Igniting those flashes of insight

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It is important to teach children to think creatively writes John Munro.

The grade 2-3 composite had a lesson on how fish breathe. At the end they were given the task: "The local council wants to make the local creek more liveable for fish. The fish find it hard to breathe. What would you suggest they do?"

After five minutes of small-group activities involving discussion, drawing and acting out, solutions that were more unusual for the group began to flow: breed fish that can breathe better/that have more gills/that have bigger gills; grow more trees over the creek to keep it cooler as well as to make more oxygen for the water; pump air into the creek, use pumps joined to exercise bikes; grow more water gardens on the bottom of the creek, put in faster growing plants; put slow release "air pills"/"bags of air" in the water. While developing these possibilities they were asking questions such as: "if the water is moving, does it pick up air better?" "What could we put in the water to get rid of the rubbish that stops the fish breathing now?"

In the knowledge age, many teachers, parents and schools recognise the need for learning to think creatively and innovatively.

However, it is often believed that creativity "just happens", you can't teach it, you just wait for the "flash of insight", the "wow".

Research shows that creativity is not accidental. It is much more likely when particular conditions are in place.

When teachers and students set up these conditions, they increase the chance of creative outcomes.

Professor Klaus Urban from the University of Hanover identifies six conditions for creative and innovative thinking. Students need: high-level knowledge of the topic about which they will be creative; relevant creative-thinking strategies; to know how to manage and direct their thinking; motivation to be creative and to seek novelty; a positive attitude to creativity; and persistence with a task and focus.

Professor Arthur Cropley has researched a sequence of steps in thinking for leading students to achieve creative outcomes: identifying the problem or issue; organising and assembling relevant knowledge; thinking divergently about it; attaining a novel interpretation; testing and evaluating it; displaying the outcome; and evaluating its relevance and the value. At the Centre for Exceptional Learning and Gifted Education, we are investigating how to teach creative thinking in projects and research activities such as the extended essay in the International Baccalaureate Diploma. We have identified teaching conditions necessary for "possibilistic thinking" and the "flash of insight".

Our research shows how students differ in their preparedness to engage in creative thinking. Some believe that they can be successful in thinking creatively while others doubt themselves. These beliefs determine the creativethinking actions they use spontaneously. Teaching creativethinking strategies to the self-doubters achieves little. They need to learn more positive self-belief as well.

We are also researching how teaching imagery strategies to primary and secondary students can assist them to link ideas in novel, unexpected, creative ways. Giving them time to think intuitively about ideas, to "move" and "recombine" them and to engage in "possibilistic thinking" are important for innovative outcomes.

Some contemporary teaching practices restrict students' creative thinking. Teachers frequently bemoan the fact that, when introducing a topic, their class of 25 students has a range of knowledge and learning styles. They would prefer that all of their students were starting with the same knowledge and learnt in the same way.

Imagine the possibilities in beginning with 25 perspectives on the same issue rather than just one.

Imagine the possible directions in which the 25 active minds could move if aware of even 13 of these alternative "takes".

A brief think-pair-share activity could deliver the knowledge of the 25 individuals to the group. Now each student has 24 additional perspectives on the topic. What a rich basis for creative thinking.

Teaching "higher-order thinking skills" particularly during "thinking lessons" does not necessarily help.

Many students do not transfer or use them to build new knowledge. The self doubters are less likely to use them.

Students learn more about how to be creative and innovative when they have the opportunity to learn how it is done and to see that they can do it successfully. They can do this for the topics they are learning in open-ended creative problem solving followed by critical evaluation of the new ideas, if appropriate. They need to learn how to ask questions as steps to further thinking, to persevere with the pursuit of an idea and to switch between imagery and other ways of thinking.

They also need the opportunity to reflect both on the conditions more likely to lead to creative outcomes and the thinking actions that they used. There is often little time in the school day for students to engage in uninterrupted, sustained silent reflection and review. It is, however, necessary if students are to broaden their capacity to think creatively.

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