# ARRANGING FACE-TO-FACE EVENTS USING SOCIAL NETWORKING SERVICES

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**Abstract.** Social networking services have made organizing of events simpler. Facebook offers an event service, which has greatly simplified the invitation process. Still, organizing an event is usually coupled with the risk of guest's no-show. We conducted an investigation to identify factors that might help predict a person's likelihood of attendance to an event s/he is invited to. Our research tries to combine information research with information technology tool design. The factors affecting the probability were determined by an analysis of data acquired in surveys among hundred and fifty or so Facebook users. We also developed a program that implements (some of) these findings. Our application can help the event convener estimate how many people would attend her event and predict the likelihood of each invitee's attendance. Moreover, the application can also help the invited guest learn which of her friends are likely to attend the same event. Research that combines information side with information technology side can be fruitful as shown by this simple result. There is room for future work in this interdisciplinary space.

## 1. Motivation

So called social networks especially Facebook as currently probably the largest one, has become an important media for social communication [10]. Their designation as social networking services emphasize their service providing dimension, in contrast to a more "classical" concept as studied in sociology, where a social network is not related or conditioned by some involvement of web or computers.

One of the services available to participants of a social network of people that use Facebook is its simple event function. Very recent experience shows that organizing of events was made simpler. In 2008, with the event function already available [2], the use of Face-

book to attend an event organized online was relatively infrequent type of use according to [3]. Currently, more and more frequently, more and more (especially younger) people do not send an inviting text message or email to all guests of an event they organize. Letting people know about an event translates into just a few clicks on Facebook. However, this does not suffice to guarantee that the event will be successful.

The motivation of this work is to help arrange face-to-face meetings within a social network. Predictions of attendance are not only useful for setting up a reservation, but can also be used as a tool to better reach the invited guests and adjust the event in such a way (by inviting more guests or changing the location of the event) that more guests would attend. There were several research works on predicting the probability of person's attendance embodied in a kind of calendar extension or a shared personal calendar [6]. With the advent of social networking sites, works on social calendaring sites or similar concepts began to emerge, e.g. [5].

## 2. Research on factors affecting attendance at events

We conducted a second survey in order to find other factors and determine the relevance of factors influencing likelihood of one's attending an event. (The list of factors itself was a result of survey.) We asked 152 respondents to rank the importance of these factors from most important to least important: Time of the event, Place of the event, Distance to the event, Type of the event, other guests at the event, Inviter to the event, Weather, Finances, Mood and whether the person has set a reminder to remind him of an event. Table 1 shows the strengths of the individual factors, the computed weights and also the strengths according to age groups. The three strongest factors for each age group are in boldface.

Table 1. The strength of factors according to the survey 2.

| Factor | Strength | Weight | Strength of factors according to age | | | |
|---|---|---|---|---|---|---|
| | | | 15 - 18 | 19 - 22 | 23-25 | 25+ |
| Other guests | 8.00 | 0.1456 | 8.83 | 7.98 | 8.39 | 6.00 |
| Type | 7.61 | 0.1386 | 7.17 | 6.89 | 8.19 | 8.00 |
| Time | 7.21 | 0.1313 | 7.00 | 6.70 | 7.55 | 7.37 |
| Mood | 6.21 | 0.1131 | 8.17 | 6.13 | 6.10 | 5.50 |
| Place | 6.05 | 0.1102 | 7.00 | 5.89 | 5.74 | 6.50 |
| Distance | 5.32 | 0.0968 | 4.00 | 5.65 | 4.81 | 6.37 |
| Inviter | 5.08 | 0.0925 | 5.17 | 5.54 | 4.65 | 5.50 |
| Finances | 5.07 | 0.0923 | 4.33 | 5.35 | 5.10 | 4.75 |
| Weather | 3.20 | 0.0582 | 2.33 | 3.24 | 4.48 | 3.87 |
| Reminder | 1.18 | 0.0216 | 1.00 | 1.44 | 1.00 | 1.12 |

## 3. Research on design of a tool to support face-to-face meeting organization

Our research continued to the information technology part. Our aim was to implement the findings resulting from the analysis. We attempted to design and implement a simple tool that supports the networked people when arranging a face-to-face meeting. It helps both the person who invites and those who are invited. In the design phase, we had to devise appropriate formulas to compute probabilities for each factor separately and then to compute the overall probability.

We tested our application on the first author's Facebook friends. Testing set had 251 persons currently living in 35 different cities and 15 countries. First, we collected some general statistics about events and invitations to events. Secondly, we tested our application on past events and compared the predictions for them with the response of invited users. Lastly, we tested our application on past events and compared the estimations with real values, whether the user really attended the event, or not.

We were able to retrieve data on 75 events from the past. We selected all those guests who were friends with the first author, and made an estimation of the attendance for them. All in all, there were 1,673 invitations to these 75 events. From these invitations we separated 728 responses that were either "attending" or "declined", so that we could compare them with our predictions. We let our application estimate the likelihood for these invitations and compared the results with responses. If the prediction was higher than 50%, we counted the prediction as "attending" and if it was lower that 50% we counted as "not attending". As a result, 538 predictions out of 728 were correct and therefore the accuracy of our estimations was 73.9%. This can indeed be considered a satisfying number.

## 4. Conclusions

Social networks treated as collaboration networks have a great potential for discovery of knowledge [7]. Arrangement of events is just one of many possible features that social networks participants will increasingly enjoy. Social networks open new possibilities for exploratory search [8]. Other important concepts, e.g. homophily [9] help study relations between humans within their social connections. Moreover, the whole web is becoming more and more a social web, inducing many open research problems, e.g. [4].

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## References

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