

# Building Teams Over Distance: A Solution Through Digital Art Mediated Practices

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**Abstract**—Applying team building in distributed teams is challenging. To address this problem, I propose a research agenda to use digital art mediated practices to support team building for distributed teams. The research will lead to designs and tools to help distributed teams conduct art mediated activities over distance and thus help teams build trust and cohesion. The proposed research consists of three major components: (1) design concepts based on theoretical foundations, (2) experiment design, and (3) qualitative investigations.

## I. INTRODUCTION

Team building is one of the most frequently used organization development interventions [1]. It is a process that can help teams to build cohesion and trust by accomplishing group tasks [2]. During the interpersonal activities, members are supposed to develop trust in each other, build confidence in the team, and clarify their roles in the group.

However, as in distributed teams where members cannot even meet regularly in-person, team building is challenging [3]. For instance, simply gathering all co-workers for a group activity might cause lots of efforts thus it is impossible to conduct occasional team building sessions.

Team building comes in many forms, including outdoor experiential activities and indoor group discussions [4]. Art, among a variety of approaches, has been proved to effectively help with facets of organization/team practices, such as leadership, innovation, and interpersonal relationship [5].

In my work, I propose an approach to use *digital art mediated practices* through information technology to help building distributed teams. This approach covers two aspects: (1) the design of the embedded mechanism of a playful, lightweight and socially engaged art practice and (2) the design of an intuitive and engaging user interface.

Through my proposed approach, I am interested in exploring three research questions:

RQ1 – How to engage users into group activities over distance through an information technology application;

RQ2 – Whether such application is effective in terms of building trust and cohesion;

RQ3 – How do people’s behaviors change with the design intervention.

## II. RELATED WORK

In field of management, team building has been proved to effectively help teams evolve into a cohered unit [1, 2, 4]. Among different outcomes of team building interventions, research [4] demonstrated that process and affective outcomes were most improved by team-building interventions.

In fields of Human-Computer Interaction and Computer-Supported Cooperative Work, researchers have shown efforts to provide design and technical solutions for building distributed teams [6, 7, 8]. For example, research [6] shows that making small talk or other types of informal conversations would contribute to greater trust for distributed teams. Research [8] shows that asking people from distributed teams to play games over distance could effectively help them build team cohesion.

My work extends the ongoing research and will contribute by exploring how digital art mediated practices could amplify the affective outcomes by encouraging self-expression and sharing of affective information, and thus effectively support team building.

## III. PREVIOUS WORK

In my past work [9, 10], together with my colleagues, I have built a specific design framework of how to apply art-mediated self-expression to strengthen social ties among collaborative groups. We proposed five design principles: (1) enable implicit self-expressions through diverse interactions and gateways; (2) design for the catharsis process; (3) reveal group patterns through socially collective artifacts; (4) build empathy through reading and exploring the social artifacts; and (5) embody mechanism to make information anonymous in order to protect information privacy. This theoretical framework guided the design and evaluation of applications aimed at enhancing awareness and empathy among collaborative groups. For example, we successfully applied the framework in one of my past collaborative projects, Doodled “Us”, which has demonstrated positive results in engaging participants to express and share their moods in public settings through collaborative doodling (see Fig. 1).



Fig. 1. The design encourages participants to use colors to stand for their moods, and to view the real-time collaborative drawings with other participants.

#### IV. FUTURE WORK

There are still challenges and opportunities for further exploration. For instance, it is still a challenge to continuously attract people to accomplish group tasks remotely. To answer my three research questions that reflect some of the current challenges open for exploration, I plan my future research as below: to answer RQ1 that how to engage users into group activities over distance through an information technology application, I will redesign two parts of the concept based on previous literature: the embedded mechanism and the actual user interface. To answer RQ2 that whether such application is effective in terms of building trust and cohesion, I will conduct experiments to compare teams with and without the design intervention. To answer RQ3 that how do people's behaviors change with the design intervention, I will conduct qualitative studies to investigate people's behavioral changes.

##### A. Iterations on Design Concept Based on Theoretical Foundations

Iterations will focus on designing a playful, lightweight, and socially engaged experience for co-workers in distributed teams. Feedback of Doodled "Us", and inputs from more literature review of team building activity design, distributed teams and participatory art will shed light on new design concepts. Iterations will be about two parts: the design of the mechanism, including the designed activities, rules, process and expected results; and the actual user interface, including the interaction, interface, and user experience. For example, I will look into what the main activity would be and how art plays a role in it; how to engage people under a distributed team setting; how they interact with the design; how to make sure the mechanism could support self-expression and sharing of affective information; what the design looks like, is it a portal system, a mobile application, or a plug-in of current communication tools.

##### B. Experiment

With an iterated design, I will conduct studies to verify whether the design will be effective and will positively enhance team cohesion and trust by amplifying affective outcomes. Studies will be about experiments on two sets of teams of similar team settings. One set of teams will work with the design intervention while the other set of teams working without the design intervention. Through the experiments, I will compare aspects of: 1) people's *affective status*, 2) *trust* among co-workers, and 3) *team cohesion* between the two sets of teams. I will also look at the correlation among the three factors: affective status, trust and cohesion.

##### C. Qualitative Investigation

Along with the experiments, I will conduct empirical inquiries in context with distributed teams. I will conduct qualitative analysis of how the design changes people's communication behaviors, working routines, their affective status, their feelings of teammates, their productivity, work outcomes, among other aspects.

Those experiment results and empirical insights will help iterations on the design further.

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