

Shouldn't Collaboration be social? - Proposal of a social Real Time Delphi

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Abstract

Real Time Delphi (RTD) is an advanced online implementation of the Delphi Method (DM), designed to speed up the period of time needed to conduct a survey using nowadays internet technology. However its overall design is still very restricted and does not leverage the full potential for collaboration of this new Information and Communications Technology (ICT) channel. In this paper we propose two design elements that introduce social interaction in RTD to leverage positive effects, while not harming anonymity as a key feature of the DM. The contribution of this work is to enhance the RTD Method in a way that allows anonymous but social interaction amongst participants, addressing weaknesses of the current method regarding drop-outs of participants and the organizing and control of content.

Keywords: Participation and Crowd Services, Real Time Delphi, Anonymity, Forecasting, Survey Design

1. Introduction

Since the introduction of the internet the ways we collaborate changed enormously. The DM is a special survey design, developed in the 1950s, aiming to synthesize the expert judgments and create a group consensus (Turoff,

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1970). In the beginnings this collaboration took place with paper and pencil. Remote experts had to be included postal. Due to the internet and its new possibilities the DM became “online” (Linstone and Turoff, 2011), but the process itself did not change and therefore all weaknesses of the old process were adopted. One shortcoming in the method is the long time period that is needed to carry out a Delphi Study, which sometimes may take several months (Landeta et al., 2008). This issue was addressed by Gordon and Pease (2006) with the Real Time Delphi (RTD) Approach. However, we argue that the full potential of online collaboration for the DM is not yet harnessed and propose to improve the method with two social elements, without harming anonymity, one of its key characteristics. The first proposed element is the possibility to label arguments by a fixed set of labels. Second, we propose to enrich the arguments with a generated user name which is only valid within one question. We argue that this two elements help self organizing of the content as well as create a higher sense of social presence which raise quality of discussion and lower drop-out rates. Therefore we form following hypotheses:

- *H1: Introducing labeling and generated user names in RTD increases perceived social presence.*
- *H2: Social presence in RTD lowers the drop-out rate.*
- *H3: Introducing labeling helps structuring the discussion and improves usability.*

The paper is structured as follows: In section 2 a brief theoretical background on DM, RTD and online collaboration in general is given. Section 3 examines how social presence can positively affect RTD. Section 4 explains the proposed design of a social RTD (sRTD). Finally, the paper will finish with a conclusion and outlook.

2. Background

2.1. Delphi Method and Real Time Delphi

According to Dalkey et al. (1969) three main features are characterizing the DM: i) *anonymity*, ii) *controlled feedback*, and iii) *statistical group response*. The first feature reduces the effect of dominant individuals in the group, so

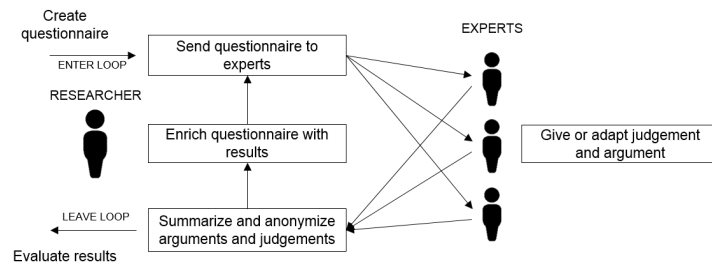


Figure 1: Controlled Feedback Loop of Delphi Method

that pressure to conformity or reputation do not affect the truthful revelation of opinions. Controlled feedback as the second feature aims to reduce noise. The third characteristic, the statistical group response lowers group pressure on conformity and reassures that the opinion of every member is represented in the final response. Statistical group response is usually provided as the mean, the number and the variance of all estimations or another suitable visualization of the distribution of the estimations. Landeta et al. (2008) and Rowe and Wright (1999) add a fourth characteristic, the “iterative process”. The basic idea is that the controlled feedback loop creates consensus between the experts in the Delphi study as a result of that the experts can adapt their opinion in each loop and react to the arguments and summarized judgments of the group. The process is illustrated in figure 1.

In contrast to the pure implementation of the DM as an online process, the RTD approach changes the feedback loop, so that a participant can see the responses of the group members immediately after he has given his first opinion (and optionally an additional argument). There is no explicit second round, but the participant has the option to return at any point of time and change his submitted judgement. By then others may have contributed or adapted their opinions so averages or medians have changed (Gordon, 2008). As the online channel completely hides the identity of the participants it is also possible to conduct RTD synchronously in conference rooms or the like. Additionally the RTD technique is a way to open the DM for larger panel sizes as distribution and collection of the questionnaires is not necessary and there are no additional cost of more participants (especially in remote locations) (Linstone and Turoff, 2011). According to Gnatzy et al. (2011) the DM and RTD produce similar results. To our knowledge in none of the existing implementations of RTD or accompanying research and publications

the enhancement of the method in terms of social elements is considered or discussed. Major other contributions to RTD were made by Gordon (2008) and Gnatzy et al. (2011). In Gordon (2008) the focus is laid to argue that all key features of the DM are completely implemented. Gnatzy et al. (2011) introduced visual feedback as well as a *consensus portal* that is basically an overview on the questionnaire, that signalizes where ones opinion is in line with the group or where there is strong disagreement.

2.2. Online Collaboration

“*Collaboration begins with interaction*” (Murphy, 2004, p. 422). The awareness of social presence in online settings makes people to interact as a group which enriches interaction and the sense of community. In a collaborative community members do not only share perspectives, but are starting to challenge other opinions, reshape their own, and restructure their thinking. This process leads finally to a *shared meaning* (which is also characteristic to the DM). However, social presence in online collaboration has the ability to start some more processes: New perspectives and meanings as well as shared goals can evolve (Roschelle and Teasley, 1995). Especially second is interesting, as it leads to the production of shared artifacts and the intention to “add value” (Kaye, 1992). It is not yet discussed, if these processes lead ultimately to better results in every case, but intuitively one would say, that it may improve the result in some dimension. Leveraging this improvement for RTD has not yet happened and Linstone and Turoff (2011) say “[...] *[T]he future of Delphi will be in collaborative organizational and community planning systems that are continuous, dispersed, and asynchronous.*”

3. Social Presence and possible Effects on Real Time Delphi

Usually the DM as well as RTD build on absolute anonymity (or quasi-anonymity as in Kochtanek and Hein (1999)). Gordon (2008) states the concern about spurious factors, such as reputation, status or other social behavior that intrude in face-to-face interactions among experts lead once to the feature of anonymity in the beginning of the DM. Since then anonymity is a key feature of the DM and it was adopted in RTD. We argue that anonymity is not an end in itself, but that the goals it wanted to achieve can be, using nowadays technology, achieved while leveraging the positive effects of social

interaction and collaboration.

One problem with the traditional DM is the drop-out rate of the participants and the corresponding low response rate during the rounds, which should be at least 70% (Mullen, 2003; Walker and Selfe, 1996). Reid (1988) notes, that the panel size has a strong influence on the drop-out rate. Large panels tend to have higher drop-out rates than small panels with 20 members. Okoli and Pawlowski (2004) argue that the researcher has the possibility to contact the drop-outs and ask them to participate, but this can be – depending on the budget – related to a disproportionate effort (Ishikawa et al., 1993). However, the technological concept of RTD and its asynchronous character would allow distinctly larger panels. To draw this potential it is necessary to bind users stronger to the platform and the questionnaire, which can be supported by social presence and therefore social reputation, that can be built. Bolger and Wright (2011) found, that in “traditional” Delphi studies the promise of gaining social reputation raise motivation to commit to the study and decreases the drop-out rate.

To tag content in “social question answering” (e.g. Yahoo! Answers or Live QnA), can open opportunities for richer user interaction (Rodrigues et al., 2008) and is not a new idea at all. According to Ames and Naaman (2007) there are mainly two reason to tag social content¹: i) Providing ones opinion on something (social interaction) and ii) help others/oneself to find something (self/organization). Additionally Rainie (2007) puts that tagging allows groups to form around points of view and similarities of interest. If persons use the same tags, they may get the impression that they probably share some deep commonalities. Tagging can therefore contribute to RTD in multiple ways: First it enables users to express their opinion about arguments and gain reputation. Second it enables users to express “common sense”. Both leads to higher social presence and therefore raise user binding to the platform. Third tagging is a strong instrument of (self)organizing content. Especially for larger panels, online discussion can quickly become confused if there are no means to structure and distinguish important from the unimportant or interesting from the uninteresting. Lots of large online platforms as Twitter, Facebook or GitHub use tagging or labeling as a mean to allow structuring and organizing the content. Turoff et al. (2004) already used labels to organize content in a study which he attested a “Delphi-structure”.

¹In case of Ames and Naaman (2007) photos.

However, his implementation did not fit the anonymity criteria, as names of argument's authors were visible.

4. Design of a social Real Time Delphi

Key to our design proposal is keeping anonymity where needed in sRTD while introducing social elements to leverage the afore effects mentioned. Therefore we propose two design elements: i) Randomly generated user names only valid within a question and ii) a fixed set of labels in the discussion.

The idea behind i) is to enable the participants to argue with and relate to each other. The effect is that each participant can be addressed directly². This leads to the impression of social presence and can nudge the processes mentioned in section 3. As the user names are randomly generated for each question anonymity is completely given and social reputation or status can not be transferred between questions and questionnaires. In addition no linkage to the real person is possible, hence we can argue that anonymity as a key feature of the DM is not violated. In contrast to standard RTDs the generated user names are displayed to every given argument as well as in the argument-creation form as “You are posting as [generated user name]”³.

The second design element uses the idea that participants get a social reward if good content is provided. Arguments can be labeled by a fixed set of tags as for example “helpful”, “strong” or a simple “like” (or “vote” as used in Turoff et al. (2004)). Contributions to the “shared goal” are rewarded on this way, which satisfies the author as his demand for social reputation is fed. As the author wants to maintain his social reputation we expect him to participate on a more regular basis (Linstone and Turoff, 2011). Goluchowicz and Blind (2011) found that participants, who felt as experts had a lower probability to drop out in Delphi studies. The social reward that participants get may make them feel as experts somehow. In addition *labeling* has the potential to make the argumentation more efficient and to introduce some kind of self-control and therefore raise the argumentation quality (Linstone

²Publicly in the group but only within this question.

³We are aware that the referenceability of persons within the context of a single questions may lead to a group discussion. However, it is not investigated yet (to the best of our knowledge), if this affects RTD, respectively the forecasting task in a positive or negative way.

and Turoff, 2011). In contrast to tagging (unrestricted labeling), the fixed set allows a certain degree of control to ensure that very personal tags that may be only used by one person do not allow linkage of this person throughout the questionnaire, as they are reported in (Rodrigues et al., 2008). In contrast to standard RTDs where arguments allow no interaction, sRTD shows the users a list of labels which can be added. Every label can be added only once per user and argument. It is not displayed, which user added the label.

To test hypothesis H1 we plan to conduct an online experiment with A-B testing (with and without i) and ii)). Afterwards a questionnaire is conducted to measure perceived social presence in both groups. To evaluate H2 we compare the actual drop-out rate to the results of the questionnaire. To evaluate H3 the questionnaire will contain items about usability and informativeness of the platform.

5. Conclusion and Outlook

The future of RTD is to leverage the possibilities, that come with its technology. In this paper we draw a picture of the potential of making RTD more social by proposing to add the two elements of randomly generated user names per question and labeling in the design. Both elements arouse the impression of social presence in the sRTD and allow building sense of community and social reputation by not harming the key feature of the DM: “anonymity”. In our design it is not possible to link participants to real persons nor to build a social reputation in a way that may affect unbiased⁴ forming of opinions. We expect introducing this social elements to raise the binding of the users to the platform. Additionally labeling can contribute to the efficiency of the argumentation and helping to organize it, which we expect to increase discussion quality. The contribution of this work is to enhance the RTD Method in a way that allows anonymous social interaction amongst participants, addressing weaknesses of the current method regarding drop-outs of participants and organizing and control of content. Next steps contain the implementation of a sRTD platform including these proposals and verify that anonymity is not violated. Future work will test our three hypotheses and further improve sRTD by trying to decrease drop-out rate, improve discussion, and raise overall result quality of the prediction.

⁴By means of social reputation or status.

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