A factor combination approach to developing style guides for mobile phone user interface

Wonkyu Park, Sung H. Han*, Sungjin Kang [1], Yong S. Park [2], Jaemin Chun

Department of Industrial & Management Engineering, Pohang University of Science and Technology (POSTECH), San 31, Hyoja, Pohang 790-784, South Korea

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ABSTRACT

This paper proposes a systematic approach to developing comprehensive guidelines for mobile phone user interface, and presents a case study to validate the approach. The approach applies a systematic combination of three critical factors: general usability principles, UI components and guideline properties to developing guidelines. In the case study, this factor combination approach was very effective in collecting experts' ideas, creating guidelines and editing them. The resulting style guide can provide comprehensive and useful guidelines for designing mobile phone UI.

Relevance to Industry: UI designers can use the results of the study as a practical method to develop style guides for mobile phone UIs. The approach taken in the study will also be helpful in managing complex guideline information systematically.

1. Introduction

Mobile phone customers have different requirements for functions and designs, and phone manufacturers are doing their best to meet this diversity of requirements. However, focusing only on diversity may reduce usability if the manufacturers do not consider consistency. Learning to use a mobile phone efficiently and effectively takes a long time if its user interface (UI) is not visually or functionally consistent (Rieman et al., 1994). In particular, smart phones can add various functions, and newly-installed applications may have different user interfaces. This lack of consistency could make smart phones more difficult to use. In addition to the usability, if the style of products is not designed carefully within a company, the brand image cannot be spread to customers effectively (Aaker, 1995). Therefore, mobile phone manufacturers must consider the consistency and the look-and-feel (L&F) of products simultaneously.

Phone manufacturers have tried to provide a consistent user experience in many cases. Each mobile phone company has a UI which is unique in many ways, including menu structure and interaction method for texting. They use experience teams or UI teams to supervise development of the user interface. The L&F is usually managed by a company style guide (Hix and Hartson, 1993).

A style guide is a document in which common recommendations (guidelines) are summarized to improve consistency of product design and to promote good UI practices (Stewart and Travis, 2003). A style guide provides benefits. First, they improve visual and functional consistency between applications or within an application (Gale, 1996; Gelb and Gardiner, 1997; Quesenbery, 2001; Reed et al., 1999; Yun et al., 2007). UI designers can design the appearance of applications using the common UI styles in a style guide, and they can develop functions consistently using re-usable software. Second, products can be made easy to use (Gale, 1996; Quesenbery, 2001; Reed et al., 1999). Guidelines prevent design arbitrary decisions, because designers must obey the rules. Third, it improves the brand image of the company and public image of the organization (Gale, 1996; Gelb and Gardiner, 1997). Fourth, the style guide allows UI designers to work efficiently (Damrau, 2005; Gale, 1996; Gelb and Gardiner, 1997; Quesenbery, 2001). When the style guide is used as a core reference in a company, much information is arranged systematically and many UI problems can be solved simultaneously.

However, using a style guide practically is difficult (Meister and Farr, 1967; Mosier and Smith, 1986; Rogers and Armstrong, 1977; Vanderdonckt, 1999). Obtaining positive participation of UI designers in developing a style guide is not easy. UI designers think that the style guide is not very helpful and that developing it takes too much time and effort (Campbell, 1996). Some guidelines are so general that they do not reflect designers' requirements (Gale, 1996). Sometimes guidelines conflict with usability principles; when this happens designers may lose confidence in the guidelines (Vogt, 2001). Style guides may be difficult to use; this is a big

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* Corresponding author. Tel.: +82 54 279 2203; fax: +82 54 279 2870.
  E-mail address: shan@postech.edu (S.H. Han).
[1] Currently at Penta Security Systems, Inc.
[2] Currently at Samsung Electronics Co. Ltd.