I feel so 1323 today:
Capturing, Portraying, and Interpreting Well-being Online

Paul André, m.c. schraefel
Electronics and Computer Science
University of Southampton, UK
{pa2,mc}@ecs.soton.ac.uk

Alan Dix
Computing Department
Lancaster University, UK
alan@hcibook.com

ABSTRACT
Status updates on social networking sites are prolific. Literature in psychology suggests communicating personal status to oneself, and within a group, has benefits. We present different input (capture) and output (representations) of multi-dimensional wellbeing statuses, discuss quantitative and qualitative findings of an evaluation of the interfaces, and propose a course of work for future study of personal status interaction design, supporting understanding, reflection, and awareness of emotion.

ACM Classification: H5.2 [Information interfaces and presentation]: User Interfaces. - Graphical user interfaces.

General terms: Design, Human Factors

Keywords: user interface design, wellbeing, data capture, representation, emotional state capture

INTRODUCTION
Millions of people express their current mood and emotions in blog posts, Facebook statuses, Twitter messages, or similar social networking services. Psychology research suggests such self-representation may have real benefits: personally, assessing subjective wellbeing may improve actual wellbeing [4], and socially, awareness of others' wellbeing may aid in collective welfare within a group [2]. Wellbeing is complex and multidimensional however, and through text can represent this, current statuses rarely do, and stick instead to one dimension, e.g. "I'm so busy", or "I'm bored waiting for the train".

Our interest in this area has two parts. First, design to enable rapid selection of multi-dimensional status settings, and a representation of those states so that viewers can readily interpret the status of both an individual, and a group of say friends or colleagues. Second, our larger goal in developing this tool is to investigate how such representations may be used over time, tying into the affective/emotional computing approach of supporting understanding, reflection, and awareness of emotion. For instance, if we can quickly determine a group of colleagues are coming down with a cold, perhaps working at home would be a good idea. Likewise, it would be interesting to see how trends may be used to understand group dynamics – if one group of friends or colleagues seems regularly stressed and unproductive but happy, and another stressed and rarely happy but with a higher productivity rate, what's going on?
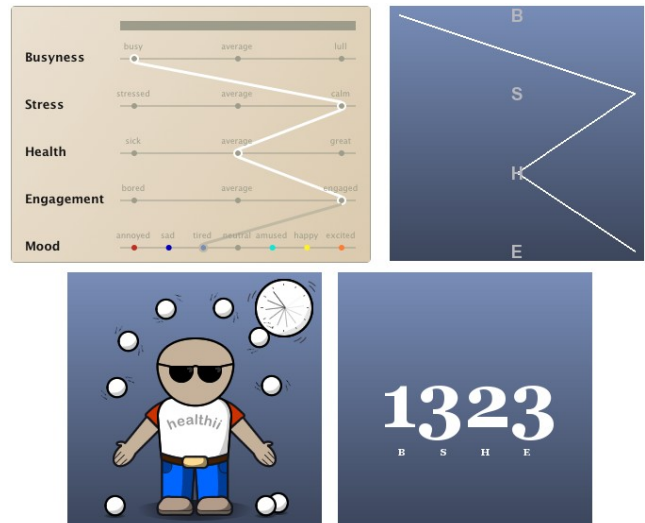
Figure 1: Three representations of well-being. Clockwise from top left: crossing style interface for input of line, the subsequent line representation, a numerical representation, and an anthropomorphic representation. (Note: radio button interface for number and avatar not shown.)

In this paper we describe the design of what is to be represented and how, situating our tool within related work. We report on a preliminary investigation into three types of input and representation, discussing results and implications for future work.

DESIGN
In designing a wellbeing representation, we had two issues to consider: the attributes and words to model, and the input and output interfaces for modeling them.

What is to be Represented?
Our first task was to understand what is a base, reasonable set of dimensions to communicate personal state. We looked at what mood and emotion is currently expressed on the Web: studying 1000 recent Facebook updates (from the authors' friends), using wefeelfine.org's API to scrape 'I feel [mood]' from blog sites, and work in mood classification from blog posts. We also informally interviewed 6 of our group members who regularly use microblogging services, querying how they would describe how they were today, and what they might want others to be aware of about their state. This resulted in a list of around 20 commonly occurring moods, some of which overlapped (e.g.

sleepy and tired). Based on this work, we chose to represent four attributes having three levels each for coarse grained, simple positive, neutral and negative values. The four attributes are: busy-ness, stress, engagement and health.

On Affective Computing (or, Why a Reductionist Approach is Sometimes Okay)

Similar to the interactional approach [1] of affective computing, we seek to support understanding, reflection and awareness of emotion. Although such work normally encourages open-ended or ambiguous conveyance [6], it is mostly used in a rich 1-to-1 context, where choice of a certain word or colour carries personal connotation. Where there has been an appeal to a wider group more interpretative methods tend to focus on encouraging the reflection of the individual, and in some cases ambiguity in public/group scenarios has led to a misunderstanding of original meaning [1]. It is less clear how to harness heuristics such as ambiguity in the case of trying to allow some assessment of 'group mood' unless there were to be some emergent group conventions. The pre-coded answers we use trade off individual expressive flexibility for ease of group comprehension, maintaining a level of global consistency and transparency. By using simple scales early on, we can reduce the drain on 'emotional effort' [3], and perhaps move to more complex representations as people develop suitable self-expression skills [5].

Visual Design

Three different tools were developed. A crossing interface for input was tied to a line representation of state, as shown in Figure 1. A second input mechanism, radio buttons, was used in two cases: one in an avatar representation, the other a numerical representation,

The input mechanism for each representation was displayed alongside the representation (see Figure 1 for crossing interface), and input changes result in a dynamically changing representation. Our goal was that, by using recognition rather than recall in the UI, we would optimize speed of input, and facilitate accuracy of input to be translated onto the representation. This input-to-output connection at data selection time also enhances exposure to the representations: input use would in this way provide familiarization with how different states are represented.

EVALUATION

With a focus on ease of group comprehension and global consistency and transparency, we wished to understand quantitative performance of speed and accuracy of the designs, as well as subjective preference. An online study of sixty-three participants (twenty-one per interface) was deployed, split into two phases: input and interpretation. The input phase consisted of setting 15 predetermined states, and answering questions on ease of use. The interpretation phase consisted of subjective and quantitative questions, regarding both individual and group representations, to assess ease of comprehension and accuracy. We chose to present 12 representations in the group view. We took inspiration from social networking sites such as Facebook

that list a number of friends on a page – we envisage a page of Facebook friends each with their wellbeing representation. We posit that beyond 12 an aggregate representation would be of more use.

DISCUSSION OF RESULTS

On pure summative performance measures the avatars were the slowest to select, and had no significant difference in interpretation time and accuracy. However, there was a clear subjective preference for the avatar. This trade-off between performance and preference is just one of the design trade-offs highlighted by this study. In the accuracy question, we saw that different kinds of decisions/interpretations were supported better by different representations. This is a case where efficiency and effectiveness may be less important than satisfaction. Even ignoring performance issues, there may be no single one size fits all solution. The simple numbers may have least aesthetic value, but would clearly be better than graphical representations from an accessibility perspective. Furthermore, the '1323' of the paper title reminded the authors of 'leet-speak', and the resultant discussion had all the weaknesses and power of esoteric language in establishing a Gnostic sub-community 'in the know', and one can imagine such representations having a certain cachet.

CONCLUSION

Inspired by affective computing, and psychology literature that suggests communicating personal status both to oneself and to a group has benefits, we have begun to investigate how we might enable people to capture, represent, and interpret representations of wellbeing quickly and accurately.

This is a single study as part of a broader probe into portraying wellbeing in social networking sites. Here we focus on an interface that people can interpret and input easily, with dimensions based on preliminary research, in future work we hope to a) refine dimensions based on usage data and surveys, b) discuss alternatives to visualization, including making use of quantitative measures to cluster with outliers, c) explore usage, self-reflection and reaction.

REFERENCES
1. Boehner, K., DePaula, R., Dourish, P., and Sengers, P. Affect: from information to interaction. In CC '05.
2. Brewer, M. B., & Gardner, W. Who is this "we"? Levels of collective identity and self representations. Journal of Personality and Social Psychology, 71, (1996), 83-93.
3. Brown, T.J. Self Informatics. CHI'09 Workshop: Designing for Reflection on Experience.
4. Diener, E., Sapyta, J.J., and Suh, E. Subjective Well-Being Is Essential to Well-Being. Psychological Inquiry, Vol. 9, No. 1 (1998), pp. 33-37.
5. Lane, R.D. Cognitive Neuroscience of Emotion, Lynn Nadel, Oxford Univ. Press, 2002, p 347
6. Sundström, P., Ståhl, A., and Höök, K. In situ informants exploring an emotional mobile messaging system in their everyday practice. Int. J. Hum.-Comput. Stud. 65, 4 (Apr. 2007), 388-403