What Do People Like? The Design of a Mobile Tool to Harness and Share Positive Thoughts

Marije Kanis[1]

[1]Brunel University

Uxbridge, Middlesex UB8 3PH

United Kingdom

marije.kanis@brunel.ac.uk

Willem-Paul Brinkman [1,2]

[2]Delft University of Technology

Melkweg 4, 2628 CD Delft

The Netherlands

w.p.brinkman@tudelft.nl

ABSTRACT

Motivation – To increase understanding of technology-mediated sharing of positive thoughts.

Research approach – Following in the positive psychology tradition, two studies involving over 50 participants, using paper-based questioning techniques and social-online tools were conducted that captured over 150 contributions on what thoughts people like to share. The contributions were analysed and motivated the design of a positive expressive prototype.

Findings/Design – The studies conducted showed the potential for a prefix-based elicitation of positive emotions and suggest that various messages of a predominantly positive nature can be harnessed. The contributions revealed the importance of immediacy in expression. This drove the development of a mobile tool called PosiPost Me (Mobile Edition) that allows users to create and share positive thoughts anytime and anywhere.

Research limitations/Implications – Early findings suggest that PosiPost Me has the potential to study and catalyze beneficial effects such as increasing social awareness. Additional studies will have to further explore and verify these benefits.

Originality/Value – This research provides the design of a mobile tool that aims to encourage positive communication through technology. It is also an exemplar of how on-line social tools and positive psychology can be beneficial for theories and studies of human computer interaction.

Take away message – Technologies such as PosiPost Me can offer promising outcomes for communicating positive thoughts. However, their success depends on understanding and incorporating appropriate strategies for interactive system design and development.

Keywords
Mobile technology, positive psychology, positive emotions, social sharing, mobile mediated communication

INTRODUCTION
Traditional HCI often focuses on the negative aspects of the user experience. For example, diagnosing and avoiding usability problems, identifying design flaws and inadequacies or removing user frustration (Ceaparu et al., 2004). But the lack of problems or user's negative feelings toward a system is not the same as the presence of happy feelings. Positive psychology, the study of human flourishing (Seligman & Csikszentmihalyi, 2000) arose from the need to add a positive side to the predominantly negative discipline of psychology. Studies in the field of positive psychology such as done by Fredrickson (2001) have added to an increasing understanding of the value of positive emotions. Longitudinal studies for instance show that positive emotions play a role in the development of long-term resources such as psychological resilience and flourishing.

HCI and cognitive ergonomics have a tradition of increasing knowledge from integrating other disciplines, such as cognitive psychology for a better understanding of user's perception and problem solving. However, the field of positive psychology, combining theories and studies to encourage user's positive emotions, has been largely left out. And even though emotion in the field of human computer interaction is gaining in popularity (e.g. Picard, 1997) examples and strategies of how designers and developers could provide interactive experiences that actively encourage positive emotions are still scarce. The research presented in this paper is an exploration of how to switch to this focus and make a contribution to detailing the design steps in developing a mobile tool that aims to bring out the sharing of emotions of a more positive nature. This paper will begin with a brief summary of the relevant background, subsequently present the studies that investigate a prefix-based design approach to trigger positive emotions and discuss the positive expressive application as a result of these studies.

Background: The value of positive emotions
Positive psychology is a subfield of psychology and an attempt to respond to the systematic bias inherent in psychology's historical emphasis on mental illness rather than on mental wellness (Seligman, 1990). Although some humanistic psychologists developed theories along

these lines at an earlier stage, the pioneering research of positive psychologists focuses on providing a firmer scientific foundation for the study of human happiness and positive emotions that includes more solid empirical support.

Many studies on the benefits of frequent positive affect clearly suggests happiness precedes important outcomes and indicators of thriving, including fulfilling and productive work, satisfying relationships, superior mental and physical health and longevity (Danner, Snowdon & Friesen, 2001; Lyubomirsky, King & Diener, 2005). Many speculated benefits of positive emotions include novel, expansive, or exploratory behaviour that over time can lead to meaningful, long-term resources such as knowledge and social relationships. One of the potential benefits, accounted for by THE Medium model for socio-pleasure (Kanis, Brinkman, & Macredie, 2006), is that expressing positive thoughts can lead to social bonding (Fordyce, 2000). When people are in a positive mood, they are usually more open to and aware of their (social) environment. Frederickson and Joiner (2002) suggested that there exists an upward spiraling effect of positive emotion and broadened thinking. Individuals who experience positive emotions are more likely to find meaning in negative events, and this meaning-making in turn leads to greater positive emotion. This broadening effect (Fredrickson, 2001) also helps people to see a bigger, broader picture of the world around them.

The value of expressing emotions

The act of expressing one's thoughts is in itself healing. Many studies show that expressing emotions can be beneficial for a person's health and wellbeing (Smyth, 1998). A vast body of research has shown that the simple act of writing and expressing emotions can have many valuable effects. For instance, a study involving students writing about emotional topics showed improvements in grades in months following the exercise (Pennebaker, 1997) and expressing thoughts through writing such as diary keeping and self-journals has been used in psychotherapeutic treatments for quite some time.

Studies using happiness-increasing interventions (Lyubomirsky, Sheldon & Schkade, 2005) suggest that harnessing and increasing positive emotions such as joy and gratitude is possible. Emmons and McCullough (2003) found that practicing grateful thinking on a regular basis can enhance concurrent wellbeing. Gratitude promotes the savoring of positive life experiences and situations, so that the maximum satisfaction and enjoyment is distilled from one's circumstances. Other studies in similar lines (Seligman et al., 2005), also suggest that people can improve their wellbeing by doing simple exercises that relate to harnessing positive thoughts. In a rigorous Internet study with 471 participants, Seligman and his colleagues compared positive psychology interventions with a placebo-controlled exercise. For an exercise termed the 'Three Good Things' exercise, participants were asked to write every day for one week about three good things that happened to them. Results proved very fruitful.

Participants expressed that the exercise made them increasingly focus on the good things that happen during the day and researchers reported increased happiness and reduced depressive symptoms for the six months that researchers tracked the participants. In conclusion, research suggests promising leads that expressing and inducing positive thoughts can be a simple yet powerful way of improving a person's wellbeing.

Encouraging positive expression by technology

Building on the work in positive psychology, the challenge to the HCI community is to design applications that encourage and support positive emotions. This complex procedure requires exemplar studies of the design process for such applications. The aim of this research is to increase understanding in the design of technologies that support the elicitation and sharing of positive thoughts. The further goal is the development of a social expressive tool that allows investigation and optimisation of potential positive communication and the potential effect on, or benefit of, increased social awareness.

Although for some users a positive expressive application may be more beneficial than to others, or some users might be more motivated to use such a technology, the design is initially aimed to give everyone the opportunity to express and share their different positive emotions in daily life. This was motivated by the need for users to encounter and share the widest variety of thoughts.

However, research (Smyth, 1998) suggests that people who naturally do not express their emotional state to a great extent (e.g. men, alexithymics, and those high in hostility) will probably benefit more from it. Smyth's meta-analysis on written-disclosure studies also found that the more days over which a writing experiment lapses, the stronger the effects. This effect suggests that using a positive expression application once each week over a month may be more effective than expressing a positive thought four times within a single week.

METHODS

Two studies were conducted to inform the design steps and rationale of a positive expressive application. The main objectives of the conducted studies were to:

- provide insights into the ways positive emotions can be expressed and shared

- investigate the tactics that could be used to encourage the sharing of positive emotions

- detail the kind of positive and social interactions people (could) engage in

- specify the nature of expressions people like to share

- determine if predominantly positive expression could be provoked.

First study with a paper instrument

The first study was conducted in Scotland over two days during the Digital Futures event with children and young people ranging in age from 6-15 years old. A paper instrument (Figure 1) was developed to elicit insights such as how and in which form people could be stimulated to express positive thoughts and what kind of content participants would create with a positive expressive medium. With this instrument, participants were asked to finish sentences starting with the given prefixes *Today I like, I like, Today I love, I love, I am sorry for* and *I dream about* to try and capture mainly positive thoughts. The prefixes were put on a paper form that could be easily torn so that each prefix was basically put on a different slip of paper. The rationale behind the design of the different slips with prefixes was to prevent a particular order of answering and to avoid participant's impression of having to complete the form as a whole. The participant's paper responses were returned to the researcher or the paper slips were posted in a paper mailbox.

Figure 1: A participant posting the thought "Today I like: the workshop + making music" with the PosiPost paper instrument.

This study involved 23 participants and resulted in 78 positive thoughts that were mostly completed in 1-2 minutes, indicating that the method used for positive disclosure was easy and quick enough. This study allowed testing the effectiveness of the different prefixes and how they could be used best to elicit positive thoughts.

Second study with on-line tools

The second study concentrated on how positive expressions can be triggered, shared and mediated by desktop and Internet technology in particular. Furthermore, this study was used to gain more positive postings and insights in the elicitation and sharing of positive thoughts. As most of the participants in the initial study were rather young and all from the same county in Scotland, the use of Internet technology had the advantage to reach a wider range of participants worldwide. This subsequent study built upon the outcomes of the first study and allowed further refinement of the prefixes. Because in the first study some participants had given the same answers while using different prefixes, the second study used less prefixes of similar kind (e.g. *Today I love, I love*) and introduced the different prefix *This is nice about you*.

This second, longer-term study ran for nearly six months and made use of these social online tools:

- a blog (http://posipost.blogspot.com);

- an email address (posipost@gmail.com);

- an already existing open anonymous question and answer system on the Internet (http://justcurio.us).

Existing social-online tools were included in the study as these brought advantages including large existing communities of users and platforms where the expression of positive as well as negative thoughts occurred.

The prefixes (*Today I like, I love, I am grateful for* and *This is nice about you*) were used and applied in combination with the on-line tools. For example, in the case of justcurio.us (2005-2007), the prefixes were posted as questions that any random stranger could answer.

In the first paper-based study, participants were observed and this could have had an influence on their postings. Therefore, in the second study, users were not directly and explicitly asked nor told that their postings were also used for the purpose of a study. This was to ensure that the postings received were the same as those that would occur in naturalistic settings. In addition, people posted based on their own initiative and were not presented with any incentives, other than those gained from the pleasure of posting.

RESULTS

The total of the first and second study resulted in the collection of 150 postings (mostly anonymous) from approximately 50 (23 face-to-face and 27 online) individuals. Table shows the number of postings across both studies. In the first study, the mean of posipostings per person was four and in the second study this was in the region of almost two and a half postings.

Categorisation and analysis of PosiPost content

After the posipostings had been gained during the first and second study, its content (e.g. "Today I like surprising people with flowers" or "I am grateful for having a good book to read") was analysed. This analysis used the collected postings from the first study and from the second on-line study. The content characteristics that had emerged were categorized by two coders to ensure consistency. They used the following categories:

- *Time*; a reference to time, e.g. "I am grateful for the day".

- *Human (social)*; posting contains a social element or reference to a person, e.g. "Today, I like receiving a surprise phone call from a friend".

- *Environment (location)*; a reference to a physical location or posting contains an environmental factor, such as a reference to the weather.

- *Object*; a reference to a physical object, e.g. "I love my new shoes"

- *Activity*; a reference to an action.

- *Right here – Right now (situatedness)*; a reference to what is happening at that particular moment in time and place.

- *Emotion (explicit)*; an explicit reference to an emotional state of a person, e.g. "Today I like smiling".

- *Everyday event*; a reference to ordinary things

- *Positive*; the content is of a mainly positive nature

- *Offensive*; the content could easily be regarded as racially, sexually or politically offensive

The categories were not designed to be mutually exclusive. For example, a posting such as "Today, I like working" could be placed in *Activity* and further be placed in other categories such as *Everyday event*, and *Positive*. Thus, each posting could have multiple codings.

The consistency of the allocation of the codings was analysed by calculating a series of Cohen's Kappa —Index of Inter-rater Reliability. Table 2 shows a general high level of agreement between the coders when categorizing the postings, given that values above 0.70 are normally considered satisfactory (Robson, 1993). In the few cases where the two coders disagreed, they discussed the comments and agreed on a classification.

Table 3 shows the number of the postings that were classified in the specific category, both the absolute frequency and the percentage of a specific study. As there is no absolute guarantee that users will (always) only post positive messages, the most remarkable finding as shown in

Table 3 is that the posted content was of a predominantly *positive* and *non-offensive* nature. The prefix *I am sorry for* was included during the first study to test if the posipostings of this nature would provoke emotions of a more negative kind. As anticipated, this prefix encouraged the only expressions of non-positive emotions, like sadness or regret (e.g. "I am sorry for Busted splitting up", "I am sorry for my lack of ability"). The prefix *This is nice about you* was not found the most suited as it provoked the only two comments that people may find offensive.

Table 1: Distribution of posipostings in relation to participants during both studies.

	N	Po	M Po	SD
First study	23	78	4.0	2.2
Second study	27[a]	73	2.4[a]	2.3[a]
Both studies			3.0[a]	
Total	50[a]	151		

N= Participant sample size, Po= Total number of PosiPostings, M Po= Mean of PosiPostings per participant, SD=Standard Deviation of the number of postings per participant

[a] =This is an estimate based on on-line alias as the individual posting was anonymous

Table 2: Agreement between the coders expressed by Cohen's Kappa.

Category of content evaluation	Cohen's Kappa		
	Study 1	Study 2	Mean Study 1&2
Time	1.00	1.00	1.00
Human (social)	0.86	0.93	0.90
Environment (location)	1.00	1.00	1.00
Object	1.00	0.97	0.99
Activity	0.88	0.97	0.93
Right here - Right now (situatedness)	0.87	N.A.	N.A.
Emotion (explicit)	1.00	0.94	0.97
Everyday event	1.00	0.70	0.85
Positive	1.00	1.00	1.00
Offensive	1.00	1.00	1.00

Table 3: Numbers and percentages of postings according to topic category and study.

Category	Posted content that falls in category			
	First study		Second study	
	Freq.	In %	Freq.	In %
Time	0	0	7	10
Human (social)	8	10	21	29
Environment (location)	3	2	14	19
Object	13	17	21	29
Activity	27	35	24	33
Right here, Right now (situatedness)	40	51	N.A.	N.A.
Emotion (explicit)	6	8	11	15
Everyday event	7	9	13	18
Positive	76	96	73	100
Offensive	0	0	2	3

The following analysis was to study the effect of these prefixes in more detail. The used prefixes and generated posipostings are shown in Table 4. A Chi-square test on the distributions of the postings in the first study shows that there is a significant ($\chi^2(5, N = 78) = 13.25$, $p = 0.021$) variation of the distribution of messages depending on the prefix, and likewise for the second study ($\chi^2(4, N = 73) = 68.16$, $p < 0.001$). This suggests that some prefixes were more popular, or more effective in the elicitation of messages than others. As Table 4 shows, from the eight prefixes used, the most popular prefix was *Today, I like* as this elicited the widest range of positive responses in both studies.

Table 4: Used prefix versus generated posipostings.

Study 1: Used prefix	Total	Study 2: Used prefix	Total
Today I like	21	Today I like	40
I like	20	I like	6
Today, I love	10	Today, I love	3
I love	10	This is nice about you	4
I am sorry for	9	I am grateful for	20
I dream about	8		
Total	78	Total	73

Expressing emotions: Right here, right now

From the analysis of the first study conducted on location in Scotland, the category *Right here/right now (situatedness)* scored relatively high (Table 3), which suggests that expressing situated experiences is popular. The following step of the analysis was therefore to examine the relation between the usage of a prefix and reference to what is currently happening at that location or particular time. Table 5 shows a cross tabulation between prefix and situatedness. The distribution of the messages reveals a significant variation ($p = 0.002$, Fisher's exact test). Thus, especially when using the prefix *Today, I like* the majority of the expressions were related to that particular moment in time or location. For example, "Today I like making music" was expressed right after a workshop on making music with a computer program. The on-line study was not taken into consideration for this category, as it was not possible to know what people were exactly experiencing on-line at the time of their postings.

The analysis of the content of the posipostings also showed that people sometimes include a location in their positive thought. People, for example, posted that they liked collecting shells on the beach, working at home, Dublin or sitting with their laptop in a bar. As quite a few expressions suggested to be *time* and *location bound*, and the category situatedness scored high, the belief was

strengthened that a positive expressive technology should preferably allow for immediacy of disclosure so that positive emotions can be expressed at *anytime* and *any place*. As such, this motivated the need for a mobile tool and resulted in the iterative design of *PosiPost Me*. This application allows users to create and share positive emotions at anytime and any place and will be discussed further on in this paper.

Table 5: The number of postings according to prefix and relation to 'Right here, right now (situatedness)'.

		Right here, right now Relates to what's happening at the moment (situatedness)		Total
		no	yes	
Used prefix	Today I like	6	15	21
	I like	7	13	20
	Today, I love	3	7	10
	I love	7	3	10
	I am sorry for	8	1	9
	I dream about	7	1	8
Total		38	40	78

Review and further discussion of social online tools

Following on from the previously described studies, a further review of existing on-line tools was undertaken. This involved the analysis of hundreds of existing positive thoughts found in discussion groups online. Two sites were studied: the photo management and sharing site, Flickr, and a social networking site called 43things. This site was particularly interesting as this is a virtual space where users create and share lists of goals and desires. Examples include listing 100 things that make them happy, learning to drive, getting a tattoo or wanting to make pesto. The rationale of studying these two sites was to gain a wider idea of the kinds of positive emotions people share and engage in on an everyday basis.

While some people are using Flickr to archive their image collections, most users see Flickr as a social site, a place for sharing images (House, 2007). People that tag and share pictures of things they like and love was observed to be popular. The Flickr *I love* discussion group and numerous tags starting with "I love" are an example of that.

On 43things.com (2004-2007) it was found that a high number of people had stated existing wishes of a positive nature. For example, out of 1,038,570 people wanting to do 974,515 things in total, 13,297 people stated that they wanted 'to be happy' (number 5 of 43 things most popular goals), 417 people expressed the desire 'be more optimistic', 424 people wanted to 'be positive', more than 50 people wanted to express positive thoughts and even two people had expressed the desire "to anonymously post positive messages wherever I go".

An indication of the constancy of our studies can be found in the similarities between the *expressed* content of our collected postings, combined with the additional postings found on-line (e.g. on Flickr) and more detailed research (Fordyce, 2000; Csikszentmihalyi, 1990; Lyubomirsky, 2005) on what generates happy emotions. Some broadly defined categories that merged from the literature (with according examples from the collected posipostings to show overlappings) of factors that contribute to people's subjective wellbeing include:

- Overcoming negative emotions or experiences, such as resentment (e.g. "I am grateful for leaving the army: It was the happiest decision I made this year" or "I love being able to overcome my unrealistic negative thoughts.")

- Wealth and materialistic possession (e.g. "I like my new car")

- Flow, progress and accomplishment (e.g. "I like getting a good mark" or "Today, I like getting my work done")

- Social contact (e.g. "Today, I like talking to a friendly stranger" or "Today, I like dancing with a friend")

- Savouring ordinary activities in daily life (e.g. "Today, I like listening to music at home")

Especially the two last factors have similarities with the categories defined in our first and second study. The category *Human (social)* can be linked to *Social contact* in which on average 20% of the postings were categorized. The last point shows similarities with the category *Everyday event* (13%) and *Activity* (43%).

While some researchers (Pennebaker, Zech, & Rimé, 2001) suggest that people usually prefer to share their emotions with their closest intimates, the generated contributions from the study participants and observations of people using the social on-line tools indicate that people are also willing to share positive emotions with random strangers at a distance. However, the willingness and motivation to share posipostings will need to be verified in further studies.

SYSTEM DESIGN: POSIPOST ME
The results of the studies drove the design of *PosiPost Me.* It guided the design rationale and the different aspects of the system. The studies guided, for example, the decision on which positive prefix(es) to use, concluding that the *Today I like* prefix generally invoked the widest response. Although different strategies, versions and technologies are being explored in this iterative design process, the conducted studies drove the design of PosiPost's Mobile Edition, which allows the distribution of positive thoughts over long distance at any time and any place. The mobile application, that was build with Python for S60, runs on smart phones and uses a mobile 3G network to send and receive the positive recollections. It is a client-server based application that uses PHP- and javascripts on the server side.

The developed PosiPost Me application lets users create a posiposting by asking the user to finish a sentence starting with *Today I like* to encourage the (daily) thoughts of positive nature. Anytime, users can send and receive these posipostings that are anonymously and randomly distributed between users. The user receives just one posiposting each time.
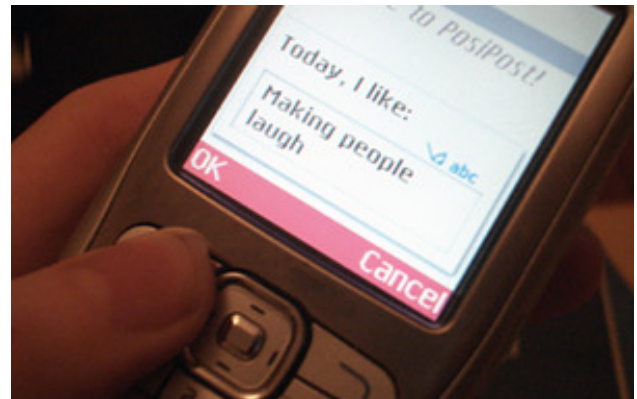

Figure 2: The creation of a posiposting with the PosiPost Me mobile application.
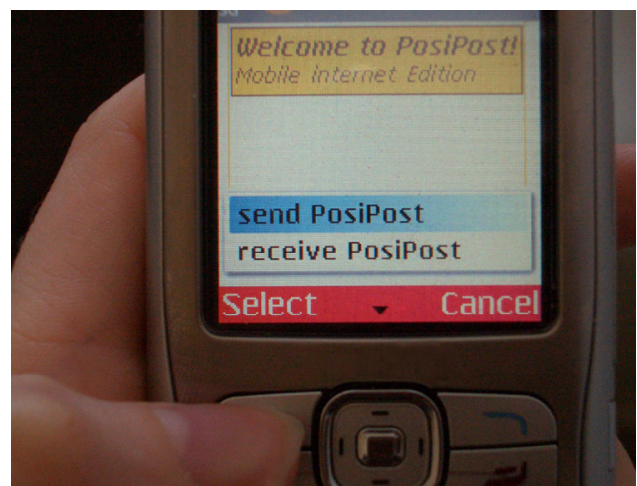

Figure 3: Choosing to send a posiposting with the PosiPost Me mobile application.

Apart from text, users can also opt to exchange pictures of things they like. The latter was guided by Flickr's observed social popularity of people that like to share pictures of things they like and love. This system also provides a website (www.posipost.110mb.com) in which all the posipostings from every (mobile) PosiPost user are collected and randomly displayed. To ensure a wide variety of postings directly from the start, the website for PosiPost Me was initially filled with all the posipostings that had been collected during the first and second studies. When people do not have a phone with the PosiPost Me application on it, they can still view other users' posipostings through the website. The website additionally offers free download of the PosiPost Me application for a S60 (smart) phone.

Figure 4: PosiPost Me website that collects and randomly displays all postings from (mobile) users.

The Internet site functions as a shared public display while the version on the mobile phone is more private. The public website and their collected positive examples provide people with a framework that they can use to stimulate their own positive use. All the users' created messages are stored on the phone and accessible any time for personal reflection. The use of mobile technology on top of desktop technology and the Internet has the advantage that the strengths of each can be exploited. Mobile technology brings the advantage that the user can post and receive posipostings anywhere and any time, while desktop technology and the Internet bring the advantage of general inclusion and accessibility while harnessing individual mobile experiences into a collective one.

RELATED RESEARCH

A small number of researchers in the field of human factors, information and communication technology development and HCI have already drawn inspiration from positive psychology for a more explicit positive approach to human-centered design and evaluation (Sklar & Gilmore, 2004), for user experience research with a focus on positive emotional outcomes such as joy, fun and pride (Hassenzahl & Tractinsky, 2006), or for preliminary design theories that are based on supporting human needs and flourishing (Zhang, 2007). So far however, most inspiration and research efforts have come from the flow theory, one of the key concepts of positive psychology that was originally coined by Mihaly Czikszentmihalyi (1990). This motivational theory describes the optimal psychological state (thus flow or zone) when people reach total enjoyment and engagement in an activity, and has been applied to a number of HCI theories such as by Sherry (2004). PosiPost Me also uses inspiration from research contributions in positive psychology, but aims to build and extend on related research and studies on positive emotions to optimize and increase understanding of its potential benefits. However, the use of input technology

for the social sharing of positive emotions and its effects instead of verbal or written disclosure is under explored. Technology, in this case a blog, and postcards to encourage the expression of emotion and inner thoughts are used by Post a secret (Warren, 2005) but mainly uncovers the mediation of negative emotions such as fear or shame.

POSIPOST ME OUTCOMES

Although it is possible for users to post negative content with PosiPost Me, the application is not designed to encourage that. It incorporates lessons learned from the studies presented here and aims for positive interaction by its use of colours, wordings, the provision of the positive prefix *Today I like* and a shared display on the Internet so that participants can get positively inspired for their own use. The prefix format makes a speedy posting possible as the input constraints for mobile phones had to be taken into consideration. It also incorporates knowledge that the sharing process of pleasurable emotions, reactivates the positive aspects of the emotional experience (Pennebaker, Zech & Rimé, 2001). Thus in this way, the use of PosiPost Me creates a possible opportunity to re-experience pleasurable moments through social sharing as in the expression of emotions. Even though mobile technological developments make it possible to reveal user locations automatically, research by (Consolvo et al., 2005) guided PosiPost's design strategy on the decision to give users the option whether to disclose a user name and location. Moderating the content of the posipostings to discourage any potential future negative behaviour could possibly strengthen PosiPost Me.

CONCLUSION AND FUTURE WORK

The studies conducted in this research drove the deployment of a design strategy that resulted in a mobile tool for shared positive disclosure. The design decisions during the development of PosiPost Me were informed by the paper-based and on-line studies, which showed the potential for a prefix-based elicitation of positive emotions. The data analysis of the conducted studies suggests that the deployment of the prefix *Today, I like* is an effective way to encourage messages of a predominantly positive and non-offensive nature. This prefix also appears to particularly trigger situated expressions that are related to what is happening at that particular moment in time.

A real-world study with PosiPost Me will need to be undertaken to investigate if the incorporated design rationale for PosiPost Me has been correct. Larger studies will need to investigate and capitalize the benefits of the PosiPost Me prototype in further detail.

PosiPost Me has been released as an open source tool so that anyone can use its application for his or her own potential studies and possibly improve the mobile expressive tool. In further studies, it would be useful to determine the impact of this system and the messages according to the person who writes the posipostings; according to the person who is familiar to this posiposter; or according to a stranger that receives the messages.

Further research should then show if lessons learnt such as from these can be translated to possible improvements of positive social sharing as mediated by technology. Additionally, we will continue our on-going iterative study process with PosiPost Me and further explore different versions of PosiPost, such as a Bluetooth edition that allows sharing positive thoughts with people in closer proximity. This will further help us to explore the effects of location and social sharing. Studies and developments will then allow us to improve on design strategies and theories to capitalize on the use and benefits of mobile tools that allow for expression of positive emotions.

ACKNOWLEDGMENTS

REFERENCES

43Things (2004-2007). *http://www.43things.com* (Last visited: 29 May, 2007).

Ceaparu, I., Lazar, J., Bessiere, K., Robinson, J., & Shneiderman, B. (2004). Determining causes and severity of end-user frustration. *International Journal of HCI*, 17(3), 333-356.

Consolvo, S., Smith, I., Matthews, T., LaMarca, A., Tabert, J., & Powledge, P. (2005). Location disclosure to social relations: Why, when, & what people want to share, *Proceedings of CHI'05*, ACM Press, 81-90.

Csikszentmihalyi, M. (1990). *Flow: the psychology of optimal experience*. New York: Harper & Row.

Danner, D., Snowdon, D., & Friesen, W. (2001). Positive emotions in early life and longevity: Findings from the nun study. *Journal of Personality and Social Psychology*, 80(5),804-813.

Emmons, R. & McCullough, M. (2003). Counting blessings versus burdens: an experimental investigation of gratitude and subject wellbeing in daily life. *Journal of Personality and Social Psychology*, 84(2), 377–389.

Fordyce, M. (2000). Human happiness: Its nature & its attainment. From:*http://gethappy.net/freebook.htm*.

Fredrickson, B. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist* (56), 218-226.

Fredrickson, B. & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychological Science* 13(2), 172-175.

Hassenzahl, M., & Tractinsky, N. (2006). User Experience - a research agenda (Editorial). *Behavior & Information Technology*, 25(2), 91-97.

House, N. v. (2007). Flickr and public image-sharing: Distant closeness and photo exhibition, *Extended abstracts of CHI '07*, ACM Press, 2717-2722.

Justcurio.us (2005-2007). *http:// Justcurio.us* (Last visited: March 2007).

Kanis, M., Brinkman, W.-P., & Macredie, R. (2006). Facilitating socio-pleasure as mediated by ubiquitous technology, *Proceedings of ECCE13*, (Zurich, September 2006), 117-118.

Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, 131(6), 803–855.

Lyubomirsky, S., Sheldon, K. & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology*, 9, 111-131.

Pennebaker, J., Zech, E., & Rimé, B. (2001). Disclosing and sharing emotion: Psychological, social and health consequences. In M. Stroebe, Hansson, R., Stroebe, W. & Schut, H. (Ed.), *Handbook of bereavement research: Consequences, coping, and care*, Washington, DC: American Psychological Association.

Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science*, 8, 162-166.

Picard, R. (1997). *Affective computing*. Cambridge, Massachusetts: MIT Press.

Robson, C. (1993). *Real world research: a resource for social scientists and practitioner-researchers*. Cambridge, Massachusetts: Blackwell.

Seligman, M. (1990). *Learned Optimism*, New York: Knopf.

Seligman, M., & Csikszentmihalyi, M. (2000). Positive Psychology: An Introduction. *American Psychologist*, 55(1), 5-14.

Seligman, M., Steen, T. , Park, N., & Peterson, C. (2005). Positive psychology progress: Empirical validation of interventions. *American Psychologist*, 60(5), 410–421

Sherry, J. (2004). *Flow and media enjoyment. Communication Theory*, 14(4), 328.

Sklar, A., & Gilmore, D. (2004). Are you positive? *Interactions*, 11 (3), 28-33

Smyth, J. (1998). Written emotional expression: Effect sizes, outcome types, and moderating variables. *Journal of Consulting and Clinical Psychology*, 66(1), 174-184.

Warren, F. (2005). *PostSecret: Extraordinary confessions from ordinary lives*: Katherine Tegen.

Zhang, P. (2007). Toward a positive design theory: Principles for designing motivating information and communication technology. In M. Avital, R. Bolland & D. Cooperrider (Eds.), *Designing information and organizations with a positive Lens*: Elsevier.