can redesign the work practice, collect early user feedback and make solution according to user feedback.

DOI: http://dx.doi.org/10.1109/floss.2007.2

Measurable Concepts for the Usability of Software Components

T. Scheller and E. Kuhn, "Measurable Concepts for the Usability of Software Components," *2011 37th EUROMICRO Conference on Software Engineering and Advanced Applications*, pp. 129-133, Aug. 2011.

Scheller and Kuhn indicates that usability is a very important attribute of software quality but it is addressed as application attribute rather than API attribute. They pointed out that current software usability measuring methods fails when they applied to APIs because API measure's needs experienced evaluators and users. They suggests objective API usability measurement method to identify measurable metrics. They enounced these concepts to increase usability of software and they proves these concepts against present methods for usability and API design. They find out that some software components like APIs, has no literature available yet concerning their usability. Researchers tries to make an objective and automated at all to measure for usability of software components with analyzing cases to find measurable attributes through comparison with other software concepts and programming best practices.

DOI: http://dx.doi.org/10.1109/seaa.2011.28

Software Usability Improvement: Modeling, Training and Relativity Analysis

X. Lai, Y. Zhou, and W. Zhang, "Software Usability Improvement: Modeling, Training and Relativity Analysis," *2009 Second International Symposium on Information Science and Engineering*, pp. 472-475, Dec. 2009.

In this paper, researchers analyze and summarize software's usability quality metrics to discover and improve software usability problems. They use fuzzy cognitive map method to describe software and quality relationship. Researchers also consult integrated training arithmetic, syntax pruning arithmetic, semantic pruning arithmetic and quality relationship analysis arithmetic methods. A general software usability quality metric is suggested in the paper and some best practices are used to validate proposed method's efficiency. This method is based on well-known international software quality standards and it can help developers to find relation between the software's quality characteristic and usability.

DOI: http://dx.doi.org/10.1109/isise.2009.78

Perceptions and practices of usability in the free/open source software (FoSS) community

M. Terry, M. Kay and B. Lafreniere, "Perceptions and practices of usability in the free/open source software (FoSS) community," *Proceedings of the 28th international conference on Human factors in computing systems - CHI '10*, pp. 999-1008, Apr. 2010.

In this conference paper, researchers represent results from a study examining general practices of usability metrics in open source software community. Over a 30 different open source projects were examined to understand how they act about to address usability issues. Researchers find out open source project members aims sophisticated concepts of software usability. Researchers find out that direct personal relationships between developers and their users who closely follow the project, provides high quality reliable feedback. They also find that these close relationship between projects and core user community makes social rewards to users that serve as the primary motivations for helping to usability issues on regular basis. Researchers' these findings suggest that well known software usability quality measurements methods are more suitable for this open source culture's practice. Researchers argue common concepts of how open source community acts on and how they motivated usability improvements by their effort.

DOI: http://dx.doi.org/10.1145/1753326.1753476
