JOURNEE FUTUR & RUPTURES
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#FutureetRuptures
CHARACTERIZATION OF THE GOOD TEAM TO PRODUCE GOOD KNOWLEDGE, THE CASE OF VIRTUAL COMMUNITIES

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15 FEVRIER 2018
#FutureRuptures
Context: Wikipedia as an Online Community of Creation
Online Collaboration
Our objective

Create new knowledge of high quality

Co-creation

External Ideas + Internal Ideas

Context: Wikipedia as an Online Community of Creation
Research objective

Our objective

Create new knowledge of high quality

Co-creation

External Ideas + Internal Ideas

Context: Wikipedia as an Online Community of Creation
Research objective
1. What are the characteristics of a "good" team to produce new knowledge (diversity or similarity)?
2. What are the previous cooperative structure which lead to a more efficient knowledge production?
3. How to coordinate asynchronous digital workers?
Proposition

Q1 Contributing experience

Q2 Cooperation experience

Q3 coordination

Knowledge Commons Quality
**Wikipedia as an Online Community of Creation**

**Why Wikipedia:**

- A good example of online community of creation (open, co-create new knowledge)
- Popularity (250 languages, 5,000,000 registered contributors, undetermined anonymous)
- Discussion space to study coordination
- Data availability
- Quality measurement
- Different level of quality

=> Statistical comparison is possible
Teams Characteristics, and Knowledge Quality

Existant works

2001 First contribution

Team characteristics (similarity, diversity)

First contribution 2001
In what is my approach original?
Teams Characteristics, and Knowledge Quality

Our Contribution:

First contribution 2001

Team characteristics (similarity, diversity)

2001

What happen before

First contribution
Teams Characteristics, and Knowledge Quality

Our Contribution:

- Learning period
- Teaming period
- Core members historic
- Core members « recrutement »
- Members activity
- First contribution
- 2 years after first contribution
- 2001
Wikipedia as an Online Community of Creation
Data collection and analysis

Quality level

Quality criteria

• well-written,
• comprehensive,
• well-researched,
• neutral,
• stable
• appropriate structure,
• consistent citations
• Media,
• Length
QUESTION 1

PEOPLE PREVIOUS EXPERIENCE

Input → output
Question 2: People previous experience

Results
QUESTION2

PEOPLE PREVIOUS COOPERATIVE EXPERIENCE

Input ➔ output
Question 2: People previous cooperative experience

Results

![Graphs showing partial dependence on SWQ and gini_degree_centrality DG](image)

- new_frac
- article_age
- SWQ
- gini_degree_centrality DG
- density_G
- mean_betweenness_centrality DG
- mean_degree_centrality DG
- max_betweenness_centrality DG
- gini_betweenness_centrality DG
- max_degree_centrality DG
Collaboration with Kevin Crowston during 6 months at iSchool, Syracuse University, NEW YORK, USA. Supported by IMTA and UBL
Question 3: Stigmergic coordination in Wikipedia
Coordination mechanisms

Coordination explicite
- Covers cases where individuals explicitly communicate about their actions or planned actions to identify and manage dependencies.

Coordination implicite
- Team members can predict and adjust behaviors without communication.
- Sharing well-developed mental models.

(-) Distributed work (lack face-to-face meetings at which to develop team cohesion) seems to make a particular challenge for coordination.

(-) Implicit coordination seems limited in explaining how coordination is reached in self-organized groups where there is no formal authority to impose a particular way of working.
Stigmergy was first described as a mechanism of coordination used by insects.
Stigmergic coordination in Wikipedia

Stigmergic Coordination: method
Stigmergic coordination in Wikipedia

Stigmergic Coordination: method

User A don't talk to User C
Stigmergic coordination in Wikipedia
Stigmergic Coordination: method

User A don't talk to User C
Stigmergic coordination in Wikipedia
Stigmergic Coordination: method

User A dont talk to User C
User D dont talk to User E
Stigmergic coordination in Wikipedia

Stigmergic Coordination: method

User A don't talk to User C
User D don't talk to User E
User C don't talk to User F
Stigmergic coordination in Wikipedia
Stigmergic Coordination: method

User A doesn't talk to User C
User D doesn't talk to User E
User C doesn't talk to User F
User D talks to User F
Stigmergic coordination in Wikipedia
Stigmergic Coordination: method

User A dont talk to User C
User D dont talk to User E
User C dont talk to User F
User D talk to User F
User E dont talk to User B
Stigmergic coordination in Wikipedia
Stigmergic Coordination: method

User A don't talk to User C
User D don't talk to User E
User C don't talk to User F
User D talk to User F
User E don't talk to User B
User D talk to User A
Stigmergic Coordination: method

User A talk to User D
User A dont talk to User C
User D talk to User F
User D talk to User A
User A dont talk to User G
User E dont talk to User B
User E dont talk to User F
User C dont talk to User F
User C dont talk to User B
User D dont talk to User E
Stigmergic coordination in Wikipedia
Stigmergic Network Construction

High quality

(a) Edit network Abraham Lincoln

(e) Stigmergic network Abraham Lincoln

(b) Edit network Business

(f) Stigmergic network Business

low quality
Stigmergic coordination in Wikipedia
Cooperation quality

Number of edit in article « Abraham Lincoln »

Cooperation quality in article « Abraham Lincoln »

Number of edit in article « Business »

Cooperation quality in article « Business »

IC: interesting cooperation
FV: Fixing vandalism
MF: Minor fixes
V: Vandalism
OC: Own contribution
Conclusion

Contributing experience  Cooperation experience

coordination

Knowledge Commons Quality


THANK YOU FOR YOUR ATTENTION