

# Online Experiments of Authority Effects on User Behavior in Email Campaigns

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## 1. INTRODUCTION

Electronic mail (email) is a popular and prevalent form of communication medium and has been extensively used by many organizations in their marketing campaigns. Such campaigns involve the organization broadcasting promotional emails in an attempt to get users who may be existing or new customers to perform a certain action or a series of actions on a website (e.g., register for an event, “like” a Facebook page, or buy a product). There are however multiple exit points in the series of user actions, where the user may give up before achieving the desired end goal of registering for the event.

Using an online controlled experiment, we investigate the effects of two different authority status of senders: **superior** and **domain expert**, on email campaigns. The first type of authority refers to someone who is a superior in the organization hierarchy, while the second refers to someone who is a domain expert with knowledge and experience not easily found among others. We design an experiment of email campaigns on a real-life event, and measure the campaign effects in terms of: (i) the open rate/time and the click-through rate/time of emails; (ii) the activities on the event website; and (iii) the registration rate of the event.

## 2. EXPERIMENTAL DESIGN

Our experiment was based on a two-day academic workshop and our experiment participants comprises 730 users who belong to various departments (Computer/Information Science and Mathematics) from three large universities. We separated these participants into three groups: CGroup, TGroup1 and TGroup2, who received emails from a general (workshop mailing) account, department superior, and event organizer respectively. For TGroup1, the HOD is the superior of the department that each TGroup1 user belongs to. For TGroup2, the event organizer acts as the domain expert in the topic of the workshop but otherwise have a minimal working relationship with TGroup2 users.

Unlike laboratory-based experiments, this experiment is based on a real-life event and a main consideration is to not undermine the success of the event itself. Another consideration is the need to instrument tracking mechanisms for the different behaviors that a user may show after receiving a workshop event announcement. To achieve these requirements, we designed an multi-platform online experimentation system that extends upon [1] to automate and track such an experiment on both the email and website plat-

forms. Figure 1 illustrates our proposed experiment which comprises the following steps:

1. Configure various parameters (e.g., user groups, email accounts, website URL) of the online experiment.
2. Allocate users to control and treatment groups based on random assignment.
3. Send emails to users in each group using a particular type of sender account (i.e., a particular authority status).
4. Track user activities on the emails, namely email opens and user clicks on a link in the email (which directs users to the event page).
5. If the user clicks-through to the event website, continue to track his/her activities on the website (i.e., clicks and mouse-overs on the various page elements).
6. Analyze the collected data of user activities on both the email and website.

## 3. USER BEHAVIOR ON EMAIL AND WEBSITE

Using our multi-platform online experimentation system, we aim to determine the authority effects of the email sender on the subsequent email and website activities of the recipient. As such, we compare various activities between users receiving emails sent by *general account* (CGroup) and those sent by *department head* (TGroup1) or *event organizer* (TGroup2). Our hypotheses are:

1. The *email open rate* of CGroup differs from that of TGroup1 and TGroup2.
2. The distribution of *email open times* of CGroup differs from that of TGroup1 and TGroup2.
3. The *email click-through rate* of CGroup differs from that of TGroup1 and TGroup2.
4. The distribution of *email click-through times* of CGroup differs from that of TGroup1 and TGroup2.
5. The probability of an *active user on the event website* in CGroup differs from that of TGroup1 and TGroup2.
6. The probability of a *user registering* in CGroup differs from that of TGroup1 and TGroup2.

<sup>0</sup>This poster paper was presented at the 2015 International Conference on Computational Social Science (IC2S2'15). An extended version of this poster paper is published in [2].

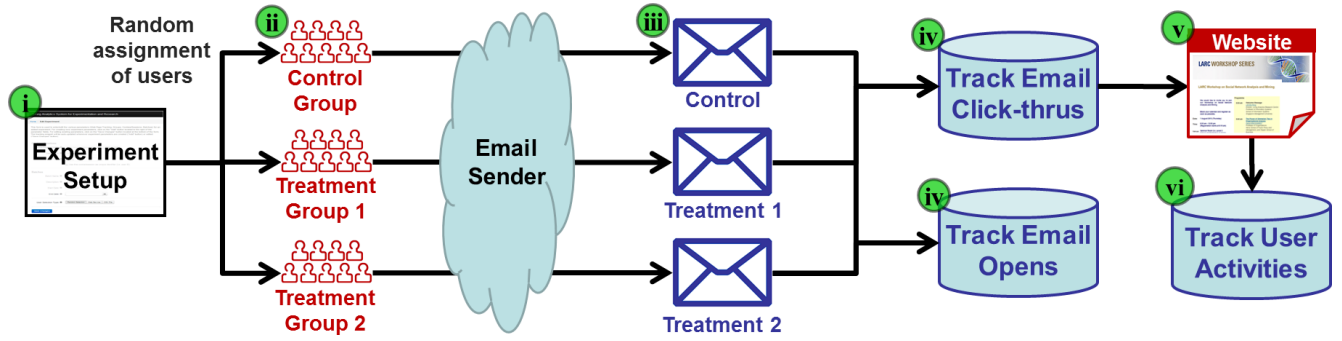


Figure 1: Multi-platform Online Experimentation System in Support of Experiment Design

**Hypothesis 1:** TGroup1, TGroup2 and CGroup shows an email open rate of 39.9%, 30.6% and 26.3% respectively. One main observation is that TGroup1 outperforms CGroup by more than 1.5 times in terms of email open rate, while TGroup2 manages a slight improvement over the latter. This result indicates that the authority effect of the superior (HOD) has the greatest influence on email open rate, followed by that of the domain expert (event organizer), then the general account.

**Hypothesis 2:** There is no observable difference among TGroup1, TGroup2 and CGroup in terms of the time taken to open the email. This lack of difference could be explained by how users are likely to check their mailbox only at specific time intervals. Thus, users in a group are unlikely to open an email faster than users in other groups as they would not have checked their emails. However, once they have checked their mailbox, users in TGroup1 and TGroup2 are more likely to proceed to open and read the email, as discussed previously.

**Hypothesis 3:** We observe the email click-through rate of TGroup1, TGroup2 and CGroup to be 14.4%, 6.9% and 4.2% respectively. TGroup1 offered the best improvement with an increased email click-through rate of almost 3.5 times that of CGroup, while TGroup2 offered an improvement of more than 1.5 times. This result indicates that there is an authority effect on email click-through rates, with the authority type of superior (HOD) being most effective, followed by the domain expert, then the general email account.

**Hypothesis 4:** Users who received emails from either their HOD (TGroup1) or the event organizer (TGroup2) are more likely to click-through in a shorter amount of time, compared to those received from the general account (CGroup). This result further reinforces our hypothesis that users receiving emails from their HODs and the event organizer are more likely to react to it and in a shorter time, compared to emails from a general account.

**Hypothesis 5:** The proportion of active users in TGroup1, TGroup2 and CGroup are 9.2%, 4.9% and 3.1% respectively. This result once again shows the authority effect on user behavior in email campaigns, particularly that the authority type of superior (HOD) are almost three times more effective than the domain expert authority (event organizer). Both types of authority are also shown to be more effective than our control group without any authority (the general email account).

**Hypothesis 6:** The registration rates of users in TGroup1, TGroup2, and CGroup are 3.9%, 2.1% and 0.3% respectively,

indicating that the authority types of superior (HOD) and domain expert (event organizer) are approximately eleven and six times more effective than that without authority, in terms of influencing users to register for the workshop.

## 4. DISCUSSION AND CONCLUSION

In this work, we conduct email campaign experiments to evaluate the importance of authority senders. Other than experiment design, we developed an multi-platform experimentation platform that manages and automates the key stages of controlled experiments, from user grouping randomization to data collection of user responses. One novel contribution of this platform is the capability to perform integrated tracking of user responses across multiple platforms (emails to websites). In turn, this capability allows us to conduct controlled experiments that span multiple platform thus providing us with detailed insight on user behavior across a spectrum of platforms.

Our main finding shows that the authority status of an email sender has a significant effect on the user response behavior in email campaigns. We observe that emails sent by HODs (i.e., superior type of authority) resulted in more successful email campaigns compared to those sent using a general organization email account, which is a common industry practice. In particular, we observed significant improvements in terms of: (i) email open rate; (ii) email click-through rate; (iii) email click-through time; (iv) proportion of active website users; and (v) event registration rate. Based on the above findings, one can consider making use of authority persons particularly the superiors to help getting information forwarded to their subordinates.

## 5. REFERENCES

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