Moodscope: Mood management through self-tracking and peer support

Introduction

Moodscope is a novel online mood-tracking system which enables individuals to accurately measure and record daily mood scores which are automatically tracked on a graph and, with an individual's agreement, emailed each day to one or more trusted friends who have agreed to keep an eye on the user.

Importantly, in comparison to other commercial mood monitoring systems Moodscope offers a number of features that make it unique and increase its value for a range of applications.

First, it is based on a previously well-validated daily mood measure, the PANAS (Watson *et al*, 1988), which means that mood is measured in an accurate and scientific way. Moreover, the results that are generated may be compared with a large number of previous studies that have used the PANAS in different clinical and social psychological domains.

Secondly, Moodscope is the only system that offers a structured social support feature. This is accomplished by giving the users the ability to nominate a "buddy" (or buddies – up to five in total) who can be notified of scores, and to therefore also observe their progress. It is likely that this facility increases the therapeutic benefits of mood monitoring by adding an important social support intervention. In addition we hypothesise that it will increase the retention and usage of the system.

Thirdly, Moodscope uses a mood monitoring method that, even though scientifically valid, appears non-clinical and is fun to use. This means that it is likely to be used by a greater number of people who may have an interest in observing their moods and in more contexts than a clinical population.

Preliminary data highlighting Moodscope's utility

By November 18th, 2010 Moodscope had 5,952 members who between them had recorded 92,840 daily scores. Since each daily score consists of ratings for 20 different mood adjectives and an overall Moodscope percentage score, the database held just under 1.95 million items.

For the purposes of this study we were interested in changes in overall Moodscope percentage score over two different periods: 90 days (approximately three months), and 180 days (approximately six months). We also set out to see what differences might be seen in scores between a group of users who shared their daily progress with one or more (up to five) friends, who we refer to as 'buddies', and another group who kept their scores to themselves (at least as far as their use of the Moodscope website went).

TABLE I. Out of 3,500 members at 18/8/2010, 812 (23.2%) were still recording scores **90 days** *after joining.*

Type	n	%	Frequency of use
Frequent	215	26.5%	At least 5 times a week
Regular	230	28.3%	3 or 4 times a week
Intermittent	367	45.2%	Twice a week or less

TABLE II. Average scores for 215 Frequent Users (at least 5 times a week) at Day 1 and Day 90 for users both with and without buddies.

	Average Moodscope score			
	Day 1	**Day 90**	**Absolute change**	**Relative change**
Without Buddy	35.23%	47.87%	+12.64	+35.88%
With Buddy	38.12%	52.16%	+14.04	+36.83%

FIGURE I. Actual daily average scores for 215 Frequent Users over **90 day period** *for users both with and without buddies.*
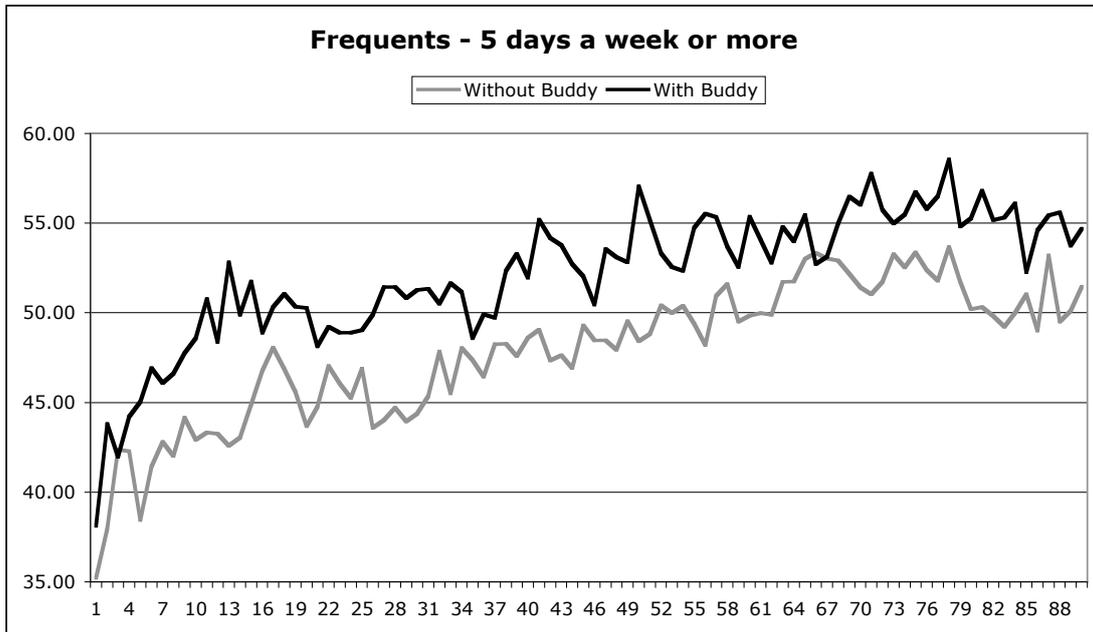
FIGURE II. Rolling average scores for 215 Frequent Users over **90 day period** *for users both with and without buddies.*
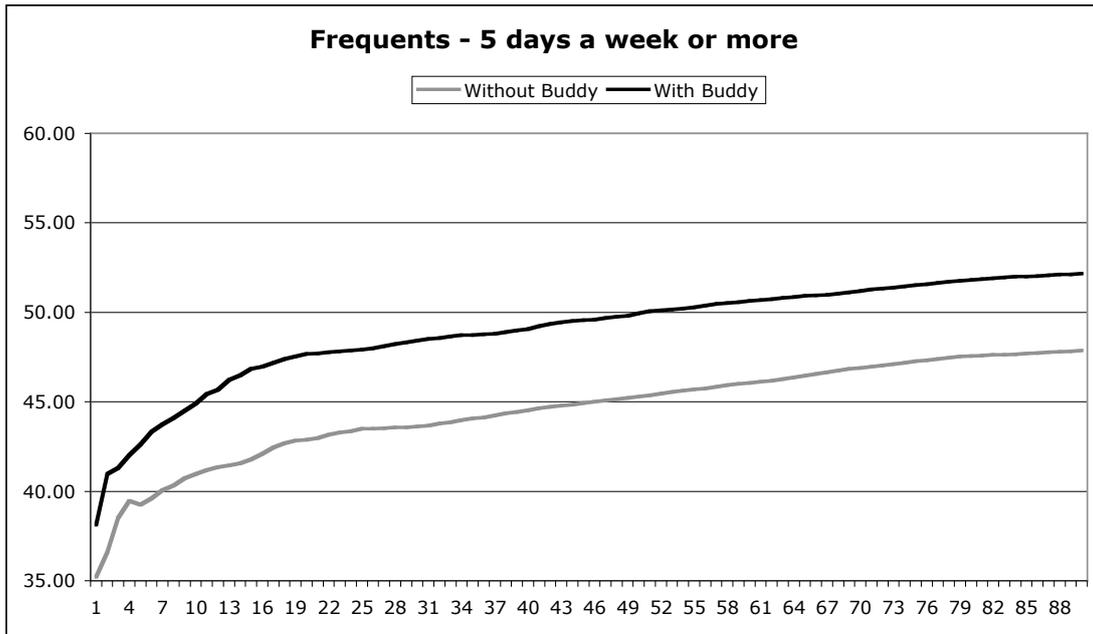
TABLE III. *Out of 2,050 members at 18/5/2010, 332 (16.2%) were still recording scores* **180 days** *after joining.*

Type	n	%	Frequency of use
Frequent	83	25.0%	At least 5 times a week
Regular	86	25.9%	3 or 4 times a week
Intermittent	163	49.1%	Twice a week or less

TABLE IV. *Average scores for 83 Frequent Users (at least 5 times a week) at Day 1 and Day 180 for users both with and without buddies.*

	Average Moodscope score			
	Day 1	Day 180	Absolute change	Relative change
Without Buddy	37.74%	56.68%	+18.94	+50.16%
With Buddy	36.47%	59.70%	+23.23	+63.70%

In order to evaluate the overall effect of the "buddy feature" (social support intervention) all the data were pooled together and an independent samples t–test was conducted to compare the mean Moodscope scores of those who had (and used) a buddy, with those who did not.

Overall there were 30,480 days of Moodscope data with mean Moodscope score of 54.87% and a standard deviation of 24.10. The mean score suggests an acceptable but not particularly elevated mood among site users, while the relatively large standard deviation indicates a significant variability in the mood scores of users. Looking at the mean scores across the two groups (no–buddy vs. buddy), users with a buddy had a

statistically significant higher mean score than those without a buddy (mean mood = 57.91% vs. 50.09%, t = −27.944, p=0.001, df=30.478). These data, which come from a large (and therefore significant) pool of mood ratings, highlight the important role of this social support intervention and its overall utility in the Moodscope application.

*FIGURE III. Actual daily average scores for 83 Frequent Users over **180 day period** for users both with and without buddies.*
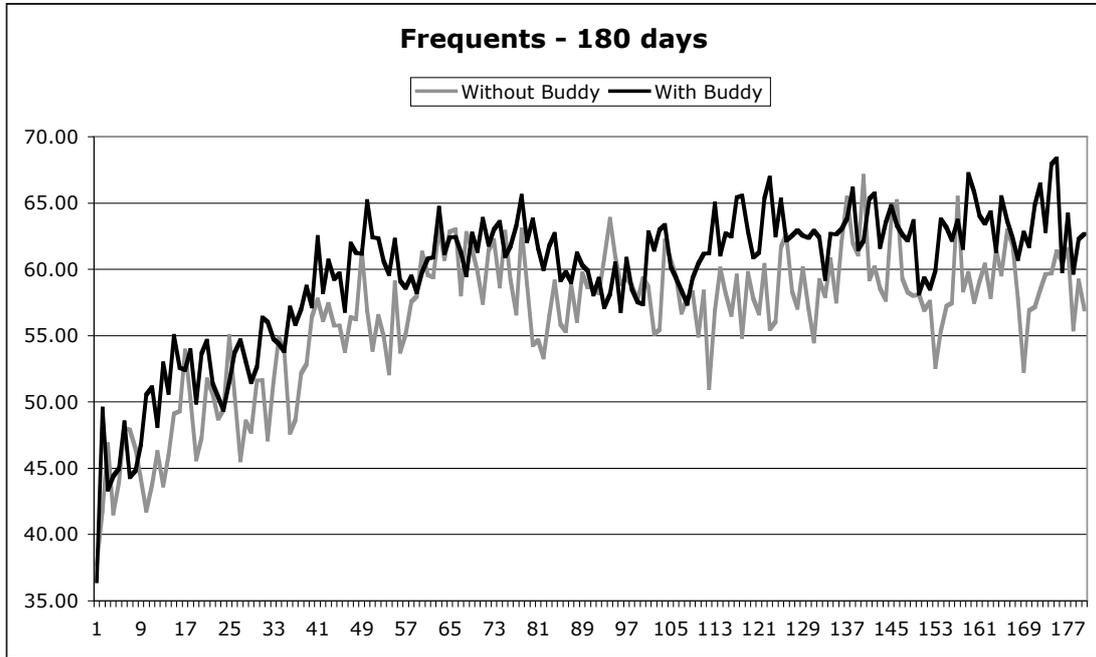
*FIGURE II. Rolling average scores for 83 Frequent Users over **180 day period** for users both with and without buddies.*
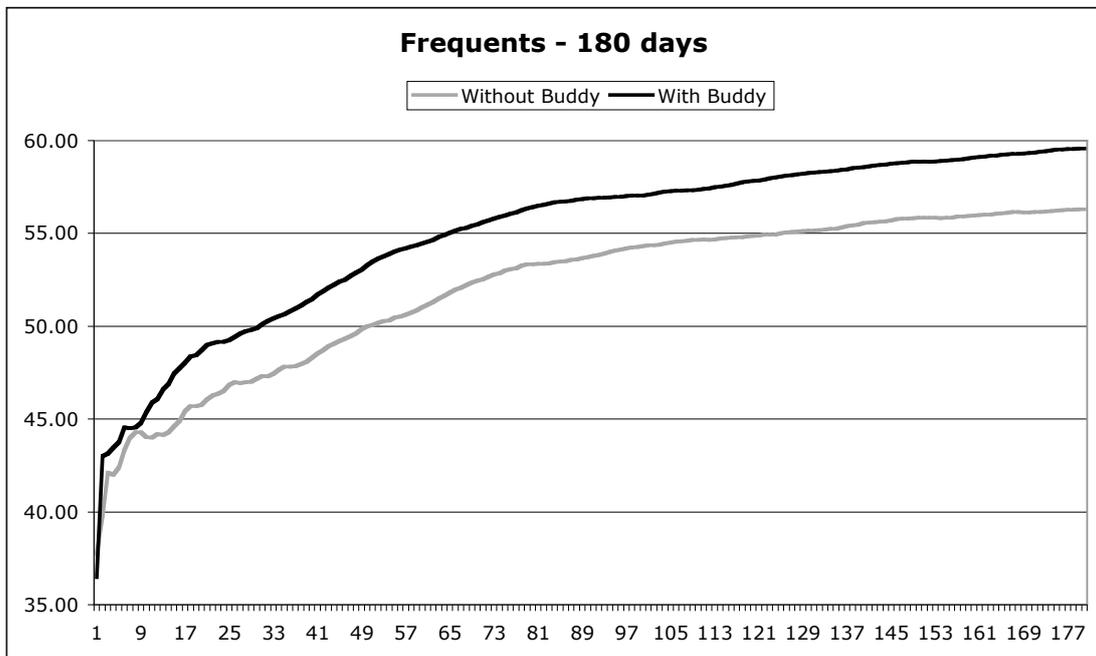
TABLE V. A small dataset (n=14) were highly infrequent users: after they recorded a score on Day 1, they recorded four or less more scores between Day 1 and Day 90:

Average Moodscope score			
Day 1	**Day 90**	**Absolute change**	**Relative change**
39.46%	39.64%	+0.18	+0.46%

Conclusions

1. People who used Moodscope frequently (recording scores on five or more days per week) saw improvements in their scores over 90 days.

2. The improvement in scores, although at a slower rate of progress, continues over at least the next 90 days – with a slower but continuing trend likely beyond this period.

3. Frequent users see their biggest mood improvements in the first few days of using Moodscope.

4. A small group of users who recorded Moodscope scores at the beginning and end of 90 days, but hardly at all between these times, saw no significant change in their scores, suggesting that it is the frequent use of Moodscope that leads to overall mood improvement.

5. Users who shared their scores with buddies saw a somewhat greater increase in scores over time than those who didn't share scores.

6. Those who did *not* share their scores tended to start and finish with an overall lower mood than those who did share. This may be due to those who experience particularly low mood being less keen to talk to others about it.

7. The structured social support intervention that is added to the system via the "buddy feature" leads to statistically significant improvements in mood.

8. All the above suggest the "buddy" feature may indeed represent a significant social support intervention with added benefits beyond the mood monitoring effect. Hence, it is important to develop it further within the system.

9. Previous mood monitoring studies which have not provided ongoing feedback to participants (ie they were blind to their daily scores) have shown no change in mood over time, suggesting that it is Moodscope's feedback system that causes mood scores to rise over time. Not getting feedback would be like weighing oneself every day on a set of scales which had its display obscured.

References

WATSON, D., CLARK, L. A., & TELLEGEN, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063-1070.

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