Researchers look to boost crowdsourced brainstorming

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The Information Age has drastically changed the landscape of one of humanity's most creative processes, idea generation or ideation. The emergence of crowdsourcing platforms, such as Amazon's Mechanical Turk, has enabled a greater, more diverse audience to contribute to the creative process from the comfort of their own homes.

"However, the very nature of crowdsourcing means that ideators can be overwhelmed by the number of ideas generated, rather than inspired by them," says Victor Girotto, a PhD candidate at the School of Computing, Informatics and Decision Systems Engineering at Arizona State University. "There are several issues that need to be considered in systems that operate at this scale, such as the organization of the ideas, as well as the subsequent convergence on the best ones," adds Erin Walker, an assistant professor at the School of Computing, Informatics and Decision Systems Engineering at Arizona State University.

In an effort to enhance idea generation within the crowd context, Girotto and Walker partnered with Winslow Burleson, an associate professor at NYU's Rory Meyers College of Nursing. Together, the trio sought to determine what effect peripheral tasks—such as rating and combining others' ideas had on ideation performance.

"Embedding peripheral micro-tasks within the ideation process may enable such systems to move from passive to active forms of inspiration and support, resulting in a stronger ideation session," said Burleson.

Through a series of four experiments on Mechanical Turk, the group tested their hypothesis, utilizing an online module of their own design. Each experiment had a control, an exposure group, and multiple task groups. In every study, where each group was given the same problem for which they were to contribute ideas. The control group only received the problem prompt. Members of the exposure group were given access to an inspiration panel, where they could prompt the system to display others' ideas. Task groups were given access to the inspiration panel, however, subjects were required perform microtasks on the inspirations: rating, comparing, or combining others' ideas.

"To determine what, if any, impact these microtasks had on ideation we measured the number of ideas generated by each user as well as the breadth and depth of their ideas," said Girotto. Breadth is a measure of the number of concepts an ideator explored, whereas depth is the number of ideas within an ideator's most explored concept. Furthermore, the researchers measured the number of inspirations each user requested, as well as inspiration influence—a user's average similarity between an idea and the most similar of its preceding inspirations.

"Through our trials we found the performance of the microtask groups to be as good or better than the exposure groups in terms of the breadth of the ideas they generated," said Burleson. However, the team found these effects to depend on two factors: time of ideation and productivity of the ideator. For time of ideation, they found greater effects on the second half of the ideation session, when ideators are more likely to be running out of ideas, and thus may receive greater benefits from inspirations. As for their productivity, it makes sense that those who generated more ideas would also be more affected by the different inspiration types, as they may be more willing and capable to use them effectively.

"Our research provides some support and guidance in explicitly

embedding microtasks into ideation, which will not only be aiding ideators in their idea generation, but will also be generating information useful for converging on the best ideas." said Girotto. The full findings of this research are detailed in "The Effect of Peripheral Micro-tasks on Crowd Ideation."

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