1 Introduction

Social Computing is providing new opportunities to democracies by increasing the scalability of collective policy making processes. The world is witnessing the rise of online participation platforms which enable citizen debates and deliberative mechanisms. However, the successful performance of these platforms that involve a large number of citizens requires the development of methods that truly improve political deliberation.

1.1 Citizen Participation and Open Government Platforms

City Councils are developing online citizen participation platforms:

- **Decidim Barcelona** [http://decidim.barcelona.com](http://decidim.barcelona.com)
- **Decide Madrid** [http://decide.madrid.es](http://decide.madrid.es)

inspired by collective intelligence premises in order to discuss and decide the city model through:

- **Debates**: Discussion threads opened and commented by any citizen.
- **Proposals**: Petitions published by citizens in order to:
  1. Receive support from other citizens through debates and then,
  2. Run a public voting of the entire population.

We have developed a visualization tool that presents the structure of discussion threads as an interactive radial tree as a way to better understand how debates build Collective Intelligence.

2 Methods

2.1 Deliberation

We calculate the h-index of a discussion [1] that corresponds to the maximal number $h$ such that there are at least $h$ comments at level (depth) $h$, but not $h+1$ comments at level $h+1$.

2.2 User Behaviour

We apply a framework based on generative models of growing trees [1] to analyse the structure of discussion threads according to three features:

- **Popularity ($\alpha$)**: Comments get new replies according to how much replies they already got.
- **Root bias ($\beta$)**: Distinction between the root node and the regular comments.
- **Novelty ($\gamma$)**: Old comments gradually become less attractive than new ones.

3 Results: Meneame dataset

Meneame ([http://www.meneame.net](http://www.meneame.net)) is the most successful Spanish news aggregator, massively used by citizen movements. The website is based on the idea of collaborative filtering of news through user votes. In January 2015, the interface of Meneame was changed to show threads hierarchically instead of linearly.

3.1 Methods

We apply a generative model of growing trees [1] to analyse the structure of discussion threads in Decide Madrid following the prerequisites of deliberation defined in [2].

3.2 Results

We have assessed how a little change in the interface of an online platform influences deliberation and user behaviour. In particular, hierarchical visualization of discussions in Meneame improved deliberation, attracted more attention to the comments which received more replies and reduced the interest in novel comments.

4 Conclusions

In this work we have assessed how a little change in the interface of an online platform influences deliberation and user behaviour. In particular, hierarchical visualization of discussions in Meneame improved deliberation, attracted more attention to the comments which received more replies and reduced the interest in novel comments.

5 Ongoing work

Next steps arising from this study focus on the effect of sorting algorithms, community detection methods to predict diffusion dynamics, techniques to facilitate consensus in collective decision-making processes, guidelines to design effective online collaboration platforms and methods to predict diffusion dynamics.

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References

