Short Tips Delivered "in the Moment" Can Boost Positive Emotion

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Abstract

Background: Positive psychology interventions have been shown to increase happiness and well-being, and researchers are beginning to speculate on the mechanisms through which these interventions may be effective, such as positive emotion, behavior and thought. Short interventions matched to an individual's current context may be a route to boosting positive emotion in everyday life contexts where people have limited time.

Methods: In the first study 250 UK participants completed a control task or three short tips selected from a list of 10. Positive emotion was monitored before and 15 minutes after the task via PANAS (Positive and Negative Affect Schedule) and additional items in a new Positive Emotional Intensity Scale (PEIS). Study 2 was a series of user centered design sessions with 18 UK participants to identify the key design principles for a Smartphone App intervention to boost positive emotion in an everyday life context. Study 3 involved 280 UK participants who either used the Smartphone App for two days or were in a control group. PANAS and PEIS were monitored during the intervention period and two days before. Personality, Adult Playfulness and the Satisfaction with Life Scale were deployed as potential moderators. The fourth study followed a similar design to study 1 but with 406 Chinese participants completing the short tips translated into Chinese, with PANAS, PEIS and Flourishing monitored before and after.

Results and Discussion: In Study 1, we found three short tips increased positive emotion, relative to the control, as monitored by PEIS (but not PANAS). Study 2 identified twelve design principles that were used to develop the Smartphone App, which delivers short tips tailored to an individual's context. Study 3 found that the Smartphone App boosted positive emotion (PEIS) and reduced PANAS Negative Affect relative to a control. In study 4 the same tips used in study 1 also increased positive emotion for Chinese participants when monitored via PANAS (but not PEIS).

Conclusions: Varied short tips to boost positive emotion, behaviors and thoughts, which are matched to an individual's context, may be an effective approach to enhancing happiness and well-being.

Keywords: positive emotion, everyday life context, short tips, Smartphone

1. Introduction

Evidence is emerging that happiness can be increased sustainably (e.g., Sheldon & Lyubomirsky, 2006) and that mechanisms for successful interventions include the increase of positive emotions, thoughts and behaviors (Lyubomirsky & Layous, 2013). Interventions are more likely to be effective when the implementation instructions have a good "fit" with the person, their context and the intervention (Lyubomirsky & Layous, 2013; Layous, Nelson, & Lyubomirsky, 2013). Chon and Fredrickson (2010) found that people who use interventions more frequently and for longer tend to get more benefit.

There has been good progress in developing activities designed to increase individual happiness and well-being, through cognitive and behavioral tasks such as counting one's blessings (Emmons & McCullough, 2003), loving-kindness meditation (Cohn & Fredrickson, 2010), acts of kindness (Layous, Nelson, Oberle, Schonert-Reichl, & Lyubomirsky, 2012), as well as gifting & eating (Hurling, Linley, Dovey, Maltby, &

Wilkinson, 2015). Indeed, in their meta-analysis of 51 positive psychology interventions, Sin and Lyubomirsky (2009) found they significantly enhanced well-being.

We have drawn on these streams of research work to consider how we might develop an intervention type and delivery system for maximal impact. We suggest that interventions that naturally fit into everyday lives and are matched to a person's needs at a particular moment may increase the probability that they are followed and so increase the likelihood a benefit is generated. In one of the few studies to take a naturalistic approach to enhancing happiness, Parks, Della Porta, Pierce, Zilca and Lyubomirsky (2012) found that, on average, people performed their chosen happiness increasing strategies several times a week for at least an hour each time. Linley, Dovey, de Bruin, Transler, Wilkinson, Maltby and Hurling (2013) also found everyday activities already performed in people's life, such as pleasurable eating, can also, at least temporarily, increase levels of positive affect. Perhaps we can further boost the impact of our interventions by matching them to a person's context and reducing barriers to their implementation by making them extremely easy for people to enact? As a first step towards this goal we describe here a set of very short "tips", based on the positive psychology and related literature, which can be easily completed by people in their everyday life.

We focus on the contribution of positive emotions to wellbeing, inspired by Fredrickson's (1998) seminal broaden-and-build theory of positive emotions as well as the Lyubomirsky and Layous (2013) positive-activity model. Through these models and subsequent research, positive emotions are now recognized as a key factor in a range of areas, e.g., resilience (Fredrickson, Tugade, Waugh, & Larkin, 2003), reducing own-face bias in cross-race facial recognition (Johnson & Fredrickson, 2005) and helping to build sustainable positive resources in relationships (e.g., Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008; Waugh & Fredrickson, 2006). Boosting the frequency of experienced positive emotion in everyday life therefore appears a worthwhile enterprise to improve well-being.

To this end we generated a set of ~500 tips collated into twelve categories, drawing on different research streams in the literature. We do not propose these categories as a universal template for positive psychology interventions, but instead present them here as a record of how the different types of tips were generated, with an example reference for each rather than a full bibliography, which is beyond the scope of this article. The twelve tip categories are: *Mindfulness*: the self-regulation of attention so that it is maintained on immediate experience, allowing for increased recognition of mental events in the present moment (Shapiro, Oman, Thoresen, Plante, & Flinders, 2008). *Gratitude*: being thankful for the world around you, what you already have and what others have done for you (Emmons & McCullough, 2003). *Self-care*: taking care of your mind and body so they're not stretched beyond their limits (Neff, Rude, & Kirkpatrick, 2007). *Learning*: experiencing the joy of learning something new (Field, 2009). *Engage*: actively seek out the company of other people and engage with those around you (Gable, Reis, Impett, & Asher, 2004). *Goals*: setting yourself achievable goals to get a sense of achievement (Sheldon, Kasser, Smith, & Share, 2002). *Outward*: become more aware of what's going on around you (Brown & Ryan, 2003). *Be Good*: doing something to make others happy (Lyubomirsky, Sheldon, & Schkade, 2005a). *Resilience*: bouncing back from life's misfortunes (Tugade & Fredrickson, 2004). *Self-Love*: learning to accept yourself for who you are and focus on the best bits (Neff, Rude, & Kirkpatrick, 2007). *Different*: freeing up your mind by thinking about things in a different way or doing something a little differently (Gross & John, 2003). *Strive*: accepting that failure is part of trying, part of life, and encouraging people to see the value in failure rather than fear it (Syed, 2010).

The tips within each category were a set of mental or physical actions that could be conveyed in a very short text form and completed by the receiver in a few minutes. An example tip, from the mindfulness category, is: Step 1: Sit with your eyes closed and your spine reasonably straight. Step 2: Feel the sense of your breath as it enters and leaves your body. Step 3: Thoughts, emotions and sensations will come and go. Simply notice them without judging or getting involved. Continually bring your attention back to your breathing.

Each category contained a range of different types of intervention as well as a range of instructions that took into account different contexts and needs that people might have when attempting to carry out the tip. The large set of tips was generated so that we had the capability to match a tip version to a person's context and needs across a range of different places, times and states experienced during everyday life. When presenting the tip categories to people we further combined them into 6 "super-categories"—each holding tips from two of the twelve categories: Reflect (Mindfulness and Gratitude), Improve (Learning and Goals), Love (Self-care and Self-love), Surprise (Be Good, Different), Connect (Engage, Outward), Strength (Resilience, Strive). These 6 super-categories were used to reduce the cognitive load on people, who in pilot studies found 12 separate categories an overwhelming level of complexity and choice, beyond their working memory capacity (Baddeley, 1992).

The way in which positive emotion can be measured is also of note. Many researchers have used the Positive and Negative Affect Schedule (PANAS, Watson, Clark, & Tellegen, 1988; Thompson, 2007) which has 10 positive emotions and 10 negative emotions; summed to provide scores for a generalized level of positive and negative affect respectively. PANAS was the most typically used measure in Sin and Lyubomirsky's (2009) meta-analysis, and has a long tradition as a predictor of key outcomes, e.g., Lyubomirsky, King and Diener, (2005b) and Pressman and Cohen (2005). However, recent reviews (Kuppens, Tuerlinckx, Russell, & Barrett, 2013) have questioned the simple valence (positive vs. negative) model of positive emotion and other research suggests different discrete positive emotions can lead to different outcomes, e.g., Strohminger, Lewis and Meyer (2011) found a differential impact of mirth and elevation on processes of moral judgment. Williams and De Steno (2008) also differentiated pride from self-efficacy and general positive affect, proposing that pride served as a motivational incentive to persevere with a task despite the initial costs incurred. In our research we have used a range of individually assessed discrete emotions, as well as PANAS as a general measure of positive affect. We did not opt to explore the PANAS items at the individual level, given that the PANAS is a well-established and widely used measure of positive affect with extensive reliability and validity evidence.

Different delivery channels for positive psychology interventions are also beginning to be explored. Wiederhold and Riva (2012) recently introduced the phrase "positive technology" to describe the use of technology to improve our lives through the structuring, augmentation, and/or replacement of personal experience. Layous, Nelson and Lyubomirsky (2013) compared the impact of a writing intervention (best possible self) delivered either in person or online, with or without a personal testimony about the intervention efficacy. They found the online delivery channel to be as effective as in person, particularly when accompanied by a personal testimony. In general healthcare the potential of integrating Smartphone technology is also beginning to be recognized (Luxton, McCann, Bush, Mishkind, & Reger, 2011). The rapid growth of Smartphone ownership, with 5.6 billion sets predicted to be owned globally by 2020 (Ericsson Mobility Report 2013), provides an opportunity for direct dialogue with individuals through automated services, such as apps. Through Smartphone apps we can provide interventions that fit people's everyday life by matching them, through algorithms, to their current needs and context. As part of our research we therefore also explore whether a Smartphone App can be used to deliver contextualized tips to people to boost their level of positive emotion in everyday life.

2. The Current Studies: Evaluating the Impact of Short Tips and a Smartphone App on Levels of Positive Emotion

In the current studies, we first evaluate the impact of a limited selection of our short tips on participants in a fairly controlled setting to determine whether they have the potential to boost levels of positive emotion at least over a short period of time (study 1). We then describe the development of a Smartphone App to deliver tips matched to a person's current context and need (study 2). The impact of the Smartphone App is then evaluated in a follow-up study where participants are offered tips matched to their current need and context (study 3). Finally, after evaluating the short tips and the Smartphone App in the United Kingdom, we examine their impact in another country and culture: China (study 4).

Our aim in sum is to show that short tips can boost people's level of positive emotion, that a Smartphone App can help deliver these during everyday life, matched to the context, and that the effects are present in both a Western and Eastern culture.

3. Study 1: Impact of Short Tips

3.1 Participants

250 UK participants were recruited online via the Centre for Applied Positive Psychology (www.cappeu.com) website and randomly allocated to an experimental group (125; 75 male and 50 female; average age 34.9 years, SD = 7.7 years, range = 21-62 years) or a control group (125; 90 male and 35 female; average age 32.0 years, SD = 5.9 years, range = 21-57 years. Participants were typically from a White ethnic background (95%). Ethical approval was obtained from the University of Coventry's Ethics Committee.

3.2 Measures and Design

Positive and negative affect were assessed using PANAS (Watson, Clark, & Tellegen, 1988); where the experience of 10 positive and 10 negative emotions are rated using a 1 (very slightly or not at all) to 5 (extremely) scale. For the present study, we used a shortened version, with five positive items (interested, excited, inspired, attentive, and enthusiastic) and the five negative items (irritable, distressed, nervous, hostile, and jittery).

Discrete positive emotions were measured with a new Positive Emotional Intensity Scale [PEIS] where seven items were rated in terms of the intensity that emotion experienced at the present moment, using a 1 (very

slightly or not at all) to 5 (extremely) scale. These emotions were joyful, optimistic, satisfied, curious, happy, resilient, grateful; to complement the PANAS Positive Affect items and explore whether there might be differential effects of happiness actions on different types of positive emotions. A measure of personality was obtained by using the Ten Item Personality Inventory (TIPI, Gosling et al., 2003).

Participants completed the intervention online in one sitting via Survey Monkey (www.surveymonkey.com) for which they received a £10 Amazon voucher. First, at Time 1, all participants completed the TIPI, PANAS and PEIS measures. Second, the experimental group was presented online with a list of ten activities (Appendix A) in the form of short tips and instructed to select and complete three of the ten tips, following the specific instructions provided for each activity. Each tip was based on a research approach to improving wellbeing, e.g., the "Breathe Mindfully" tip was based on research into the benefits of mindfulness exercises (Arch & Craske, 2006) and the "I Did Well" tip on Attribution Theory (Fiske & Taylor, 1991). Note that none of the short tips had been previously validated; this was an exploratory study to establish their potential efficacy. Participants in the control group were instructed to spend five minutes thinking about the usual events of an average Monday and asked to list them in sequential order (taken from Phillips, Bull, Adams, & Fraser, 2002). Third, at Time 2, approximately 15 minutes later, all participants completed the PANAS and Positive Emotional Intensity Scale measure for a second time. The experimental group were also invited to rate the effectiveness of the three short tips they completed on a 7 point scale from "Not effective at all" (1) to "Extremely effective" (7), with the mid points labeled "Very ineffective" (2), "Quite ineffective" (3), "Neither effective nor ineffective" (4), "Quite effective" (5) and "Very effective" (6).

3.3 Data Analyses

Inter-correlations between all study measures across the two time points are shown in Table 1. In order to examine the impact of short tips on mood, the data were analyzed using one-way Analyses of Covariance (ANCOVA), comparing experimental and control groups following the intervention, whilst controlling for pre-intervention levels of the variable. To examine any influence of gender and age on the impact of short tips on emotional response, the data were analyzed using three-way Analyses of Covariance (ANCOVA). We included the PEIS items as a summed scale and also explored them individually, as discussed in the introduction, to evaluate whether specific emotion items were more sensitive measures of change in our experimental context.

Table 1. Inter-correlation between measures (Study 1)

	Positive Affect: Time 1	Positive Affect: Time 2	Negative Affect: Time 1	Negative Affect: Time 2	Positive Emotional Intensity; Time 1
Positive Affect: Time 1					
Positive Affect: Time 2	0.77**				
Negative Affect: Time 1	0.28**	0.27**			
Negative Affect: Time 2	0.34**	0.29**	0.91**		
Positive Emotional Intensity; Time 1	0.32*	0.29**	-0.04	0.01	
Positive Emotional Intensity; Time 2	0.11	0.23**	-0.20**	-0.17**	0.67**

*Correlation is significant to the 0.05 level.

**Correlation is significant to the 0.01 level.

3.4 Results and Discussion

Table 2 shows the mean scores of the two measures of positive emotion (PANAS and PEIS) for Time 1 (before the experimental group tried the short tips) and Time 2 (after the short tips) for the experimental and control groups. Cronbach alphas for the new PEIS measure, within the Control or Experimental groups at Time 1 or Time 2, were all > 0.7; indicating that as well as looking at the emotion items individually, as originally intended, we could also sum them into a positive emotion scale that complements PANAS. From Table 1 it is clear that whilst PEIS is significantly correlated with the PANAS Positive Affect, the correlation is relatively low, indicating that PEIS might be measuring a complementary aspect of positive emotion.

Table 2. Mean values for positive emotion measures (Study 1)

	Experimental (short tips)		Control	
	Time 1	Time 2	Time 1	Time 2
PANAS Positive Affect	13.9	14.0	15.5	15.5
PANAS Negative Affect	11.4	10.7	15.6	15.1
Positive Emotional Intensity Scale	22.8	24.2	22.3	22.3

Analysis of Time 2 Positive or Negative Affect data were analyzed using a one-way ANCOVA with Group (Experimental; Control) as a Between Subjects Factor and the Time 1 Positive or Negative Affect data as a Covariate. The main effect of Group was not significant for either Positive ($F[1, 247] = 0.32$, $p = .57$) or Negative ($F[1, 247] = 1.19$, $p = .28$) Affect, as measured by PANAS. There was therefore no evidence, from the PANAS measure, that the short tips had changed participant's level of positive emotion in comparison to the control group.

The Time 2 PEIS data were also analyzed using a one-way ANCOVA with Group (Experimental; Control) as a Between Subjects Factor and the Time 1 Positive Emotional Intensity data as a Covariate. The main effect of Group was significant ($F[1, 247] = 18.33$, $p < .001$) indicating that levels of positive emotional intensity following the intervention were significantly higher for the experimental group in comparison to the control. We further explored this effect by assessing each PEIS item individually and found significant effects for Joyful ($F[1, 247] = 29.40$, $p < .001$), Optimistic ($F[1, 247] = 27.86$, $p < .001$) and Satisfied ($F[1, 247] = 9.25$, $p < .003$) but not Curious ($F[1, 247] = 3.11$, $p = .079$), Happy ($F[1, 247] = 1.59$, $p = .208$), Resilient ($F[1, 247] = 0.16$, $p = .689$) or Grateful ($F[1, 247] = 0.25$, $p = .617$) indicating that the short tips primarily enhanced the specific emotions of Joy, Optimism and Satisfaction.

To explore the influence of gender and age we categorized participants as either male or female or younger (21-30, n = 88), medium (31-34; n = 86) or older (35-62; n = 75). A 3-way ANCOVA of Time 2 PEIS with Group (Experimental; Control), Gender (Male; Female) and Age (Younger, Medium, Older) as Between Subjects Factors and the Time 1 PEIS data as a Covariate, found the effect of Group maintained significance ($F[1, 236] = 15.80$, $p < .001$) whilst the effect of Gender or Age was not significant ($F[1, 236] = 2.14$, $p = .145$; $F[2, 236] = 0.69$, $p = .502$). The interaction between Group and Gender or Group and Age were also not significant ($F[1, 236] = 0.13$, $p = .724$; $F[2, 236] = 2.06$, $p = .129$).

The short tips were selected at similar levels by the participants, ranging from "Super Strength" and "Bouncing Fruit" being chosen by ~7% and 11% to "I did well" and "Breathe Mindfully" being chosen by 18% and 24% of participants. Females were more likely, than males, to select the "Water Water" (22% c/f 11%), I Did Well (27% c/f 14%) and "Count Your Blessings" (27% c/f 10%) tips. However, there was no relationship between types of short tip selected and the change in PEIS. The tips received high rating scores for effectiveness from participants with the percent of positive responses (score of 4 or higher) ranging from 72% to 93%, with an average of 85.5%. This first study provided initial evidence that a range of short tips could boost people's level of positive emotion (as measured by PEIS but not PANAS) at least over a short time period and that the self-selected tips were also rated as effective. In study 2 we explored options to deliver these kinds of short tips to people in their everyday life, where they may not have time or motivation to select tips to match their current context, through user centred design of a Smartphone App.

4. Study 2: Development of Smartphone Tip App

4.1 Participants

Eight, UK based, domain experts in positive psychology, experience design and social media analytics, contributed to the initial concept generation workshop. The co-creation workshops were run in the three groups of 6 people, with the criteria; 1) "Young Singles": employed, age 19-25, renting with friends or living with parents; 2) "DINKYs": married or co-habiting, age 30-45, employed without children; or 3) "Parents": married or co-habiting, age 30-45 with minimum of two children currently in education.

4.2 Design

Following a user centered design process (Garrett, 2010; ISO 9241-210: 2010) we first engaged in a generative design process to conceive a set of concepts (Fulton Suri, 2005) for delivering happiness interventions in an everyday context, with a small set of domain experts. We did not restrict ourselves to digital media interventions in this first stage to encourage an initially wide range of ideas (Sanders & Stappers, 2008) and to observe whether digital media naturally emerged as an approach. These concepts were then used as stimulus in a co-creation workshop (Kristensson et al., 2007) with potential users to identify the key characteristics of an engaging service and develop core design principles. This process was managed by FoolProof (Foolproof, 2014); an experience design agency.

In the first stage, with the domain experts, we spent a day discussing research on happiness, drawing out salient points and using these as stimulus to create a range of concepts. Concepts were captured in a standard template, identifying the "key insight" (e.g., people want to be happy but happiness boosting actions get forgotten amongst all the other things going on in the day), a "definition" of the idea (e.g., a system that reminds people to pause and try out a happiness action that fits into their everyday life), the key "benefit" for the user (e.g., little bursts of positive emotion from an easy to follow happiness action) and the "reason to believe" (e.g., there's a large database of happiness actions that are matched to the user context by a personalization algorithm). Simple visual illustrations were then added to each concept to create a series of stimulus material for the co-creation workshops.

Three separate co-creation workshops were then held with participants from each of the life stages; Young Singles, DINKYs and Parents. The workshop sessions were two hours long and covered two main themes: 1) exploration of what happiness meant to consumers through free association and creative tasks; and 2) a review of the concepts for first impressions, feedback, re-combination of concept elements to create new hybrids and refinement. To quantity opinion each participant independently rated the nine concepts and their hybrid refinements by scoring them on overall appeal from 1 (low) to 10 (high). Our aim was to identify a set of concept elements or attributes that appealed highly to all groups, thereby defining a set of core design principles for an everyday happiness boosting intervention system.

4.3 Results

The domain experts generated 9 concepts: **Escape for 5**; an alarm to take 5 minutes break and look around for something naturally beautiful at which to marvel, **Make the Mood**; music designed to encourage particular emotions, **Happiness Tub**; a physical "pot" of lucky dip happiness actions to try out at moment of need, **Happiness Games**; win happiness points by completing tasks, **Grumpy Wars**; a multi-player online game where you compete with others to banish grumpiness from the world, **Memory Spark**; a bank of pictures that spark happy memories, **Instant Karma**; a system that spurs you to do something good for others, **Random Smile Generator**; a randomly selected set of suggestions for something silly to do that'll raise a smile, and **Thinking Differently**; a set of unhelpful thoughts and beliefs with suggested alternatives for you to try.

In the co-creation groups the most preferred concepts, were Escape for 5, Random Smile Generator, Instant Karma and the Happiness Tub (in a digital rather than physical format). Although no single concept was considered sufficiently engaging by participants, a hybrid combination drawing on key elements from each raised a high level of interest. Least preferred were the online games (e.g., Happiness Games and Grumpy Wars) as these were seen to be competing in an already crowded market, where the primary user aim was a form of distracted enjoyment rather than deliberative happiness boosting. Thinking Differently was considered a form of "mini-therapy" and so too serious to engage in everyday hectic life. Make the Mood appealed to the younger age group but not to the DINKYs or Parents. From these concepts a set of key design principles were derived, in that the system should; (1) provide a range of happiness actions to avoid boredom through repetition, (2) match the happiness action to the user's context, (3) capture the user context quickly in a visually engaging manner rather than by questionnaire, (4) have actions that can be completed in less than five minutes (preferably shorter), (5)

have actions that are mostly completed "in the real world" rather than in a game, (6) present actions in a light-hearted manner and avoid therapy content or style, (7) provide a limited choice of actions on each occasion rather than a long list, (8) allow the user to capture their mood before and after the happiness action, (9) be accessible "in the moment" through a Smartphone app, (10) allow the user to quickly rate the action as good or bad so the system can learn what they like, (11) give some background information on the types of happiness action so it's clearer why they should work, and (12) provide alerts to remind the user to try out a happiness action in case they get so caught up in the day's events that they forget.

4.4 Discussion and Smartphone Design

The key design principles generated by the co-creation workshops provided a clear guide for developing an everyday intervention to engage a wide range of potential users. Based on these design principles we developed a Smartphone App to deliver happiness actions to users in an everyday context. The App user journey begins on a home page where they can 1) Access a tip generating process, 2) Set some reminders or 3) Read background material on different approaches.

The tip generating process begins with a simple mood monitoring screen where a range of items can be dragged from a ticker tape style bar onto an initially empty blackboard, and then tapped to make them small, medium or large in size; to represent their current level of intensity. The mood items were based on the Circumplex model (Russell, 1980) whilst also drawing on the HUMAINE Emotion Annotation and Representation Language (EARL: Schröder et al., 2006), which incorporates relationship and control elements, e.g., Negative and forceful, Negative and not in control, Negative thoughts, Negative and passive, Agitation, Positive and lively, Caring, Positive thoughts, Quiet positive and Reactive. We included at least one item from each of the EARL categories and modified some of descriptor words used to increase the level of engagement for the target context, e.g., we included terms such as miffed and jittery in place of annoyed and anxious; fascinated and amazed in place of interested and surprised. In total, in terms of the Circumplex model, we had six positive high arousal terms (adventurous, amazed, delighted, excited, happy, and joyful), six negative high arousal (angry, embarrassed, frustrated, irritated, miffed, and worried), six positive low arousal (calm, fascinated, friendly, optimistic, relaxed, and amused) and six negative low arousal (bored, disappointed, glum, jittery, sheepish, uneasy).

Following the mood monitoring screen, users were presented with a screen showing two large, paired, pictorial representations and asked to choose which bests describes them. For example one pair of pictures represented "alone" as an outline picture of a single person and "with others" as an outline picture of a group of people. By using large pictures to represent the user's choice we increased engagement compared to a straightforward questionnaire. Users received three questions (each represented as a pair of alterative pictures) in series on separate screens, randomly selected from a set of twelve questions; any more than three questions was found in pilot studies to reduce user engagement. The twelve question pairs (each accompanied by the large pictorial representations) were of two types, either asking for information about the user's current state: "Are you on your own or with others?", "Are you inside or outside?", "Are you time rich or time poor?", "Are you in public or in private?", "Are you cheerful or deflated?" and "Are you working or chilling?", or asking about their desired state; "Do you want to be playful or practical?", "Do you want to be calmed or energized?", "Do you want to be physical or thoughtful?", "Do you want to be romantic or friendly?", "Do you want to be showy or discreet?" and "Do you want to be still or moving about?".

The App then selected the two best tips from its databank of ~500 short tips and presented them to the user, who selected one of the tips to try out. The selection process was based on a weighted matrix, where the relevance of each tip had been rated by the domain experts against the twelve questions, e.g., how appropriate the tip was for completing inside vs. outside, alone or with others, in a showy or discreet manner, etc. To add variety and expose users to a wider range of happiness actions, the selection algorithm also prioritized selection of tips from different super-categories (Reflect, Improve, Love, Surprise, Connect and Strength). The user was able to view the two tip descriptions before deciding which to choose. After selecting a tip to carry out the screen button flashed from "Do It" to "Done It" for a minute, indicating that the user should now carry out the tip and press the "Done It" button when completed. After completing the tip the user received a screen to rate the tip, with a simple graphic showing a "thumbs up" labeled "rate" and a "thumbs down" labeled "slate". After rating the tip the user then repeated the Mood Board screen—changing their choice or level of intensity of mood items as appropriate. From here the user moved back to the landing page, where they could either run through the tip generating process again or access the reminders screen or access the background material screens.

On the reminders screen the user was able to set three reminder alerts during the day—which appeared as a notification symbol on the home screen of their Smartphone. The background screens held information on each

of the six super-categories, each laid out as a set of 6 slide-through screens giving basic information on the area; this was also designed in a highly visual format with large graphics on each screen illustrating key points captured in bullet points. For example the bullet point text for the Reflect background information was: slide 1; Be MINDFUL and GRATEFUL; practicing these can help you feel happier. Slide 2: Be aware of the here and now. It's a conscious act of accepting, rather than judging. Slide 3: Openly see, hear, touch and taste what is around you. Notice your thoughts and feelings. Just observe, don't think or worry about them. Slide 4: Gratitude is about being thankful for what life brings and the kind acts that people do for you every day. Slide 5: Practice being more grateful by listing 3 good things that happened today and by pausing every now and again to reflect on the beauty around you. Slide 6: Mindfulness helps in both relationships and work. The more you practice the better you get. Start with just a few minutes a day.

This design met the 12 principles identified in the co-creation session, which was then briefed to Joule (www.jouleww.com) to write program code for a functioning Smartphone application. To ensure that the user interface and interactions we had designed did not stand in the way of the discovering, choosing and using the positive psychology tips, we tested the engagement of various designs using a paper prototyping method. This was followed by an evaluation with the System Usability Scale ([SUS] Brooke, 1986), with experiential flaws being prioritized for redesign using the Nielsen (1995) standard to rate severity. Changes were then iteratively re-tested to generate a final version of the App, which scored a good SUS score of 78 out of 100. Through the SUS survey we were able to further hone the usability of the app based on feedback. Furthermore, the App scored 90 out of 100 on the SUS "Learnability" subscale, showing use of the app was highly intuitive and users did not require any help in understanding what was expected of them. In study 3 we evaluate the impact of delivering short tips via the Smartphone App on positive emotion in people's everyday life.

5. Study 3: Impact of Smartphone Tips

5.1 Participants

184 participants (139 female) were recruited from a UK University campus, average age 20.2 (SE = 0.17, range 18-34). 102 (91 female) were allocated to the control group (average age 19.7) and 82 (48 female) to the App intervention group (average age 20.8). Note that participants were not randomly assigned to each group due to the shortage of people with appropriate Android Smartphone handsets suitable for the prototype application. This study therefore suffers from the possibility that participants in the intervention group differed in some way to those in the control group. However, this is mitigated to some extent by the measures being taken before and after the intervention period and our focus on the change in participant status rather than absolute level achieved. Participants for the control and intervention groups were recruited from different years to minimize the level of interaction. Participants received £45 (~$75) for taking part in the study.

5.2 Measures and Design

The study ran over 5 days towards the end of March 2014. The first two and a half days were used to gather baseline emotional measures for both groups via self-report, with PANAS deployed towards the end of each day and a selection of items (happy, joyful, positive, optimistic, and grateful) from the Positive Emotional Intensity Scale items rated three times a day, both via their mobile phones. A shortened version of PEIS was used in this study to reduce the task load on participants. PANAS provided a well recognized measure of positive (and negative) affect reflecting summated emotional experiences over each day of the baseline and intervention periods. Whereas the PEIS items were asked at multiple times during each day and so measured emotional experience in the moment. We elected to use different scales for the "reflective" (PANAS) and "in the moment" (PEIS) measures to avoid excessive repetition of the same items and to tap into different facets of positive affect —as the PANAS and PEIS used a different set of emotional items. PANAS positive affect items focused more on cognitive aspects (Barrett & Russell, 1999), e.g., interested, alert, excited, inspired, determined and attentive, whereas our PEIS was designed to focus more on emotions of joyful elation.

Mood items (as described in study 2) were also collated via the Smartphone app itself, which asked users to select three mood items from a fixed list before selecting and after using a tip. Here we use the term mood merely to differentiate from the "emotion" questionnaire measures deployed outside of the app (PANAS and PEIS). The user was able to assign a level of intensity (low, medium, high) to each mood item they selected by tapping on the mood item box on the Smartphone screen. These selections were used to calculate another indicator change: low, medium and high negative mood items were given a score of -1, -2 and -3 respectively, whereas low, medium and high positive mood items were given a score of +1, +2 and +3. So for example if the user selected one low level negative item and two medium level positive items then their score would be -1 + 2 + 2 = +3. Henceforth we refer to this as the "net mood value".

At the beginning of the baseline period and at the end of the 2.5 day intervention period participants also completed a series of self-report scales covering potential moderating variables and other outcomes. These were: Ten Item Personality Inventory (TIPI; Gosling et al., 2003), the Satisfaction with Life Scale (SWLS; Diener et al., 1985) and the Short Measure of Adult Playfulness [SMAP; Proyer, 2012]. The Control group completed the same questionnaires at the end of the baseline and intervention periods but did not receive an app. The study protocol was submitted to and passed by the University of Leicester Ethics committee. All participants gave informed consent before taking part in the study. Data confidentiality was protected by blinding experimenters to participant personal data—which was provided for analysis by the fieldwork team with untraceable participant IDs.

The main hypothesis was that the group using the App would, in comparison to the control group, report a bigger increase in positive emotion (as measured by PANAS and PEIS) during the intervention period c/f the baseline period. We also predicted that those with more extravert or playful characteristics would benefit more from use of the App, as they would be more likely to engage in the tips. The mood measure incorporated into the Smartphone App experience itself was also expected to increase—although of course this measure was only available for the intervention group.

5.3 Data Analyses

In order to examine the impact of the Smartphone App on positive emotion, the change in PANAS and PEIS data were analyzed separately using one-way Analyses of Covariance (ANCOVA), comparing experimental and control groups, whilst controlling for pre-intervention levels of each variable. We also assessed the change in SWLS, Personality and Playfulness to check the stability of these variables over the experiment period and then explored their impact as moderators for the change in positive emotion. The change in mood data (collected before and after the tips for the App group only) was compared with the initial mood, to explore whether the initial participant mood influenced the impact of the App intervention. We also collated the participant ratings of the tips to generate a summary statistic of the percentage of participants that rated each tip positively.

5.4 Results and Discussion

ANCOVA of change in the PEIS items, with baseline levels as covariate, found that the App group significantly increased more than the control group for joyfulness (Δ = +0.23 c/f Δ = +0.04; $F[1, 182]$ = 6.16, p = 0.014) and positivity (Δ = +0.131 c/f Δ = -0.07; $F[1, 182]$ = 6.00, p = 0.015), with no significant differences for grateful, optimistic or happy. ANCOVA of change in PANAS scores, with baseline levels as covariate, found that the App group significantly reduced Negative Affect in comparison with the control group (Δ = -1.66 c/f Δ = +0.04; $F[1, 182]$ = 6.93, p = 0.009), with a trend for an increase in Positive Affect (Δ = +0.18 c/f Δ = -1.32; $F[1, 182]$ = 3.04, p = 0.083). Taken together these results indicate that the Smartphone App was successful in reducing participant negative affect (PANAS) and increasing positive emotion (PEIS) over the intervention period in comparison to the control. Note that the PEIS measure was taken during the day and so maybe more reflective of the immediate impact of the Smartphone interventions, whereas PANAS was collected as a reflective measure of people's emotional experience over the whole day. The failure for PANAS Positive Affect to reach significance may also be influenced by the types of positive emotion that make up this scale, which may not fully represent the positive emotional experience generated by the App intervention.

ANCOVA of change in scores, with baseline levels as covariate, found no significant difference between the App and control groups for the Short Measure of Adult Playfulness (SMAP), Ten Item Personality Inventory (TIPI) or Satisfaction With Life Scale (SWLS). This result is perhaps unsurprising as these measures are designed to monitor relatively stable characteristics of personality and life satisfaction, which we would not expect to change markedly over a few days intervention. The stability of these measures indicates they can be used to explore potential moderating effects for the impact of the intervention on positive emotion outcomes. Indeed, we found Adult Playfulness (SMAP) played a different role in the Control and App groups ($F[1, 182]$ = 4.27, p = 0.040). In the Control group low levels of Adult Playfulness were associated with lower levels of PANAS Positive Affect (corrected for baseline) during the intervention period, whereas in the App group this relationship was different (Control correlation = +0.35; p < 0.001, App correlation = +0.08; p = 0.493). Similarly for the TIPI measure of Extraversion, whereas in the Control group lower levels of Extraversion were associated with lower levels of PANAS Positive Affect this was not seen in the App group (Control correlation = +0.27; p = 0.008, App correlation = +0.02; p = 0.867; $F[1, 182]$ = 4.57, p = 0.034). These results suggest the App intervention may be "leveling the playing field" between people, with the usual (positive) relationship, between Adult Playfulness and Extraversion with measures of positive affect, being counterbalanced by the impact of the intervention.

As the correlation between SMAP and TIPI Extraversion for the Control group was +0.38 (p < 0.001, n = 98) we explored the relative contributions of the two variables to predicting PANAS Positive Affect via a multiple regression model (whilst correcting for baseline levels). This found SMAP (slope 0.432, SE = 0.199, t[1,94] = 2.17, p = 0.033) but not TIPI Extraversion (slope 0.229, SE = 0.230, t[1,94] = 0.99, p = 0.324) to be a significant predictor of PANAS Positive Affect levels when both variables were included in the model.

Concordant with the PANAS and PEIS results, we also found that the net mood value (only recorded for App participants as part of the experience) increased after trying a short tip. Overall, the net mood value average increased by 1.10 (SE = 0.16, t = 6.90, p < 0.0001). There was no significant difference in the mood increase across tip types (F[1, 5] = 1.05, p = 0.39) perhaps indicating the selection algorithm matching tips to context worked well. The App was more effective (greater positive change in mood) for those who started in a more negative net mood value state, with the slope between initial mood and change in mood being -0.266 (SE = 0.046); t[1,289] = -5.78, p < 0.0001.

Overall this study builds on results from the first study, by showing that not only can short tips increase the level of positive emotion in a controlled setting over a very short period of time, but they also provide a benefit to people over the time frame of a few days in an everyday life setting, over and above the many other drivers of positive emotion that people normally experience. Future work is needed to establish the impact over longer time periods (weeks and months), with random allocation of participants, to establish whether these benefits are sustainable. This study's results also suggest that digital media support tools, such as the App we developed, might be a route to bring the benefits experienced by people with certain personality characteristics (e.g., extraversion and playfulness) to others.

Studies 1, 2 and 3 were all based on a UK population, and even though the potential benefits of a positive emotion boosting short tip approach might be global, we cannot assume from our first three studies that this will necessarily be the case. To explore the cultural sensitivity of the approach, in a fourth study we assess the impact of our short tips in an Eastern culture.

6. Study 4: Impact of Tips in China

6.1 Participants

Participants were recruited online and randomly allocated to either a control group (CON), a group that received the short Positive Psychology Tips (PPT) or a group that received a Chinese Health Tip (CHT). The CON group included 94 participants (51 male), average age 31.52 years (SD = 9.65 years, range = 20-54 years old). They were familiar with Chinese culture (M = 2.03; SD = 1.06) and 31.9% of them had travelled outside China. The CHT group included 98 participants (46 male) with average age 32.74 (SD = 12.35 years, range = 18-64 years). They were familiar with Chinese culture (M = 2.55; SD = 1.24) and 28.6% of them had travelled outside China. The PPT group included 214 participants overall (111 male) with average age 29.98 (SD = 10.3 years, range = 21-60 years). They were familiar with Chinese culture (M = 2.53; SD = 1.11) and 36% of them had travelled abroad. We considered the CON and CHT groups to be passive and active controls and so assigned approximately half the participants to these groups, with the other half being allocated to the PPT intervention group.

6.2 Measures and Design

The PPT and CHT were evaluated using a between-subject design, with participants completing study measures before and after receiving the tips. A control (CON) group spent five minutes thinking about the activities of a usual Monday. The activity for a "control" condition was drawn from Phillips, Bull, Adams, and Fraser (2002). The CHT group spent five minutes reading tips on improving physical health suggested by traditional Chinese medicine (Appendix B), so that we could compare the impact of PPT with that of other well being related tips well matched to the Chinese culture. The PPT group was presented with the same list of ten activities as used in Study 1, translated into Chinese (Appendix C) and instructed to select and complete three of the ten tips, following the specific instructions provided for each activity. Approximately 15 minutes after the intervention, all groups completed the same study measures for a second time (Time 2).

The PANAS, PEIS and TIPI measures from Study 1 were used along with a new Flourishing Scale [FS] measure (So & Huppert, 2009; Huppert & So, 2013); covering ten features representing positive aspects of mental functioning: competence, emotional stability, engagement, meaning, optimism, positive emotion, positive relationship, resilience, self-esteem, and vitality. Each FS item was rated on a 1 to 7 point scale, which summed could generate a maximum FS score of 70. All of the above measures were translated into Chinese and the study was conducted solely in Chinese.

Participants were recruited via the website of Global Chinese Positive Psychology Association, the social media platform WeChat, and universities, e.g., Chinese University of Hong Kong and Tsinghua University. Participants recruited online completed the questionnaires and intervention through the online data collection tool OQSS in Chinese.

6.3 Data Analyses

We examined the impact of short tips on PANAS, PEIS and FS using one-way Analyses of Covariance (ANCOVA), comparing the experimental and control groups following the intervention, whilst controlling for pre-intervention levels of each variable.

6.4 Results and Discussion

Table 3 summarizes the change in PANAS and PEIS values for each group. ANCOVA found a significant impact of group on the change in PANAS Positive Affects levels between time 1 and 2 (F[2, 403] = 3.65, $p <$ 0.05). Post-hoc Tukey HSD analysis showed that the change in positive affect significantly differed only between the PPT and CON groups ($d = 1.03$, $p < 0.05$), suggesting that those participants receiving the PPTs experienced a significantly bigger increase in positive affect than did the control group. There were no other significant differences between any other pair of groups.

Table 3. Mean values for positive emotion measures (Study 4)

Study Measures	Control Group (CON)		Experimental CHT Group		Experimental PPT Group	
	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2
PANAS Positive Affect	15.02	15.95	15.39	16.52	15.00	16.96
PANAS Negative Affect	10.74	10.19	10.97	9.45	11.32	11.38
Positive Emotional Intensity Scale	19.07	18.40	21.06	20.02	19.97	19.34

*CHT = Chinese Health Tips, PPT = Positive Psychology Tips.

Similar analyses for PANAS Negative Affect also found a significant group effect (F[2, 403] = 6.97, $p < 0.05$). Tukey HSD Post-hoc analyses showing only the CHT and PPT groups were significantly different ($d = 1.58$, $p <$ 0.05), suggesting that negative affect for the CHT group (receiving the Chinese Health Tip) decreased significantly more than it did for the PPT (Positive Psychology Tips group). There was no evidence for significant differences in the change of PEIS levels between the groups (F[2, 403] = 0.53, $p = 0.59$). These results support Study 1 in that the short tips significantly increased positive emotion, yet also differ as the differentiating measure in China was PANAS (not PEIS) whereas it was PEIS (not PANAS) in the UK; reinforcing the benefits of using more than one measure of positive emotion in studies and the possibility that different measures may have different sensitivity or appropriateness in different cultures (Uchida, Townsend, Markus, & Bergsieker, 2009). There were also differences between the groups in terms of Flourishing Scale; F[2, 403] = 3.07, $p < 0.05$. Post-hoc analyses using Tukey HSD, found the change in FS was significantly greater in the PPT than the CHT group (Δ = +1.26 c/f Δ = -0.10; $d = 1.37$, $p < 0.05$), although neither significantly differed from the CON group change (Δ = +0.40), providing partial support that the PPT short tips increased Flourishing.

7. General Discussion

Across a series of studies results showed that short tips, based on positive psychology, can increase levels of positive emotion in the short term. In study 1, we found that completing three short tips (selected from a list of ten), in a relatively controlled context and short time, increased positive emotion as measured by a new Positive Emotional Intensity Scale [PEIS] but not the traditionally used Positive And Negative Affect Schedule [PANAS]; perhaps as the PEIS covers positive emotions more relevant to the target population and intervention, in line with recent research on the impact of discrete positive emotions (Kuppens et al., 2012; Strohminger et al., 2011; Williams & De Steno, 2008).

In study 2 we explored user views on the ideal mode and format for delivery of positive psychology advice to boost emotional wellbeing in everyday life. Twelve design principles were identified, ranging from; the provision of a range of happiness actions to avoid boredom through repetition, to providing alerts to remind the

user to try out a happiness action in case they get so caught up in the day's events that they forget. Some of these principles map onto recent frameworks for the design of effective behavior change systems (Michie, Johnston, Francis, Hardeman, & Eccles, 2008) and there maybe potential for positive psychology to link up with findings from health psychology to generate more impactful interventions for emotional wellbeing. Study 2 led to the design of a Smartphone based intervention, which delivered a wide range of short tips tailored to the user's current context.

In study 3, we evaluated the impact of short tips, delivered via the Smartphone App, over a two day intervention period. The aim of study 2 was to demonstrate that the type of short tips found to be effective in study 1, under controlled conditions, could also lift positive emotions in a real life setting over days rather than minutes. Mood monitoring by participants using the App indicated a significant increase in net positive emotional experience, in line with results from study 1. Furthermore, this positive uplift also extended over the day in the form of higher PEIS values in comparison to the control group. In study 3 we also found a significantly lower level of PANAS Negative Affect for those using the Smartphone App. Whilst this clearly shows a positive impact on emotional wellbeing over a period of days, further research is now required to establish longer term benefits, over a period of weeks and months. Although it is notable that Seligman et al. (2005) found their 6-month effects were fully explained by whether the participant continued with the activity after the 1-week intervention period; and so our initially high engagement might bode well. Further research should also explore whether self-selection and/or provision of tips based on participant state and context has an influence on their impact. In our research participants either selected from a list or were provided with a tip tailored to their state and context—would tips be as effective without this element of self-selection or tailoring?

Finally, in study 4 we replicated and extended study 1 to another culture. The same short tips, translated into Chinese, were found to significantly increase PANAS Positive Affect in comparison to a control group and increase levels of Flourishing relative to a Chinese Health Tip intervention, which itself was particularly effective at reducing PANAS Negative Affect.

Whereas other studies have shown the effects on positive emotion of more sustained gratitude activities (e.g., Emmons & McCullough, 2003; Watkins et al., 2003), in this study we focused on a more naturalistic, everyday approach. The short tips and Smartphone App delivery mode were found to be highly appropriate for people looking for access to quick advice on boosting emotional wellbeing in their everyday life. Our results indicate that Smartphone and other digital media systems might be an effective approach to increasing positive behavior, thoughts and emotions, which Layous and Lyubomirsky (2013) have proposed as key mediating pathways.

The choice of positive emotion measurement scale was also highlighted by our study results. Whereas PANAS is used widely by researchers, has been linked with key outcome variables (Cohen & Pressman, 2006), and in certain contexts is clearly able to detect the impact of interventions (e.g., Sheldon & Lyubomirsky, 2006b), other research indicates a role of specific emotions rather than generalized positive affect (e.g., Lerner & Keltner, 2000; Griskevicius, Shiota, & Neufeld, 2010). We found PEIS but not PANAS detected the impact of our short tips in study 1 (a controlled short term UK setting), yet both PEIS & PANAS Negative Affect differentiated between the App and Control group in study 3, whereas in study 4 (a controlled short term China setting) only PANAS picked up the intervention effect. We encourage other researchers to consider what specific positive emotions they expect to change as a result of their intervention, for the target group and culture, and whether general measures of positive affect are sufficient (Veenhoven, 2012).

Of course, these studies are not without their limitations, and future research is recommended to address some of these, as well as exploring new questions which have arisen as a result. First, although we are proposing varied (Sheldon, Boehm, & Lyubomirsky, 2012), short and context-matched tips as a way to boost positive emotion in everyday life, and shown their impact relative to control groups, we have not directly compared them with interventions that require higher levels of time commitment, provide lower variation in task or are unmatched. Further research could explore the relative impact of interventions whilst controlling for the variety, duration and degree of context-matching of activities provided. Second, we have relied here on self-report of positive emotion and whilst this type of measurement has been related to objective outcomes, further research could explore the impact of short tips on other behavioral or physiological markers of wellbeing. Third, whilst it is encouraging that participants engaged with the Smartphone App over a period of two days, this is still a relatively short time period, and further research is required to establish both how long people would continue to use such an intervention and whether the observed increase in positive emotion is sustainable. Finally, although the short tips were found to be effective in both the UK & China, the smartphone app was developed in the UK and has only been evaluated in the UK; further research is required to explore its efficacy in China and other countries.

In summary, we show that short tips can have an impact on people's level of positive emotion and that they can be delivered in an everyday life context via a Smartphone App. These studies highlight the potential for interventions to boost emotional wellbeing through the provision of varied, low time commitment activities tailored to individual context.

List of Abbreviations

ANCOVA: analysis of covariance; SD = Standard Deviation.

Authors' Contributions

All authors contributed to the design and analysis of a study or its implementation. Writing of the paper was led by RH. All authors read and approved the final manuscript.

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Appendix A

Tip Name	Instruction
Breath Mindfully	Step 1: Sit with your eyes closed and your spine reasonably straight.
	Step 2: Feel the sense of your breath as it enters and leaves your body.
	Step 3: Thoughts, emotions & sensations will come & go. Simply notice them without judging or getting involved. Continually bring your attention back to your breathing.
Positive Power	Step 1: Get ready for 1 minute of super condensed positivity.
	Step 2: See ABSOLUTELY EVERYTHING as positive.
	Step 3: Start every sentence with "I'm so lucky. Eradicate all negative thoughts and words. Can you make 60 seconds of full-on positivity?
Get Help	Step 1: Think of something that didn't quite work out.
	Step 2: Imagine someone knows how to do it!
	Step 3: How might they have gone about it? Think about different ways to approach it. Plan to do it differently next time.
Super Strength	Step 1: Think of something you're good at.
	Step 2: Now really exaggerate it!
	Step 3: Visualise acting out your super strength. Give your super self a name & outfit. Store it in memory for future use.
Bouncing Fruit	Step 1: Choose your favourite fruit.
	Step 2: Imagine it as a really bouncy ball.
	Step 3: Visualise the bouncy fruit bopping around. It rebounds off whatever it hits. Think of yourself as the fruit,

	springing back from anything!
Water Water	Step 1: Reach for some water to quench your thirst.
	Step 2: Swill it in your mouth, cleansing your tongue.
	Step 3: Feel the coolness as it flows down your throat. Make a loud and satisfied "Ah" sound with each long gulp. Head off on your way, replenished and refreshed.
I Did Well	Step 1: Think of the last good thing that happened.
	Step 2: Imagine it happening all over again so it's fresh in your mind.
	Step 3: Now imagine it has all happened because of what you did. Imagine even the "lucky" bits were somehow caused by you. Look forward & think how you could create more good things!
Sunny Outlook	Step 1: Have a task in mind you need to achieve.
	Step 2: Imagine being absolutely amazing at it.
	Step 3: Picture yourself with a "sunny glow" around you. Everywhere you go you leave a sunny ray. Keep this positive light shining inside to make it a great day!
Count Your Blessings	Step 1: Think of 3 good things about your day so far.
	Step 2: They can be big or small, e.g., the bus was on time.
	Step 3: List them in your head, wherever you are right now. Think how great they were. Tell someone about them!
Body Balance	Step 1: Stand still for a moment.
	Step 2: Be aware of your body.
	Step 3: Without moving a muscle, notice your balance. Then become aware of all the sensations in your legs. And feel your feet firmly touching the ground.

Appendix B (English translation of Chinese text shown to participants)

The ancient Chinese people put lots of attention on using saliva to preserve one's health. Since ancient times, health experts regarded saliva as an important source for health; therefore, saliva was deified as "nectar". The Chinese character "live" is made out of water by the tongue, indicating that people can only live when there is water by the tongue, which emphasized the importance of saliva.

Traditional Chinese medicine thinks that saliva can "make facial features and skin more beautiful, strengthen teeth, bones and muscles, make blood and body internal systems smooth, and extend life". Lao-tze, a famous philosopher and health expert during the spring and autumn period, said that panacea is good, but not as good as one's own saliva. Another ancient health expert, Tao Hongjing, also said: "people who use saliva right can live longer and more healthily".

Why saliva can preserve one's health

Chinese Medicine thinks that: "the five organs correspond to five body liquids-heart to sweat, lung to snot, liver to tears, spleen to spit, kidney for saliva". That is, saliva corresponds to spleen and kidney: kidney and spleen are the foundation of the human body, and gather the essence of five organs, thus the saliva contains many substances that are beneficial to human body health and longevity. Therefore, saliva has a unique role in healthcare. Ancient Chinese doctors believed that people who are rich of saliva must be physically healthy, and they judged a person's health conditions by the richness of saliva.

Others believe that saliva health preservation is a kind of qigong, which contains a lot of esoteric principles of health preservation. Anyway, a variety of practices conducted by Chinese ancient health experts have proved that saliva can improve physical health, prolong life, beautify facial features, and have other effects. Modern medicine also indicates that saliva contains various components of the plasma, a variety of enzymes, nearly ten kinds of vitamins, and a variety of minerals, organic acids and hormone. The salivary gland hormone in saliva can stimulate the body's hematopoietic function, slow down the ageing process of body organs, prevent age-related diseases, and are conducive to people's health and longevity. There is a kind of peroxidase in saliva can inhibit the toxicity of carcinogens. Saliva also has anti-inflammatory, detoxification, weight loss, and multiple other functions. According to the one research results from University of Georgia, after contacting saliva for 30 seconds, the carcinogenic aflatoxin, and nitrite will be diluted and inhibited. Saliva, in other words, has strong anti-cancer effects, and is also a natural anticancer agent. In addition, because saliva eliminates

harmful free radicals produced from the oxygen and food, and also contains lysis which can kill viruses and bacteria, saliva is not only self-made health preservation tool, but also great product for weight loss, beauty and skin care.

Methods to improve health by saliva

*Eat Yuquan(Saliva)***:** After getting up in the early morning, you need to get up and sit, lie on your back, or stand up, and stay breathless for a moment. First, exhales three times first; gently grind your teeth, as when you have food inside the mouth. Then, gargle with two gills and tongue for 30 times. When gargling, you will produce saliva inside the mouth. When your mouth is filled with saliva, send saliva into the abdomen in three times. Repeat the whole activity three times, known as three degrees of nine pharynxes, called "Eat Yuquan". You may only produce little saliva in the beginning; after practicing for some time, you will produce more saliva. If you practice this every day in the morning and at night, you will get very good results: this exercise can make your face moist, and your body energetic and strong.

*Red Dragon Stirring Pool***:** Red dragon means tongue, and Pool means mouth. That is, when you are not eating, stir your mouth with your tongue often, which makes the water in the body rise to the mouth, and turn it to saliva through salivary gland, then slowly swallow, so as to achieve the goal of improving health and longevity.

This method is that when sitting after getting up in the morning or at idle times (not restricted by time and place), relax your body naturally, eliminate distractions, and close your eyes and mouth. First, move your tongue from upper left gums to right inside the gums, and then, from upper right gums to the left outside the gums. Second, move your tongue from lower left teeth toward right inside the gum, and then from lower right teeth to the left outside the gum. Repeat this stirring activity for nine times. Following this, tap gently with upper and lower teeth for 36 times and gargle for nine times, your mouth will be filled with saliva gradually, then slowly swallow the saliva in three times.

Of course, there is another simple method, namely, caressing the palate by your tongue for several minutes continuously, you will be filled with saliva and can swallow it. Practice with the methods mentioned above persistently can improve your health.

Appendix C

用心呼吸	步骤一：于坐下时闭起双眼和挺直脊椎。
	步骤二：感觉呼吸进入和离开你身体时的气息。
	步骤三：想法，情绪和感觉亦会随之来去。
	只须简单地感觉呼吸，不用判断或参与任何事。
	继续把你的注意力专注在你的呼吸上。
正面能量	步骤一：请准备一分钟非常专注在正面的事情上。
	步骤二：正面看待每一件事情。
	步骤三：以「我真幸运」为首，开始每一句句子。
	消除所有负面的思想和话语。
	你能否把六十秒全都用在想正面的事情上？
寻求帮助	步骤一：想想一些未能做到的事情。
	步骤二：想象一下，有人知道是怎样做到的！
	步骤三：他们是怎样做出来的？
	想象不同方法于该事上达致成功。
	于下次做该事时，作出不同的计划。
超然能力	步骤一：想想一些你擅长的事。
	步骤二：现在把它夸大！
	步骤三：于想象中目击你在实践自己的超然能力。
	给自己一个很强的外号和外型。
	把它存在记忆中，供日后使用。

跳跃的水果	步骤一：选择你最喜欢的水果。
	步骤二：想象它是一个非常有弹性的球。
	步骤三：于想象中目击这个跳跃的水果到处弹跳。
	无论击中什么，它都会反弹。
	试想想你自己是这个水果，遇到任何事情都能反弹！
水份滋润	步骤一：找一些水解渴。
	步骤二：把水含在嘴里，清洁你的舌头。
	步骤三：感受水流过喉咙时的丝丝凉意
	在把水吞掉的同时，发出一个响亮而满足的声音"啊"。
	于补充和恢复过后，向你的前路迈进。
我做得好	步骤一：想想最近发生的一件好事。.
	步骤二：想象它再次发生，使它在你心中保持新鲜。
	步骤三：现想象一下，它的发生，全有赖你之前所做的。
	想象一下有些「幸运」的事，甚或是因你而起的。
	期待和思考一下你能如何创造更多更好的东西！
阳光外型	步骤一：在心中想着你要实践的任务。
	步骤二：想象你完全被它震撼。
	步骤三：想象一下有「灿烂的光芒」包围着你。
	无论走到哪里，你都留下一道明媚的阳光。
	保持这种积极的光芒在心里照耀！
数算恩典	步骤一：想想到现在为止，今天所发生的三件好事。
	步骤二：他们可以是大事或小事，例如：巴士准时到达。
	步骤三：无论你身处何方，把他们在心中排列。
	想想他们有多好，
	并告诉别人！
身体平衡	步骤一：静站一会儿。
	步骤二：注意你的身体。
	步骤三：肌肉不要动，留意你的平衡。
	接着，小心留意你脚上的所有感觉，
	及感觉你的双脚稳稳触地。