User Roles in Asynchronous Distributed Collaborative Idea Generation

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ABSTRACT
This paper presents the findings of an exploratory study within a real-life context that investigates participant behaviour and emergent user roles in asynchronous distributed collaborative idea generation by a defined community of users. In the study, a high-fidelity prototype of an online virtual ideas room was built and used by a Community of Interest consisting of representatives from 10 different voluntary organisations spread across Denmark. The study revealed five user roles, which the authors propose that future asynchronous distributed collaborative idea generation platforms should consider.

Author Keywords
Collaborative creativity, user behaviour, distributed collaborative idea generation, Community of Interest.

ACM Classification Keywords
H.5.3 [Information Interfaces and Presentation] Group and Organization Interfaces---asynchronous interaction, collaborative computing, web-based interaction.

General Terms
Experimentation, Human Factors

INTRODUCTION
Collaborative idea generation has been embraced by large companies such as British Telecom [1] as an effective way of generating new ideas, and a number of open innovation platforms are already available. This paper describes the behaviour of a community of individuals using an online platform to collaboratively develop new ideas for problem solution, and in particular, identifies different user roles that emerge within the community.

CASE STUDY
A high-fidelity prototype of our system, called The Ideas Room, was built using an installation of the core Wordpress combined with a number of plug-ins altered to meet our requirements and a new Wordpress template designed specifically for The Ideas Room (figure 1). The prototype was designed to allow distributed participants from a defined Community of Interest [2] to contribute, build on and discuss ideas to solve submitted problem statements. Following recommendations in the literature, our platform was designed to support facilitation [3], and follow rules outlined by Osborn (cited in [4]) as follows: criticism was ruled out; freewheeling was welcome; quantity was wanted; and combination and improvement were sought.

To maximize ecological validity, our study of The TRoom was conducted in a natural setting with members of a real Community of Interest with real motivation to solve common problems. A convenience sample of 11 representatives from 10 different Danish voluntary organisations participated in the study. They were distributed over 3 age groups: 26-39=3, 40-59=5 and 60-74=3.

To initiate the study, two problem statements were collected from each participant and posted in The Ideas Room. Participants were then invited to generate new ideas to solve these problems. The study ran for a period of 24 consecutive days. All participants were informed that they should decide when, how and the frequency at which they wished to participate in that time period. During the study, facilitation was limited to leaving encouraging responses to the contributions to solving the problems and incubation exercises. In order to encourage participation, weekly summary emails of the number of ideas generated were also sent to the participants.

RESULTS
A total of 165 ideas were generated during the study period. This equates to an average 15 ideas per participant (SD=18.5). 65 of the total 165 ideas were accredited as the source of new ideas, equating to 39% of all ideas providing inspiration for one or more new ideas.

A total of 307 comments were made in The Ideas Room during the study, of which 64 were encouraging comments from the facilitator. The remaining 243 comments equate to an average of 22.1 comments per participant (SD=22.5) and 1.5 comments per idea.

Figure 1. Screenshot of The Ideas Room (original in Danish): 1. Form for posting ideas; 2. List of ideas; 3. Number of ideas generated; 4. Number of ideas by participant; 5. Number of comments left to ideas; 6. Number of comments by participant; 7. Incubation exercises.

193 unique visits were paid to The Ideas Room during the evaluation, equating to an average of 17.5 unique visits per participant during the entire study period (SD=17.3) and ranging from 2 visits from two of the participants to 48 visits from another. The total time spent on The Ideas Room during the evaluation period was 55:03:52 hours, equating to an average 5:00:21 hours per participant (SD=4:18:22) and ranging from 0:45:51 hours by one participant to 13:05:44 by another.

USER ROLES

Four major activities were possible in The Ideas Room: log in to The Ideas Room; submit ideas in relation to problem statements; provide feedback to ideas in the form of comments or by marking ideas as new ideas; and download ideas. When analysing each participant's activity, different patterns of behaviour emerged, and 5 different user roles were identified to characterize these patterns. Table 1 below shows these user roles and their characteristics in terms of the activities they typically engaged in.

User Role	Login	Ideas	Feedback	Download
Contributor	✓	✓		
Encourager	✓		✓	
Social Loafer	✓			
Harvester	✓			✓
Absentee				

Table 1. User Role Characteristics

In summary, of the 13 people who consented to participate in The Ideas Room, we judged that 2 were mainly Encouragers, 4 were Contributors and Encouragers, 2 were Social Loafers, 1 was a Harvester, 2 were Absentees and 2 did not participate enough to be classified.

CONCLUSIONS AND FUTURE WORK

While the data from our case study is not sufficient to conclude the external validity of the distribution of participants across the above user roles, we propose that any platform supporting distributed collaborative idea generation within a defined community should consider these user roles in order to ensure as effective a collaboration as possible, and should help steer all participants towards the roles of Contributor and Encourager. Measures that may help ensure that all users participate, and hence avoid Absentees include: holding a synchronous launch event, and asking users to activate their accounts and enter their own problem statements. Measures for moving participants from Social Loafers to Contributors may include: asking participants to take turns in facilitating, and introduction of a visible reward system for different kinds of contribution. The effectiveness of measures such as these needs to be investigated in future work.

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