

May 08

6. In areas of knowledge such as the arts and the sciences, do we learn more from work that follows or that breaks with accepted conventions?

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There is a common misconception about learning, which is that anything that breaks with the accepted conventions is what stimulates development. At a first glance, it seems logical. How can a scientist learn by trying to prove gravity over and over again? Or how can I learn to draw if the only things I ever draw are the daisies in my front lawn? The most innovative technology does not come from the junk heap of last year but from the new and materialized impossibilities of tomorrow. However, this idea that learning comes from things that break with the accepted conventions is merely an illusion. While Rembrandt has never failed to impress me, there was a time in my life where Monet and any of his work was enough to make me stop walking in the direction I was going and turn around. As a “young realist,” I hated Monet, but there was one thing I thought I couldn’t deny: Monet had broken with the accepted convention, which had been apparent to me due to the immense difference in style between Rembrandt and Monet. Rembrandt’s pieces were so real while Monet looked like he had rushed to finish his pieces in thirty minutes. His style appears to be an abandonment of realism but that is not the case. Rembrandt’s goal was to capture reality, Monet’s goal was to capture a real moment and everything about the one moment. The difference is not jarring but actually very subtle. Monet merely took the concepts of realism one step further and this little push of the convention is what forced the revolutionary impressionist movement that has inspired almost every following movement. Through art and even science, it is shown that people do not need to break away to learn, people need to build off the conventions.

And yet so many people see expressionists as artists who had broken away from impressionism. Stylistically, the two movements are so different that the connection between the two can be hard to see. But the key is not in the style but in the heart of the two revolutions.

Impressionism was revolutionary in its use of color and light. However, the goal of an impressionist is not to play with color or mess with lighting, but “to paint . . . what they [see]” (Denvir, 10). This goal is exemplified in Monet’s work. The messy lines and colors that had once repelled me are the proof of this. The exact appearance of his subjects was not Monet’s main concern. He wanted to capture the subject in the moment that he was painting. In Monet’s *London. The Houses of Parliament*, the Houses are not clearly visible and without the title, the subject would be a mystery. However, the gray blue color scheme captures the chills of the atmosphere and the fogginess through which he was observing the Parliament building. Impressionism is very soft and realistic in the way it captures moments in time.

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However, expressionism seems to be the very opposite. It does not seem to be bound by reality the way impressionism is and the painting style is often seen as very harsh. *The Cry*, by Edvard Munch, has a blood red sky, the man's body curves, his hands have no defined fingers, and to some, the landscape looks like something out of a kindergartener's finger painting. Other than perhaps the defined brush strokes, there is nothing remotely similar between Monet's realistic depiction of a moment at London's Houses of Parliament and Munch's depiction of a scene that may or may not have happened. As an avid realist who was just beginning to accept Monet, Edvard Munch was at first a little too much for me. First Monet had defied all realism and now Munch was defying even impressionism? However, like impressionism is not really and abandonment of realism, expressionism is not really abandonment of impressionism. At its heart expressionism is the "externaliz[ation] of [an expressionist's] most profound feeling . . . [done] principally by distorting . . . visible reality"(Muller, 117). While impressionism captures a moment, expressionism captures that same moment *with* the artist giving his own insights.

And abstract art is stylistically different to both impressionism and expressionism. There are apparently no rules to abstract art, which is principally a composition of colors. Piet Mondrian's most famous works are composed of rows of red, blue, black, yellow, and white rectangles. Abstract art can only be described as being "colors and forms"(Muller, 174). However, Kandinsky described his abstract compositions as "himself expressing . . . 'the secret soul'"(Muller, 176), expressing himself. Abstract is like expressionism with the absence of reality, it is purely the artist and his own emotions. Where expressionism added the artist's soul to impressionism, abstract took away the physical nature of expressionism. At its heart, the abstract movement is merely the product of artists tweaking the expressionist style.

In terms of breaking conventions, science actually works a lot like art: the most progressive ideas come from small changes and discoveries. This contradicts the imagination, where the scientists with the most forward ideas are the ones who do the most insane experiments, complete with teeming test tubes, smoke, and flashing lights. However, this is not the case.

In the development of the atomic model, there was only one truly revolutionary idea. Proposed by Democritus in Ancient Greece, he said that everything is made up of smaller "bodies" (Buescher). However, from this point forward, scientists built off of this original idea and it was this building that led to the world learning about atoms and atomic structure.

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Democritus' proposal caused John Dalton centuries later to revisit the idea of the atom and, after a series of experiments, develop the world's first atomic theory (Buescher). From there, further discoveries were made in order to learn more about the atom, like J. J. Thompson's cathode ray tube experiments which led him to develop the first atomic model, or the plum pudding model (Buescher). And then Rutherford conducted his gold foil experiment to validate J. J. Thompson's model, only to disprove it and develop the modern model of the atom: a small, dense, and positive core surrounded by empty space and negative particles (Buescher).

The road to Rutherford's model of the atom is very similar to the road artists have taken to get from realism to abstract art. Both scientists and artists travel down paths of constant developments. However, in science, there is a question that does not happen to arise when looking at art movements: is starting over a development or an abandonment of the convention? When I began looking at science, I was already immersed in art history, finding the connections between the major movements. Because of this position, I was already biased in looking at science and already looking to make the pieces fit. So when I looked at Rutherford's experiment that disproved J. J. Thompson's plum pudding model, my eyes were already looking at it as a gradual progression. Thompson proposed a model, Rutherford tested it, and disproved it. Disproving Thompson was what led to Rutherford's model. However, someone who wasn't looking for a connection might see Rutherford disproving Thompson as an inevitable breaking away from the convention, which caused Rutherford to completely start over, get rid of the convention that was Thompson, and create a different model that fit the results of his experiment. Yet even acknowledging my bias, Rutherford's "starting over" is still a gradual development because it wasn't that he threw the plum pudding model away. When Rutherford disproved the model, he incorporated his own findings into the plum pudding model. Both Thompson's and Rutherford's models have the same basic ideas: neutrality created by a balance between positive and negative charges. The only difference is the placement, since Rutherford had discovered atoms were mostly empty space. Rutherford added to Thompson's model to develop his own, more accurate model of the atom.

Realism, impressionism, expressionism, and abstract are four stylistically different movements, anyone can tell with just one glance at the pieces from each era. And because of their jarring stylistic differences, many people believe that art revolutions were new forms of art and knowledge, created through artists breaking with convention. Many people, art enthusiasts or

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not, look at each movement as separate entities. In fact, I thought that I myself had a clear cut, straight answer. Within seconds of reading the question, I thought I could say confidently, “We learn more from breaking from conventions, as demonstrated through art,” only because I was thinking of styles. However, the more I thought about it, the more I began to ask myself what makes a piece a specific style’s piece? And the more I asked, the more I realized that there is a realm beyond style, the heart of a movement. Style is what people see. However, while art movements appear to be revolutions, they are actually just artists pushing the conventions of art by adding or taking away from the accepted theory at the time. When looking at science, I had also thought I could say, “You only learn from breaking conventions.” However, even when looking at something as simple as the development of the modern atomic model, it is still scientists pushing boundaries rather than breaking them. These two opposite practices, art and science, both demonstrate that the world learns when people building and push the conventions.

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