**Viewpoint:**

**How creativity is helped by failure**

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**When it comes to creating a great work of art, practice makes perfect, writes Matthew Syed.**

A design college in the United States has just started a new exhibition about creativity, which will run till January. It is called "Permission to Fail". The curator asked a group of 50 prestigious designers and illustrators to send in their mess-ups, rough drafts and preliminary sketches so that they could be put on display.

Now, this may seem like an odd thing to do. Most exhibitions are all about the finished product, the pristine new car design, perhaps, or the flawless painting. But the college, called Mount Ida in Massachusetts, wanted its students to engage not with the finished article, but what happened beforehand. They wanted to reach into the true characteristics of how creativity happens.

**“Creativity is something we can all improve at... it is about daring to learn from our mistake”s James Dyson**

A quick story. In their book Art and Fear, David Bayles and Ted Orland tell of a ceramics teacher who announced on the opening day of class that he was dividing the students into two groups. Half were told that they would be graded on quantity. On the final day of term, the teacher said he'd come to class with some scales and weigh the pots they had made. They would get an "A" for 50lb of pots, a "B" for 40lb, and so on. The other half would be graded on quality. They just had to bring along their one, pristine, perfectly designed pot.

The results were emphatic - the works of highest quality, the most beautiful and creative designs, were all produced by the group graded for quantity. As Bayles and Orland put it: "It seems that while the 'quantity' group was busily churning out piles of work - and learning from their mistakes - the 'quality' group had sat theorising about perfection, and in the end had little more to show for their efforts than grandiose theories and a pile of dead clay."

This turns out to be a profound metaphor. The British inventor James Dyson didn't create the dual cyclone vacuum cleaner in a flash of inspiration. The product, now used by millions, didn't emerge fully formed in his mind. Instead, he did what the group graded for quantity did. He tried and failed, triggering new insights, before trying and failing again - and slowly the design improved.

In fact, Dyson worked his way through 5,126 failed prototypes before coming up with a design that ultimately transformed household cleaning. As he put it: "People think of creativity as a mystical process. This model conceives of innovation as something that happens to geniuses. But this could not be more wrong. Creativity is something we can all improve at, by realising that it has specific characteristics. Above all, it is about daring to learn from our mistakes".

on went back to the drawing board more than 5,000 times to create the d

Or take Pixar, an animation company that has become synonymous with creativity following its blockbuster successes with Toy Story, Finding Nemo and Monsters Inc. It might be supposed that these wonderful plots were put together by resident geniuses with sublime imaginations. But the reality is very different. The initial ideas for new storylines are just the starting point, like Dyson's initial prototype. It is what happens next that really matters.

The storyline is systematically pulled apart. As the animation gets into operation, each frame, each strand of the narrative, is subject to testing, debate and adaptation. All told, it takes around 12,000 storyboard drawings to make one 90-minute feature, and because of the iterative process, story teams often create more than 125,000 storyboards by the time the film is actually delivered.

it: "Early on, all of our movies suck. That's a blunt assessment, I know, but I… choose that phrasing because saying it in a softer way fails to convey how bad the first versions of our films really are. I'm not trying to be modest or self-effacing by saying this. Pixar films are not good at first, and our job is to make them go… from suck to non-suck. We are true believers in the iterative process - reworking, reworking and reworking again, until a flawed story finds its through line or a hollow character finds its soul."

The problem in the world today is that we only see the final product - the amazing movie, the super-efficient vacuum cleaner, the vogue theory. What we don't see is the deeper story of how these innovations emerge. The tales we tell about creativity overlook this, too. We think of Archimedes shouting "eureka" or Newton being hit on the head by the apple and instantaneously inventing the theory of gravity.

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But these stories are pure fiction. They get the direction of creativity the wrong way around. Insight is the endpoint of a long term, iterative process, rather than the starting point. As the neuroscientist David Eagleman puts it in The Secret Lives of the Brain: "When an idea is served up from behind the scenes, the neural circuitry has been working on the problems for hours or days or years, consolidating information and trying out new combinations. But you merely take credit without further wonderment at the vast, hidden political machinery behind the scenes."

**Creativity is a journey that involves taking wrong turns along the way.**

And this is precisely why the design college was so keen to exhibit the failures and wrong turns. This couldn't be of deeper significance, because unless we truly understand how creativity happens, it will remain elusive. Youngsters who are taught to think about failure in a more positive light not only become more creative, but more resilient, too. They regard their mess-ups not as reasons to give up, but as intriguing and educative. They engage with these failures, learn from them, and, by implication, develop new insights, and ever deeper curiosity.

"Dare to fail" is a powerful slogan. It doesn't mean we should aim at failure - rather it hints at the paradox that creativity is a journey that involves taking wrong turns along the way. Organisations like Google, Apple, Dyson and Pixar have developed cultures that, in their different ways, create the conditions for empowering failure. They have become living ecosystems of the imagination, fired by the courage to test ideas, to see their flaws, and to be triggered into new associations and insights.

As Andrew Stanton, director of Finding Nemo and WALL-E, put it: "My strategy has always been: be wrong as fast as we can... which basically means, we're gonna screw up, let's just admit that. Let's not be afraid of that. You can't get to adulthood before you go through puberty. I won't get it right the first time, but I will get it wrong really soon, really quickly."