Analysing the evolution of online communities: developmental and narrative approaches

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This talk presents a methodological framework to analyse the collective processes of knowledge co-elaboration in online epistemic communities.

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1. Objectives and motivation

This research aims to analyse the evolution of "online epistemic communities" (OECs), focusing on the collective processes of article elaboration in Wikipedia. It responds to the important yet still open challenge in Cognitive Ergonomics of constructing methods for analysing/ensuring the quality of collective products, in relation to both their intrinsic characteristics (e.g. completeness, readability) and those of the collaborative processes (e.g. combining viewpoints, constructive/conflictual argumentation) that led to their production. This is particularly relevant for Wikipedia given its principle of "neutrality of points of view", which has led to many conflictual debates. Despite their often high 'costs' in time and effort, collaborative conflict resolution has potential for favouring knowledge elaboration (Baker, 1999), community building and — ultimately — better quality articles.

2. Background

There is now a growing research literature on analysing collective activity in Wikipedia. Most existing approaches depend on either 'mining' and automatically processing logfile data (edits, messages) to derive social network structures, or else on questionnaires and interviews. The former approach neglects qualitative analysis of exchanges, necessary for understanding knowledge co-elaboration processes underlying network structures. By contrast, our approach is based on detailed qualitative analysis of the content, form and meaning of discussions, in relation to the texts being collectively edited, in order to understand collective activities from a developmental perspective.

The latter (interview) approach highlights institutionalised (prescribed) roles (statuses, rights, tasks, and behavioural expectations, as viewed by participants). By contrast, the second element of our approach is based on eliciting and analysing narratives of participants, with supporting traces of online discussions, as a means for studying expert strategies for regulating Wikipedia debates (cf. confrontation methods: Mollo & Falzon, 2004).

3. Our Methodological Framework

Our methodological framework thus combines a developmental approach and a narrative approach. The developmental approach involves analysing interactive roles emerging in the process, their distribution and their co-evolution. The narrative approach, based on participants’ perspectives, identifies regulatory practices for managing the collective process.

3.1 A developmental approach

Our approach to analysing interactive roles is based on identifying recurrent communicative actions in terms of both their epistemic domains (scientific, Wikipedia rules, participants’ characteristics) and the general category of communicative action (regulatory, argumentative, informative). We propose that the degree of reciprocity and symmetry of interactive roles — how they interact, evolve together, with ‘filling in’ of roles left vacant — indicates the degree of collaboration in a knowledge community.
Interactive roles are identified by statistical calculations on the basis of coded discussions (filtering major participants, Cramer V2 and relative deviation), identifying participants’ actions that distinguish them from others. This method has been developed and used reliably with respect to several OECs (open source software communities, Wikipedia: Barcellini et al. 2014). In a longitudinal analysis of a conflictual (two-year long) discussion within the French-speaking “astronomy” Wikipedia OEC, we analysed how roles become gradually specialised, balanced, and reciprocal.

3.1 A narrative approach

Whilst the developmental analysis focussed on interactive roles, the participant perspective gives access to the strategic dimension, over the ‘lifespan’ of OECs, including regulatory practices (e.g. main conflicts, participants’ roles, conflict resolution). For this, we elicited narratives (Bruner, 1990) from four main contributors in contentious Wikipedia articles (e.g. “The Turin Shroud”), in the form of organised discourses on the evolution of the online communities, from their inception to the present day. Analysis of narratives reveals that major contributors identify major ‘critical events’ (such as important conflicts and their resolution) and that they intervene to resolve conflicts using specific strategies. These strategies aim to make debates evolve, involving re-orienting participants towards better coverage of sources and discussion of their credibility, supported by references to Wikipedia rules.

4. Discussion

Our developmental perspective embodies a normative model of OECs (based on fluidity of roles in interaction with each other, and constructive ‘rational’ processes of conflict resolution) that can be complemented and contrasted with participants’ own norms and practices, to give a fuller picture of the field of study. Further work concerns possible automation of our methods and implications of our research for measuring quality in Wikipedia.

References