Where'd you get that great idea? Team seeks the source of creativity: Near or far?

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It's commonly believed that creativity is a process that involves connecting ideas and building on the past to create something new. But is it better to "think outside the box," using unrelated concepts to get the creative juices flowing, or to build on something more closely related to the problem one is trying to solve?

In a paper newly published in *Design Studies*, recent University of Pittsburgh graduate Joel Chan and his mentor Christian Schunn of Pitt's Learning Research and Development Center, along with Carnegie Mellon University's Steven Dow, have collected surprising evidence that nearer is better.

"For people needing fresh inspiration for a problem, these findings imply that you shouldn't just go off and talk to random people or read things totally unrelated to your problem," says Chan, the lead author, who earned his PhD from Pitt this summer and is now a postdoctoral fellow in Carnegie Mellon's Human-Computer Interaction Institute. "These might yield novel ideas, but not necessarily ... useful and novel ideas."

Chan and Schunn, professor of psychology and senior scientist at Pitt's Learning Research and Development Center, collected data through OpenIDEO, a web-based crowdsourced innovation platform intended to help people address a wide range of social and environmental problems like human rights violations and job growth for youth.

The team began collecting data from OpenIDEO's "inspiration phase," during which individuals posted descriptions of solutions to problems similar to those posited by new solution seekers. Subsequent to the "inspiration phase," contributors moved on to posting more concrete, increasingly detailed solutions to the specific problem at hand. Then, OpenIDEO experts created a shortlist of what they saw to be viable creative solutions to the problem. The process took up to 10 weeks. Other similar studies, Chan says, have looked at the creative process over a much shorter period of time. Also, he adds, "in our study we had more than 350 participants and thousands of ideas. Creativity studies typically have many participants solve 'toy' problems or observe few participants solving real problems—in our study we had both, lending greater strength to our conclusions."

The team collected its data at the conclusion of the OpenIDEO process. They then entered it into an algorithm to determine whether an idea was near to or far from the posted problem. This algorithm was first vetted against human judgments and proved to be quite good at determining idea distance. Then, the outcomes of the model proved adept at predicting the OpenIDEO experts' shortlist and found that the vast majority of ideas that made the list were closely related to the posted problem, Schunn says.

"Instead of seeing a bigger effect of far inspirations," Chan says, "I saw that ideas built on source ideas more closely related to the problem tended to be selected more often. And I saw the same pattern across 12 very different problems—ranging from preventing human rights violations to fostering greater connectedness in urban communities to improving employment prospects for young people."

Schunn adds that "we chose to look at a variety of problems to find out if there is a consistent pattern, and there is. And we can use this algorithm as a tool for a variety of problems, to identify the ideas that

are 'close' and direct people to look at them."

In short, Chan says, "My overall theory is that creative ideas more often come from accumulating many small insights, stretching the boundaries just a bit at a time."

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