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Ambient Displays in Academic Settings:
Avoiding their Underutilization

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ABSTRACT

This work reports on the findings of a case study examining the use of ambient information displays in an indoor academic setting. Using a questionnaire-based survey, we collect experiences and expectations of the viewers who are based on different floors of the same building. Based on the survey feedback, we offer some design principles to avoid the underutilization of peripheral displays and make the most of their potential in indoor environments. [Article copies are available for purchase from InfoSci-on-Demand.com]

Keywords: *Aesthetics; Ambient Displays; Community Awareness; Design Principles; Indoor Settings*

INTRODUCTION

Ambient information displays have emerged as an effective way of disseminating information in an unobtrusive and low effort manner. They have found their use in indoor such as classrooms, workplaces, megachurches (Huang et al. 2003, McCarthy et al. 2001, Wyche et al. 2007, Zhao et al. 2002) as well as outdoor settings such as shopping malls, city squares, airports, and train stations (Huang et al., 2008). In spite of their deployment and evaluation in various settings, a sound understanding of factors that may cause underutilization of their potential remains lacking. A comprehensive case study about the use of ambient displays in public settings was reported in (Huang et al., 2008). However, there is no counterpart of this study for ambient displays in indoor academic environments.

This work investigates the current use of ambient displays in the Complex & Adaptive Systems Laboratory (CASL) at University College Dublin (UCD), Ireland. We report on the results of a questionnaire-

based survey that was conducted among 59 members of CASL. We explain the survey methodology, experiences and expectations of the viewers we collected from the survey. Based on the survey findings, we present some design guidelines that may help the designers tackle the factors responsible for underutilization of ambient displays in an indoor academic setting.

SURVEY METHODOLOGY

The Complex and Adaptive Systems Laboratory (CASL) is a collaborative research laboratory at University College Dublin, Ireland. It is situated in a five-story building and hosts members from various disciplines. These include academic staff, post-doctoral researchers, postgraduate students as well as human resource staff. In addition, there are also undergraduate students based here for 3-months long internship during the summer. At present, there are five large displays installed in the CASL, one on each floor of the building. Each display is of size 32" and shows, among other information, the profiles of staff members (i.e. their university web pages), research images, and a news feed, as shown in Figure 1(a), in a repeated loop of 10-seconds duration.

We conducted a questionnaire-based survey to explore the ways in which CASL members are currently using the displays in the building. The survey involved 59 participants in the age group of 17-50 who were based on different floors of the building. Among the participants, 28 were postgraduate students, 3 academics, 11 post-doctoral fellows, 8 undergraduate students and 9 administration staff. Before completing the questionnaire, each participant was given an overview on the purpose of survey. The participants were first asked to draw the design and layout of the display from memory without looking at it akin to the diagram show in Figure 1(b). The next section of questionnaire was aimed at collecting their current experiences with the displays followed by their expectations and suggestions for improving these experiences. After completing the questionnaire, the first author held a 5-10 minutes long discussion with each participant to get a better understanding of their views. On average, each participant spent 20-25 minutes with the questionnaire and post-questionnaire discussion. The survey

Figure 1. (a) Ambient display in CASL (b) design and layout of the display