Information Provision Modules to Support Creation of Slides with Easily Understandable Presentation

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ABSTRACT
Including visual information in slides is one of the important factors for enabling the audience to easily understand the content of a slide presentation. However, it’s difficult for an inexperienced preparer to improve the presentation of slides without adequate experience and awareness of the requirements of a good slide. The authors developed Presentation Gadgets, which consists of modules that can be used to support the creation of slides that represent information in an audience friendly manner. Presentation Gadgets provide information on web-based slides, web pages, web news, and web images, thus supporting replacement of content on slides with visual representations and illustrations of key points, and insertion of common topics and it helps identifying slides that need improvement. To construct the previously mentioned modules, the authors developed a novel slide search method and slide ranking method and to allow easy access to information, Presentation Gadgets has a user interface that automatically creates queries from the selected slide text or speech text that is recognized by a speech recognition engine. By using Presentation Gadgets, an inexperienced slide preparer can effectively create slides that are easily understandable because he/she can interactively refer to various information resources relating to the slide content based on the situation.

Keywords: Creativity Support System, Information Systems, Presentation Gadget Program, Presentation Slides, Presentations, Web Database

INTRODUCTION
Slide presentations are often used in business meetings, lectures, and academic conferences. A number of electronic slides are created in preparation for the presentation by using software such as Microsoft PowerPoint, Mac Keynote, and OpenOffice. The presentation is preceded by the magnification and display of slides on a front screen. Slides are becoming an important part of presentations because visual information can promote a better understanding of the presentation content. However, the common problem of overload of slides with too much information has been previously pointed out by Atkinson and Mayer (2004). When a slide
contains too much information, the audience needs more time to view and understand the information, and some people in the audience may not be able to accurately understand the slide content.

To overcome this problem, one solution could be providing the audiences with intuitive understanding of slide content. Visual representation including pictures, figures, and tables help the audience to intuitively understand the content and retain the information longer than when text is used alone (Robinson et al., 1999, 1996). Retention of the presented information by the audience is one of the most important factors that determine the success of the slide presentation. However, it is difficult for most people to create good slides because it requires adequate experience and awareness of the components of a good slide.

A number of researchers in domains, such as Information Visualization (IV), Human Interface (HI) and Natural Language Processing (NLP), have developed support systems for slide creation. Most of them in IV have developed methods to interactively change the presentation order of slides during a presentation, instead of using the simple linear slide ordering provided by common slide software. This feature is included in Zoomable User Interface (Good & Benderson, 2002; Holman et al., 2006) and other interfaces that use hyperlink (Toyoda & Shibayama, 1999). They in HI have developed technologies for comparing and managing multiple slide presentations (Drucker et al., 2006; Lichtschlag et al., 2009), technology for authoring slides for multi-screen presentations (Kurihara & Igarashi, 2007) / multi-device presentations (Zhang et al., 2004) and handwriting interface technology for annotating slides in presentations (Kurihara et al., 2006). Although their methods support changing slides to introduce a new topic during a presentation, there are no studies on support for creating better slide content. They in NLP have developed systems that automatically generate slides from a document. (Yasumura et al., 2003; Miyamoto et al., 2006) developed the system which generate slides from a latex manuscript of technical paper by analyzing latex structure. Shibata and Kurohashi (2005) developed the system which handles the following processes: selection and formatting of sentences using discourse structure analysis and removal of word suffixes. Although the system generates slides that include simple visual representations, it cannot generate slides containing rich visual representations and new topics that are not included in the document.

The existing presentation software, such as PPT and PDF, has few handy functions for improvement of slide representation, so it is hard for the inexperienced preparator to improve a lot of slide representations which are included in slides. Even if the inexperienced preparer recognizes the areas that need improvement, he/she must search and select the most useful information for improving each slide. However, it is difficult to access the most useful information among the various available resources for all the area.

In this paper, we describe the development of “Presentation Gadgets,” which is a set of information provision modules that support the exchange and addition of easy to understand slides by using slide software. Presentation Gadgets provides two types of reference information and one type of awareness information for slide improvement based on slide document being edited and speech text that is recognized by a speech recognition engine. The information for improving the presentation of each slide is provided interactively, so that the user can easily access the information and effectively change the slide content.

**APPRAOCH**

The purpose of the study is to develop a support system for creating slides with easily understandable presentation. If a slide preparer wishes to improve a slide, he/she has to consider the changes needed for a better presentation and revise the content accordingly. It is useful to refer to various information resources and appropriate examples while improving the
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