Motivation Effect of Social Media Posts about Well-being and Healthy Living

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ABSTRACT

Social media is a social space for communication between people that share common activities, hobbies, interests and lifestyle. Activity tracking apps allow sharing of user activity summary results or instantiated activity events or milestones, both as a motivation factor and for collaborative approach to activity methods, i.e. team effect. Social media posts are the major channel that such information, in several contextual forms, as well as other types of related posts, are made available to users. This work reports on the level of effect on the interest and motivation towards healthy living that such social information applies to casual social media users. The type of input enrichment is investigated to that effect.

CCS Concepts

• **Human-centered computing~Social media**
• Human-centered computing~User studies • Human-centered computing~Empirical studies in HCI • Human-centered computing~Interaction design theory, concepts and paradigms

Keywords

health; activity tracking; well-being; motivation; Facebook.

1. INTRODUCTION

Humans, in the age of social media, use social media to interact with the world, their friends, family and colleagues. They share information and engage in social interaction. User social media engagement is a very interesting topic for research and business purposes alike [12].

Facebook, as one of the most context-rich social platforms, is used for self-expression via status updates from millions of users worldwide, with location or cultural subtle differences in expression [11]. Recent works explore human mobility and social interaction [5], while others are stressing the importance of user context on the social web [15].

Facebook data are so rich that can be used to reveal psychological conditions. Previous works have shown that increased social isolation and lowered availability of social capital on Facebook can be used to predict depression [4].

2. RELATED WORK AND MOTIVATION

Recent works also explore the psychological aspect of group dynamics and collective self-esteem for motivational social activity [1]. The opposite is also true, life satisfaction, subjective vitality, flourishing, and subjective happiness can be used to explain variance in problematic Facebook use or excessive use [16].

Additionally, work focused on the information-rich mobile social networking as an enhancement to connectedness between the users [3]. Other works show that storylines can be constructed from sensor data, such as GPS, etc. [8]. This is indirectly related to this work, since motivation effect could be affected by the potential feeling of users as being close to specific way of living as it can closely match their own storyline of activities.

Recent works have provided insight on the relation between motivation, Facebook use and user satisfaction [10]. Furthermore, social media engagement can affect positively or negatively or both specific student activities [9]. It is, therefore, a suitable social medium for us to examine whether other types of activities, related to well-being and healthy lifestyle can also be affected.

Verduyn et al. [17] showed that passive Facebook usage undermines affective well-being. On the other hand, Bazarova et al. [2], investigated how positive emotions from social posts on Facebook triggered satisfaction and replies. This work investigates how contextually but not implicitly positive posts about well-being and active, healthy living can induce motivation to engage in the same positive attitude by the users.

Park at al. [13] reported that social media information use contributed towards user becoming more active and participating to group discussions on civic and political activities. This work hypothesized that human life quality as a universal issue would be addressed in a similar manner by users. That is, social media activity about aspects of well-being would immerse interested and non-interested users to the general idea of well-being as well as motivate specific interests and activities.

Based on the aforementioned literature, this paper makes two hypotheses:

Hypothesis A: *The way of presenting social content is significant to the impact it has on the user motivation.*

Hypothesis B: *Active interaction, high engagement, should reveal significant effect on the user interest and motivation.*

This work aims to explore how posts about positive living, well-being and healthy activities interest users to socially engage in those posts and, most importantly, motivate them to engage in real life similar activities to improve their well-being and attitude towards healthy living.

3. EXPERIMENT SETUP
3.1 Participants
Twenty participants, 16 male and 4 female, were recruited for this experiment. The age of the participants ranged from 20 to 42, with an average age of 27.58 years (SD=5.46, mode=25). They were asked to fill in a pre-study online form to report their previous experience with health and well-being activities and social presence.

A five-point Likert scale was used to collect information about their attitudes towards health and activities. Twenty percent of them considered themselves highly active and experts on social activity. Thirty percent reported as interested in the above, while half of them classified themselves as not very active or interested. All participants had more than 200 friends on their main Facebook accounts, the social media that was used in this work.

3.2 Facebook and Features
Facebook was selected as the social network of choice due to three major parameters:

- It has the largest user base and established interest groups,

- Allows for direct view of embedded pictures, videos, maps, sound and text,

- The majority of the activity tracking apps enable direct posting to Facebook (see Figure 1).

Figure 1. Post showing activity report from a tracking app.

The features that were considered for analysis are described below, based on the type of content presentation which, according to Hypothesis A carries significance.

1. Picture of friend performing an activity with or without elaborate accompanying text.

2. Activity report of friends, with map showing details (location, route, distance, weather, etc.).

3. Short embedded video of friend during the activity.

4. Non sport-explicit activity, picture and text, e.g. healthy food recommendations.

5. Status post with text only.

6. Link to external video/picture/text of health and wellness context.

7. Posts about workout apparel, tips, advice.

8. Posts from health, fitness, wellness influencers or celebrities that a user follows (see Figure 2).

Figure 2. Related post from a world famous runner.

3.3 Execution
The participants were asked to provide information regarding their interests in types of input from the feature list, as provided in Section 3.2. An interesting finding was that 95% of the users considered feature 6 as a sub-group of features 1 and 3. Similarly, a proposition to merge features 4 and 7 to more generic category as well as discard feature 5 as it was reported as difficult to classify within the domain of interest scaling from uninterested to highly interested. The list of features for the follow up study, therefore, was reduced to five: (a) *picture*, (b) *video*, (c) *map*, (d) *influencer*, (e) *other*.

For the main experiment, the users were asked to interact normally (spend at least 10 minutes, for two sessions) with their Facebook accounts for 7 days. At the end of each session they amended an online questionnaire about their interactions with posts related to healthy lifestyle and well-being. The user feedback was provided, on a five-point Likert scale, expressing motivation effect from reading posts with the following scale: unmotivated, a bit unmotivated, neutral, a bit motivated, highly motivated. Specific values were given for each of the feature categories.

The number of new posts in the timeline and the number and type of posts that were part of active (liked, shared, commented) or passive use (read only) were logged. This information was used to test Hypothesis B.

4. USER EVALUATION
The participant feedback was analyzed for correlation between age and motivation and interest by feature, as well as between

post type features. For the *picture*, *video*, and *other* types of posts, the motivation effect was generally higher than the interest indicated in the pre-study session (+0.40/5.00 on average). For the *map* and *influencer* features, the values were reversed (-0.35/5.00 on average). The overview of motivation/interest is depicted in Figure 3.
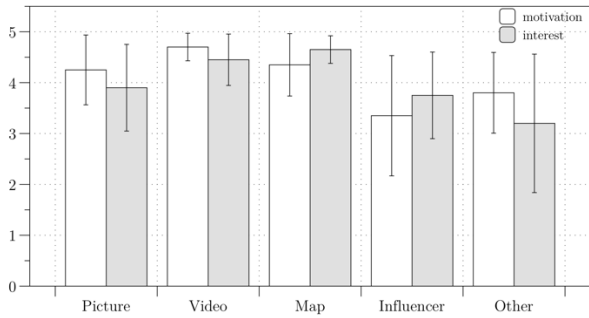

Figure 3. Motivation and Interest mean values and SD.

The reasons for the observations regarding the lower-than-expected motivation effect for *map* were because of the very repetitive visual nature of the *map* feature. Consequent very similar posts using the same style of presentation lead to decrease of the original very high interest and motivation effect. The *influencer* original interest was not very high due to the usually harder to achieve results that sometimes influencers share. The motivation effect was clearly even lower, almost neutral, but with very high deviation, effectively accounting for the randomness of posts of influencers. Likewise, the *other* feature scored the lowest, almost neutral, for interest, with very high deviation due to the very broad expected type of information that it can encompass. Finally, it is important to state that no feature motivation or interest mean values were below neutral.

With respect to *age*, the ANOVA between age and *influencer* motivation revealed statistically significant difference, $F(4,15)=4.874$, $p=0.010$. Especially interesting was the fact that a positive correlation exists between $influencer_{UNMOTIVATED}$ and *age*, $t(18) = 4.653$, $p<0.001$. Participants of age of 20-24 years were they key participants that reported $influencer_{UNMOTIVATED}$.

The *picture* motivation and interest exhibited statistical significance, chi-square, $\chi^2(4)=16.667$, $p=0.002$. This was evident by the positive correlation between $picture_{NEUTRAL\_MOTIVATION}$ and $picture_{NEUTRAL\_INTEREST}$, $z=2.939$, $p=0.002$. Similarly, $picture_{HIGHLY\_MOTIVATED}$ and $picture_{HIGHLY\_INTERESTED}$ had positive correlation, Fisher transformation, $z=3.775$, $p<0.001$. This result points to the pre-conditioned expectations as personal preferences of individuals. As it was pointed out by the participants, some form of visual queue is expected since they are casual users of the social networking application and, some of them, of particular activity tracking apps.

The *video* motivation and the *other* motivation values were also not independent, chi-square, $\chi^2(6)=21.905$, $p<0.001$. No significant statistical difference was found between motivation and interest for *video*. The two lowest values for *other*, $other_{UNMOTIVATED}$ and $other_{UNINTERESTED}$, were positively correlated, Fisher transformation, $z=2.527$, $p=0.012$. At the same time, the two highest values, $other_{HIGHLY\_MOTIVATED}$ and $other_{HIGHLY\_INTERESTED}$, were also positively correlated, Fisher transformation, $z=2.085$, $p=0.037$. The latter explains the large difference, +0.60/5.00, between the original interest and the reported motivation effect for *other*.

Motivation effect for *map* and motivation effect for *video* were also found to be not independent, chi-square, $\chi^2(4)=12.183$, $p=0.016$. This was validated by the user engagement logs, showing very active response by the users to both these features. It also departs from the original findings showing interest dependence not between *map* and *video* but between *map* and *picture*, chi-square, $\chi^2(4)=9.889$, $p=0.042$. The later was initially explained by the static nature of both features.

No statistical results could be derived with respect to gender of the participants since the sample was very small and the distribution quite uneven. From the user engagement data, the user response to the posts was calculated over the total of posts, per feature (see figure 4).
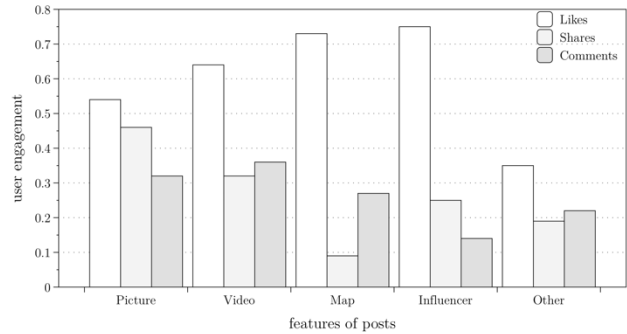

Figure 4. User engagement per feature.

All features apart from *other* had over 50% engagement from users. *Map* had the highest likes but the lowest shares, the justification given by users was that it is considered a more private way of sharing somewhat more technical information about achievement, that is not very suitable for sharing to other people. Similarly, *influencer* had the highest likes, as it is the standard way of interaction, and the lowest comments. *Picture* had the highest shares, since pictures are more generic and easier to share between more friends. *Map* and *video* have in common the very high percentage of likes and also higher number of comments than shares, showing a pattern of use.

5. DISCUSSION

This study involved Facebook status and activity posts from users using mobile applications for mostly sporting activities. The applications that were used by the social groups of the limited number of participants in this work, were tracking three of the most popular non-team sports, namely running, cycling and swimming.

In relation to Hypothesis A, the results indicate that Facebook users already have established interest on the types of ways activity information can be presented. They accept the variety of features available and, depending on the feature, there are motivated in a different way.

To summarize, it is evident that the visually rich modalities, *picture* and *video*, provided enough information and, most importantly, variety to motivate the users to get more involved in sporting activities. *Map* is also a very rich modality. It is considered a more specialized way of sharing activities, usually describes an achievement of a friend, for example "today, I ran 10 kilometers". Although the social engagement is high, the motivation is not equally high, at least not as high as it is for *picture* and *video*. From the above, it is concluded that Hypothesis A holds for the list of features in this experiment.

Hypothesis B was tested by user engagement data. Generic features such as *picture* and *video* enable the user engagement in all three common ways, likes, shares and comments. All three ways get a healthy amount of user interaction. This variety potentially helps is an outcome of the user motivation effect, but it could also be a factor in the motivation gain. Hypothesis B, therefore, seems to hold by the clear broad way of user engagement. However, a follow up study to determine the way it affects motivation would be very useful in order to get more insight into the engagement-motivation connection.

This work provided a limited view to how social posts of activities in health and well-being can motivate users to engage in those activities or way of living. Along with other works in the field, it can help towards opening up to further interesting work in the domain. An interesting follow-up study would be to investigate the side of the users that post the activities, whether they are motivated by specific comments, or number of likes from their social media circle.

Further work on the details of social posts would be to extend the experimentation to context-specific social aspects, certain wording or types of friends that possess motivational skills, choose fancy or funny ways to help their social peers engage in activities or positive way of living.

From the user interaction point of view, user experience is a factor that can be investigated on user engagement. As technology progresses, the use of interactive content, sharing information from smart watches and devices could be used to maximize impact and usability, hence enable better interaction.

This work presented data analysis and user study findings on motivation effect, however it was not linked to formal self-motivation scales and metrics [6, 7, 14], that could be the focus as further work towards formalization. Finally, this study can be extended to other activities, such as learning, to examine social media interaction for self-motivation from as fuel to passion and enthusiasm, for cases such as learning to play guitar, paint or other forms of artistic expression.

6. ACKNOWLEDGMENTS

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