Special Interest Group on Creativity and Cultures in Computing

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ABSTRACT

Research on creativity support tools (CSTs) has a long history in Human-Computer Interaction (HCI); however, researchers often focus on developing novel CSTs and verifying them in a controlled lab setting, rather than on capturing the creative process in the wild. In reality, creative activity is exploratory, laborious, and involves multiple CSTs; which together form a creativity support environment or ecology. Creative activity is also social, cultural, and collaborative with people distributing, modifying, and reacting to the creations of others. This process can inspire subsequent iterations. To understand and support open-ended, culturally embedded, collaborative creativity, HCI researchers are seeking new methods to study the sociocultural aspects of creativity support. This Special Interest Group on Creativity and Cultures in Computing (SIGCCC) invites diverse researchers to provide a forum for CST discussions from a wide sociocultural lens. The participants will identify and discuss the state-of-the-art and conceptualize future directions for creativity support research.

CCS CONCEPTS

• **Human-centered computing → Human computer interaction (HCI)**;

KEYWORDS

creativity support, social science, psychology, interaction design

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1 INTRODUCTION

Research on creativity support tools (CSTs) or creativity support environments (CSEs) has long been conducted in the field of Human-Computer Interaction (HCI). These tools and environments have the capacity to improve the well-being and deep productivity of individuals. Furthermore, creative products, supported by such tools, can enrich society through discoveries, products, and experiences and this enrichment is measured beyond economic impact [15, 17, 26]. Within computer science, HCI researchers have leveraged the strengths of existing usability methodologies, as well as access to emerging technologies, to study human creativity in an *interventional manner* by developing new digital tools and testing them with users [4].

Despite the strengths of this constructive approach, there are concerns related to the the focus on novel technological contributions. HCI researchers have typically focused on building novel CSTs and evaluating them in controlled settings [5], which makes the findings less generalizable to creative practitioners. Furthermore, studies of CSTs have typically been conducted within a single cultural context, most notably with WEIRD (western, educated, industrialized, rich, and developed) biases [21]. While all research must be situated within some cultural context, the WEIRD context is typically not explicitly identified as a limitation. In reality, the creative process is exploratory and complex with CSTs co-evolving with the people using them. The creative process does not end at the time of creation but rather continues as it is shared with and modified by others and sparks reactions that lead to another iteration of creations. The individuals involved in such a process often have diverse technical backgrounds, and their longitudinal use of computational tools is not only impacted by the cultural context but also potentially alters the context itself.

We consider such a sociocultural perspective is becoming critical in HCI, while it has also attracted attention in psychological creativity research [6]. Technological advances potentially accelerate this development. For example, automatic generation with artificial intelligence (AI) might look creative but its source of creativity is the people who created the works the AI consumes. The users of AI technologies are therefore, implicitly connected to those unknown creators. Additionally, the COVID-19 pandemic has forced many

to shift their creative activities into online contexts such as virtual reality environments, furthering the sociotechnical integration of creative work and creative experience.

This Special Interest Group (SIG) will leverage the current trend in AI-enabled creativity and virtual environments and attract researchers interested in understanding and supporting people's creativity *in the wild*, even if that wilderness is virtual. This SIG aims to expand the scope of conventional CST research and capture wider social activities around the tools, not limited to the creative tool use in a narrow sense but also including the social and cultural process of distributing, modifying, and reacting to the creations. Here, we define creativity support environments (CSEs) as sociotechnical systems that cover these social activities – the goal of this SIG can therefore be described as creating a forum for Creativity Support Environment researchers.

The authors have conducted relevant research threads from their distinct expertise (engineering interactive systems, computational social science, psychology, knowledge science, and creativity research in general), as introduced in the next section. This SIG will be the first opportunity for them to gather, where they will provide foundations for the SIG discussions and collaborations between multiple research disciplines, and lead to envisioning future work in Creativity Support Environment research.

2 BACKGROUND

2.1 Creativity Support Environments

Prior work on creativity support in HCI has mainly focused on designing and evaluating a tool with technical novelty for a single creative purpose to be used by a person or by a homogeneous community of people. In contrast, some researchers, including the authors, have highlighted such limitations (e.g., [4, 5]), looked into the following sociocultural aspects, and studied creativity support environments in the wild.

First, creativity support tools co-evolve with the users. Fischer proposed a meta-design framework to build such a sociotechnical system that adapts to the user needs [3]. Klokmose envisioned shareable dynamic media and provided an example implementation of Webstrates [16]. Kato took a relatively domain-specific approach and proposed an integrated design environment for authoring music videos. Within the environment, programmers implement algorithms, and video authors combine and customize them [13]. He later examined the same model of programmer-designer collaborations for building physical computing devices [11]. Jacobs studied how visual artists can leverage the benefits of programming [9], and a follow-up work investigated a nuanced relationship between the artists, existing CSTs, and novel tools developed by or extended by them [20].

Second, creative activities are often open-ended and evaluated over time. Nakakoji studied longitudinal evolution patterns of Open-Source Software systems and classified them into three types [24]. Latulipe studied the integration of interactive technology with temporal art for two years [18] and reported insights from a holistic viewpoint, such as comparing audience and creator experiences. Their later work includes the proposal of the Creativity Support Index for quantifying the creativity support of CSTs [2], which can be used in longitudinal studies to evaluate how users get accustomed to the tools. Following up his work on programming environments for personal fabrication [11], Kato pointed out that building and deploying programming environments in the wild inevitably involves designing how a community of people communicate and collaborate within the environment, which is no longer purely technical effort and involves social effort [14].

Third, a creative process is always under a particular cultural context, and the introduction of computational tools could alter the culture in the longer term. Lu studied creative activities in non-WEIRD cultures spanning from the Japan-based community engaging with virtual YouTubers [22] to the Chinese ethnic minorities seeking cultural sustainability by video blogging [1]. Kato has studied Japanese animation (anime), comparing its storyboarding techniques against those in western studios [12]. Cultures are often considered to be bound to geographic locations, but there is a different cultural dimension on the Internet and virtual reality (VR). It is the age of convergence culture [10] where creations are distributed across multiple media platforms, sparking consumer reactions and impacting the next iteration of creations, melting the boundaries between creators and consumers. The COVID-19 pandemic has forced many people to shift their creative activities into online contexts, including Latulipe's recent report on her experience building an interactive online art gallery and hosting an art opening in the online gallery with practitioners [19].

2.2 Past Events on Creativity Support Tools

Looking back in the past of creativity support research in HCI, there have been several relevant academic gatherings. Frich et al. [5] surveyed creativity research in the Association for Computing Machinery community in the past twenty years and found that HCI is almost exclusively responsible for creativity-oriented publications. Nakakoji organized a workshop on tools, conceptual frameworks, and empirical studies for early stages of design at CHI 2001 [23] and the extended community later held a NSF workshop on Creativity Support Tools in 2005, whose chair Shneiderman summarized the outcome in the impactful articles [25, 26]. As pointed out in Frich's work, while considerable time has passed since the NSF workshop, creativity support research has been independently conducted within the computational disciplines, lacking fundamental collaborations with neighboring disciplines.

Following the seminal work proposing the Creativity Support Index (CSI), Latulipe and fellow researchers organized a workshop on evaluation methods for creativity support environments at CHI 2013 [15]. Notably, the workshop coined the term "Creativity Support Environment (CSE)." While conventional CSTs were primarily software-based tools, CSEs could consist of multiple CSTs and also represent physical or networked environments. In this SIG proposal, we redefine the term so that CSEs not only support the creation of artifacts, but also other surrounding activities such as distributing, editing, and reacting to the creations to capture the creative activities through a temporal and sociocultural lens.

3 LOGISTICS

3.1 Pre-SIG Activities

We plan to hold a kick-off online meeting with the authors and open a website to advertise the Special Interest Group. We also plan to

use an online platform, such as a Facebook group, Slack workspace, or Discord server, as an online forum for pre-SIG discussions. The online platform serves as the foundation of our archival communication. Its goal before the SIG meeting will be to collect examples of prior relevant work and to propose and drill down into potential topics for discussion, although we already have some topics in mind as described in the next subsection. We plan to maintain use of this platform during and after the SIG.

3.2 SIG Meeting at CHI 2023

This SIG will be a hybrid synchronous meeting to attract onsite and remote attendees. The authors previously organized online and hybrid academic events: Latulipe on the online C&C '21 Art Exhibit track and Kato on the online CHI '21 Student Research Competition, hybrid SIGGRAPH Asia '21 Real-Time Live session, and hybrid LIVE workshop co-located with SPLASH '22. We might consider alternative settings for the sake of creativity support for researchers.

At the meeting, we plan to provide an introduction, then split attendees into smaller groups of 3 to 5 people based on their interests. After time for discussions within the groups, we will ask each group to share their insights with all attendees. Finally, we will conclude by reflecting on the insights gained in this workshop in light of our expertise and conclude with future remarks. During the introduction, we will conduct a short collaborative warmup to create an open and playful atmosphere, which will also serve as an ice-breaking activity. The list of potential discussion topics for smaller, focused groups are:

- From Big-C to mini-c: everyday creativity for well-being
- End-user development, malleable software, and socio-technical programming environments
- Fan community as part of creative process
- Culture biases and WEIRDness of creativity support research
- Online worlds and social creativity
- Human-AI co-creativity and agency

4 EXPECTED OUTCOME

Throughout the SIG, we will build a holistic view of current Creativity Support Environment research that focuses on the sociocultural aspect of creativity. It will require more than a one-time meeting and therefore, we will extent invitations to participants of the SIG to organize or part-take in follow-up events in SIGCHI venues in 2024.

This community effort will potentially result in a longitudinal outcome: creativity research has been interdisciplinary from the beginning, but collaborations between different disciplines have been lacking for a long time, as argued in multiple fields, including HCI [5] and psychology [7]. The community effort can contribute to addressing this particular issue – HCI researchers can leverage their strength and build CSEs (either make one from scratch or piggyback an existing system to serve as one [8]). These CSEs could serve as concrete research platforms for researchers from multiple backgrounds, including HCI, psychology, cognitive science, social science, cultural anthropology, and beyond.

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