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# Creativity Decomposed: Situating Microtasks Within Skilled and Motivated Communities

**Victor Girotto**

Arizona State University  
Tempe, AZ 85281, USA  
victor.girotto@asu.edu

## Proposed Discussion

Microtask research has been successfully generating quality results that approximate those of experts (e.g. [4]). Most times, tasks performed by crowds are mostly algorithmic in nature, that is, workers only have to apply procedures to generate the desired outcome (e.g. audio transcription). Nonetheless, some research has been trying to elicit creative results from the crowd (e.g. [5]), that is, results that are novel and useful [3]. This shows great potential, as crowds can theoretically enhance the synergy between ideas. Synergy is considered fundamental to brainstorming tasks, and is deemed to increase as the group size grows [2].

While there are many theories that try explain creativity, Amabile's Componential Theory of Creativity can be very informative in this domain. It posits that creativity depends on four main components: creativity-relevant processes, domain knowledge, task motivation, and the social environment [1]. This model provides some indication that Mechanical Turk may not be the best environment for fostering creativity, as it relies on financial incentives for a crowd that will likely not be skilled and intrinsically motivated in a domain.

Many online communities, such as those behind many open source software projects, gather a great number

of such skilled and motivated individuals, whose most valuable (and perhaps most lacking) resource is time—something that microtask workflows make good use of.

Therefore, I propose that such communities can benefit from a microtask environment as a channel for creative and collaborative problem-solving at a large scale. Researchers can also benefit from this adaptation, as this skilled and motivated crowd may allow microtask research to explore more complex domains and tasks. This integration involves careful consideration: knowing that workers are knowledgeable and motivated, how should tasks be structured? Could the extremely structured nature of microtasks negatively affect their motivation? How can microtasks be integrated into existing communities' workflows? These and many other questions would benefit from a rich discussion by the community during the workshop.

### Research Overview

My research focuses on two aspects of microtasks: 1) improving the creativity of the output generated by workers, especially its synergy; and 2) bringing microtask affordances outside of markets such as Mechanical Turk to benefit from motivated and skilled contributors.

To achieve this, I am designing a platform that will mediate the creative process of the crowd. Users, who should be knowledgeable on the domain, will contribute through tasks such as suggesting, evaluating, or merging ideas. On the background, the system will build models for the ideas and assign tasks based on those models, attempting to maximize creativity while avoiding pitfalls such as groupthink.

### Biography

I am currently pursuing my PhD in Computer Science at Arizona State University through the Brazilian Scientific Mobility Program under Dr. Erin Walker and Dr. Winslow Burleson. My research interests include creativity, innovation, crowdsourcing, online learning communities, and Self-directed learning. I have earned my BS in Computer Science from the Catholic University of Brasilia, Brazil, in 2012. At ASU, I am part of the 2 Sigma Learning Lab, where I have developed research involving teachable agents, tangible learning environments, and online learning communities.

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