Catalyst

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The CATALYST project consortium is composed of:

SO	Sigma Orionis	France
I4P	Imagination for People	France
OU	The Open University	United Kingdom
UZH	University of Zurich	Switzerland
CSCP	Collaborating Centre on Sustainable Consumption and Production	Germany
Purpose	Purpose Europe	United Kingdom
Wikitalia	Wikitalia	Italy

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Executive summary

The present document is a deliverable of the CATALYST project, funded by the European Commission's Directorate-General for Communications Networks, Content & Technology (DG CONNECT), under its 7th EU Framework Programme for Research and Technological Development (FP7).

This document aims at providing details on the first cycle of tests focused on Assembl's video-based creativity widget. The test put the emphasis on the importance of the notion of *associated concepts:* these concepts are correlated keywords often associated with the anchor keywords appearing in the messages of a conversation on Assembl.

The power of the creativity widget is not only driven by the narrative potential of videos but also by the breadth of the associated keywords suggested by the system. It was also acknowledged by beta-testers that alternative non-video based inspiring sources could be used as creativity enhancers, such as Google Images, Google Scholar, Blog Search, etc.

Introduction

Based on the previous deliverable D2.4 (Collective intelligence software for social Innovation Networks: Testbed deployments), CATALYST launched a series of tests related to the development of a Video-Based Creativity Tool. Using a pre-existing work group, the tool was tested over the course of a few weeks to determine reliability, usability, and supporting functionalities. The tests involved real participants, as usefulness was one key concern.

Throughout the testing CATALYST partners, specifically I4P, looked to find bugs, determine whether the features were helping the participants come up with new ideas, and mitigate potential usability issues.

This report summarises the status of the work that has been done so far in WP 4 - **Evaluation of Collective Intelligence Software** - by providing an evaluation of the testbed for the video-based creativity tool. After each test phase, the evaluation carried out sought to identify:

- o   Lessons learned at a development level
- o   Key functionalities that were formally validated
- o   Key functionalities that were formally invalidated
- o   Key functionalities to be fine-tuned
- o   New testing avenues for further cycle(s)
- o   Key success factors
- o   Major implementation obstacles
- o   Usability issues
- o   Risk mitigation strategies

1. Short description of the video-based creativity tool

The video-based creativity widget is designed to foster creative ideation by presenting users with a list of videos. The videos are chosen based on keywords and related concepts that align with the ideas expressed in the current discussion of the group. The videos are presented in order to help participants find inspiration.

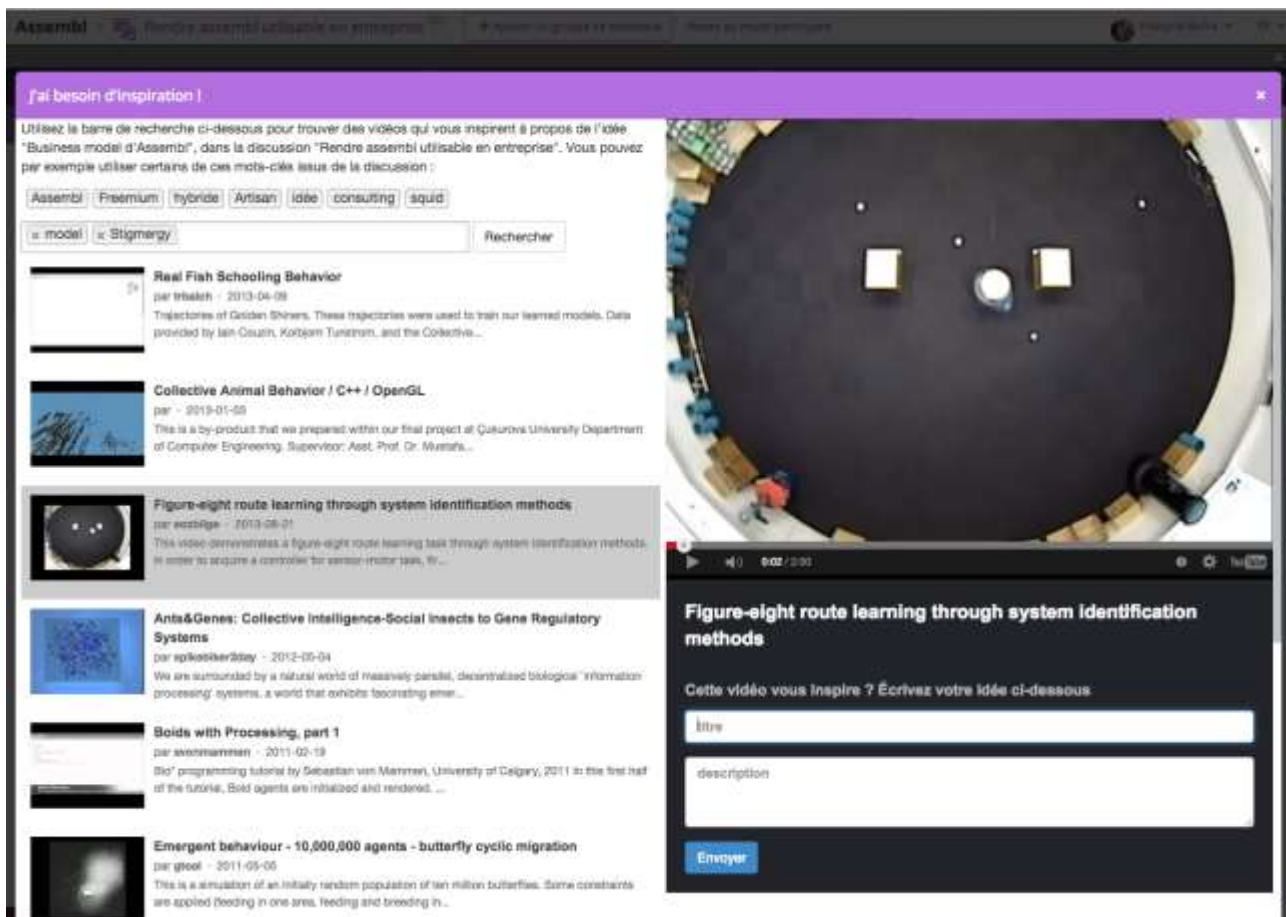This feature is built as part of task 3.7: Creative ideation.

Figure 1: Video-base creativity widget

The video-based creativity widget is structured around keywords that are identified in the title, definition, and content of related messages. An API with Wikipedia will be developed before the second round of testing. This is where the related concepts are identified: the widget will automatically source associated concepts for each idea based on the database of related content ("See also" section) from Wikipedia's references.

2. Detailed description of the testbed implementation

The Anim-Fr community – an online community composed of 360 community managers - had participated in a previous test of Assembl on the topic of "Handling tensions when working in a group", via a mailing list (see D4.1.0). Since that time, the debate has become inactive on this topic, as the group has moved on to new subjects. The Creativity features developed through CATALYST have been used to re-activate the debate around one of its sub-themes, or sub-ideas, "Anticipating Tension Points."

Participants were invited to use the Video module of the Creativity widget that is integrated into Assembl, by clicking on the "Inspire me!" button that appears when the user is browsing the discussion around the targeted idea.
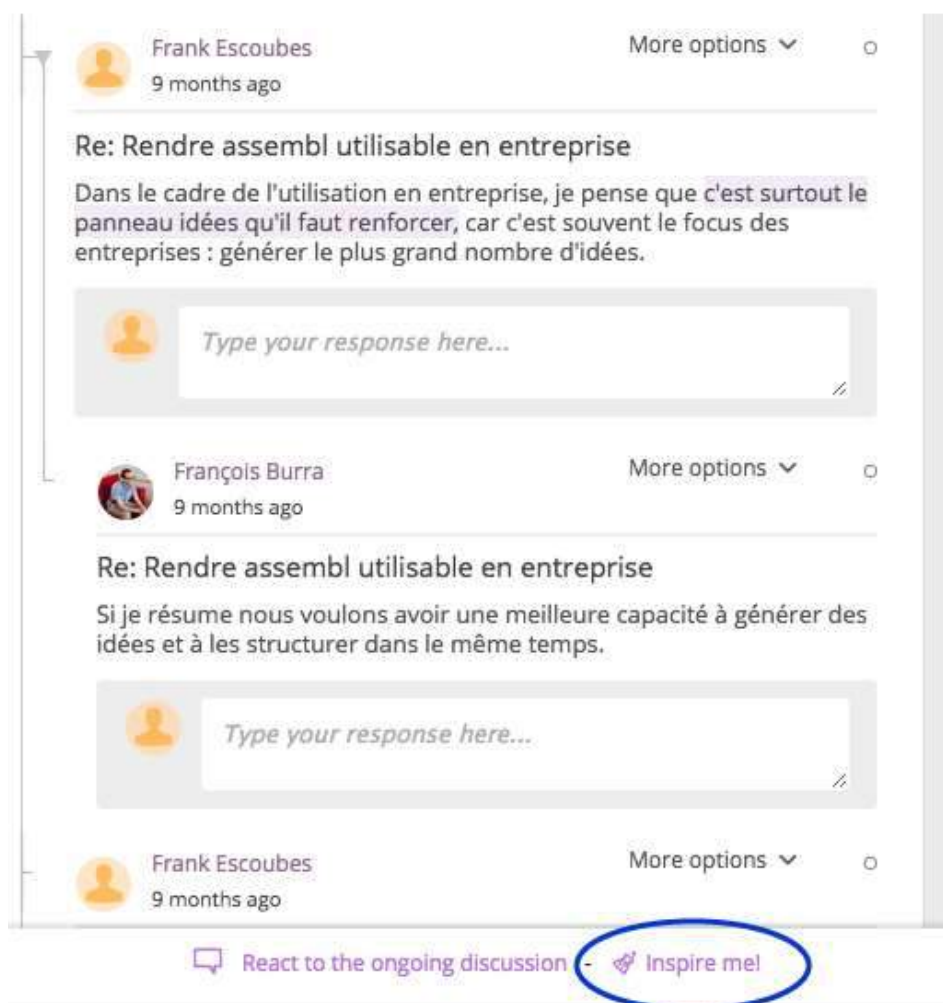

Figure 2: the "Inspire me" button

The creativity experience consists of presenting a list of videos to the user. These videos are the result of a search done through the YouTube API. The search query is composed of keywords that appear in the description of the idea within Assembl, or in the messages that are posted about the chosen idea. The user interface also shows a set of keywords that the user can select which have also been automatically extracted from these sources. The user can easily change the search query by clicking on these keywords, and by typing their own keywords into the search bar.

The user clicks on a search result to play the associated video. When a video inspires the user, she/he can use the text fields right below the video to type a message, which will be posted in the conversation of the source idea in Assembl (see figure 1). In Assembl's discussion, the posted message displays an icon that links to the inspiring video, and that informs the other participants that this message has been inspired by this video.

Members of the Anim-Fr community (and external participants who have joined thanks to the Facebook event that has been created) have been invited to test Assembl and its creativity features during a live video-conference that took place on November 13th, as well as asynchronously on their own. The tools remained open for use for several weeks following our announcement. The recording of the video-conference was also available immediately after it ended, through the same link as the original meeting point.

3. Testbed deployment schedule

The testing process unfolded as follows:

- Imagination for People sent an email to the Anim-Fr mailing list, inviting people to test Assembl and its creativity features. I4P integrated a link to the live video-conference which was planned on November 13th, a link to the Assembl debate as well as a survey to complete after the test, and an explanation of the features (so that participants could test on their own). In order to promote the testbed, Imagination for People also created the Facebook event.

- November 13th: the live video-conference gathered 11 people for approximately 2 hours.

- November 18th: Imagination for People sent another email on the mailing list, with a link to a partial transcript of the discussion that occurred during the live test. This has been considered as being helpful to testers who have not been able to assist the live test.

4. Description of the main takeaways

4.1 Statistics of the test

Below are the key statistics:

- Number of participants: 11
    - Number of participants who were already members of the Anim-Fr community: 8
    - Number of new participants: 3
- Number of different bugs discovered and problems discussed: 14
- Number of different bugs discovered: 5
- Number of different problems of use of the tool found: 9

4.2 Summary of bugs discovered

The tests revealed several bugs, and were instrumental in ensuring future developments are helpful to users. Several issues related to the ease of logging on were discovered and have since been rectified. The application was having difficulty posting certain messages. This bug has also since been rectified and further testing is being conducted to ensure usability is optimal.

4.3 Summary of problems of use of the tool found or discussed

For new users, it can take some time to understand the debate, learn how to navigate the application, and decide which sub-idea to participate in. All of this must be learned or decided upon before participants can begin contributing. This led I4P to improve the ease with which the creativity feature can be used.

The major pain point turned out to be the selection of keywords. Keywords automatically selected by the system were not diversified enough. The semantic scope had to be enlarged in order to suggest a richer selection of keywords. This led I4P to look at various open source keyword search engines: Google Adwords, open dictionaries of co-occurrences and the Wikipedia Associated Concepts API were the 3 algorithms tested.

Google Adwords is an online advertising service that places advertising copy at the top, bottom, or beside, the list of search results Google displays for a particular search query. The selection of associated keywords appeared to be poorly relevant since they suggested commercial keywords associations (associations of a given keyword with commercial brands, or locations, etc.).

Open dictionaries of co-occurrences is a linguistics term that can either mean concurrence / coincidence or, in a more specific sense, the frequent occurrence of two terms along side one another in a body of text in a certain order. Co-occurrence in this linguistic sense can be interpreted as an indicator of semantic proximity or an idiomatic expression. In the targeted use case (the creativity widget), co-occurrences were predominantly adjectives often associated with the anchor noun. Those adjectives did not allow relevant search strategies on YouTube since they were not discriminatory enough to help trace specific videos.

Only the Wikipedia API revealed its robustness to find highly discriminatory related keywords. The API is a web-based service that provides access to data from Wikipedia via HTTP. The list of related entries for a specific definition on Wikipedia turned out to be the most efficient proxy for stimulating lateral thinking.

Lastly, beta-testers suggested the integration of alternative transmedia content as creativity triggers in the widget: videos should be complemented with images (Google Images) or specific text-based inputs from sources such as Google Scholar or Blog Search.

4.4   Description of the results to date according to the aims of the tool

Three main takeaways that will improve the usability and the utility of the tool can be highlighted from this test:

- **Evolution 1**: Refining the search engine by incorporating and analysing keywords from the messages related to the targeted idea on Assembl (hence expanding the semantic scope in keywords identification within the online debate)

- **Evolution 2:** Integrating a tool to find associated concepts to keywords through Wikipedia's API.

- **Evolution 3**: Linking associated concepts to other inspiring sources such as Google Images, Google Scholar, Blog Search, etc.

Below is an example of the associated concepts related to collective intelligence on Wikipedia:

See also [edit]

- Bees algorithm
- Cellular automaton
- Civic intelligence
- Collaborative filtering
- Collaborative human interpreter
- Collaborative innovation network
- Collaborative intelligence
- Collaborative software
- Collective action
- Collective consciousness
- Collective decision-making
- Collective effervescence
- Collective memory
- Connectivity (graph theory)
- Crowd psychology
- Crowdsourcing
- Customer engagement
- Cybernetics
- Dispersed knowledge
- Distributed cognition
- Enterprise bookmarking
- Global brain
- Global Consciousness Project
- Group behaviour
- Group mind (science fiction)

- Facilitator
- Human-based computation
- Hundredth monkey effect
- Information Routing Group
- Keeping up with the Joneses
- Knowledge ecosystem
- Library
- Library of Alexandria
- Meme
- MIT Center for Collective Intelligence
- Noosphere
- Open-space meeting
- Open source intelligence
- Organismic computing
- Prediction Markets
- Preference elicitation
- Recommendation system
- Smart mob
- Social commerce
- Social information processing
- Stigmergy
- Superorganism
- Swarm Intelligence
- Think tank
- Wiki

Figure 3: List of associated concepts related to collective intelligence on Wikipedia

Hereafter is an example of the search for an associated concept to Collective Intelligence ("Stigmergy") through Google Images. These visual inspirations may be useful to participants looking for creative stimulation.

Figure 4: Google Images search for "Stigmergy"

Conclusions

In a first cycle of tests the video-based creativity widget was evaluated using an existing community. The participants in the community were called upon to use and evaluate the functionalities, usability, and usefulness of the widget. The participants were asked to do this evaluation as part of an existing discussion on a topic that was of importance to them in their community.

While this widget is still in an early phase, the tests were conducted within a real discussion and the results were instrumental in moving the development forward. Pain points were identified, bugs fixed, and usability issues updated. These improvements were essential to the further development of the widget and have led to some new ideas and proposed directions for the tool.

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