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# Studies on Awareness Systems for Supporting Cooperative Work with Intellectual Inspiration

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**Keywords:** awareness, computer supported cooperative work, intellectual inspiration, annotation, wearable device, socially-oriented communication.

This paper is collected up three researches about awareness systems for supporting cooperative work with intellectual inspiration. I proposed methods for supporting cooperative work, and had evaluation tests on each phase, with focussed on changes of the interdependence structure among tasks primarily in the individual work and group work on cooperative work of communities.

In the task of primarily in the individual work, I proposed SmartCourier : adaptive information sharing system using annotation activities by pen and paper like interface, in order to realize building appropriate cooperative relationship based on the knowledge and interest without inhibiting thoughts and activities of users. This system creates profiles from history of use of archives of reading and annotation on digitized document resources by users. Then by using the method of collaborative information filtering, it provides services of supporting cooperative work such as adaptive annotation sharing, recommending documents and matchmaking. From this system, it encourages awareness of the interesting information and the members available to potentially building the cooperative relationships. From the result of trial experiments on academic conferences and several labs, SmartCourier encouraged the interaction among the users crossed borders of existing explicit communities, and it showed that it was effective as a communityware with the intellectual inspiration.

Also I proposed the real-world oriented annotation system as a developing form of SmartCourier. I build an experimental wearable infrared ID tag system that is instantly acquirable records of how the users annotating on the objects of the real world. This system has functions of recognizing objects and measuring locations as the annotating function on the real world environment. It makes available the users to annotate to

objects in the real world by speaks and gaze on it. I had the characteristic evaluation test of the experimental product and showed a part of the result of opperating tests. The data analysis of the results and applied experiments of the function of the real world annotation are assignments in the future.

On tasks primarily in coorporative work, in order to support building the smooth and continuous conversational relationship of socially-oriented, I constructed the conversational situations of awareness environment on text-based conferencing environment. This study has the function of information visualization of conversational relationships and conversational activities among communities, and the function of the analysis of contents log of conversations. I used this system and had evaluating tests in the lab. As results, not only quantitative evaluation such as increment of the frequency of establishments and continuance of the conversational relationships, but also qualitative evaluation such as increment of the social communications by recognizing the conversational awareness were acquired.