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Creative Connectivity:
The Purpose of Thought

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WRIT 103

As legend has it, the ancient and great Archimedes was assigned to determine the purity of the crown of King Hiero of Syracuse in ancient Greece. One day, as Archimedes sat in a basin to have a bath, he noticed the water level rise and realized how he could determine the volume of the crown and thus its density and purity. Legend maintains that in pure intellectual excitement, wise Archimedes ran naked down the streets of Syracuse exclaiming “Eureka! Eureka! I’ve got it!”

Archimedes’ reaction surely is not typical of modern intellectuals, but everyone has felt the same giddiness over some sudden intellectual innovation. In his book The Grace of Great Things, Robert Grudin illuminates the chaotic nature of cognitive creation by the mind. He explains how creative people do not think of a novel idea. Rather, they suddenly possess a new idea through what is called a “Eureka Experience” in which a conclusion that does follow from logical steps occurs to a thinker in a very short period of time. Considering this view of the creative process, it seems that the human mind is indeed capable of this seemingly magical innovation. However, the miraculous appearance of an idea does not occur without prior consideration of some other idea. As Colin Martindale states in his essay, “Biological Bases of Creativity,” “creative productions always consist of novel combinations of preexisting mental elements” (137). But if inexplicable insights can just pop into our minds, could not just one of these insights be completely unrelated to something else?

Unfortunately, as wise Solomon proclaims in Ecclesiastes 1:9, “What has been is what will be, and what has been done is what will be done; there is nothing new under the sun.” In other words, every idea already exists and just has yet to be combined with something else. However, in addition to this, it is the nature and function of the imagination, with the connection between the conscious and subconscious, to recombine mental elements. Indeed, the sole ability and purpose of the human mind is finding the interconnectedness between all elements. To illustrate this, I will firstly examine the accepted psychology of the process of creativity and the mechanisms that facilitate it. Secondly, I will illustrate how creation is the consequence of the unified effort of the conscious and subconscious mind in the form of the imagination. Lastly, I will show how the nature of creativity and the imagination lead to one conclusion:
the mind’s desire and only capacity is to find interconnectivity.

According to Martindale, the creative process can be divided into four main stages: “preparation, incubation, illumination or inspiration, and verification or elaboration” (138). Preparation entails both thinking and learning about the “mental elements” that are pertinent to a problem (Martindale 138). In Archimedes’ case, he already understood that the ratio of mass to volume of any pure substance is constant. He thus understood that if King Hiero’s gold crown was not pure, this ratio would not be the same as pure gold. He in turn pondered how to determine the volume of the crown without damaging it. The second stage is incubation, where the issue at hand is set aside and the thinker rests both mentally and physically (Martindale 138). Archimedes, likely having become fed up with the king’s problem, stopped thinking about it and decided to relax and have a bath. The third stage is the stage of illumination or inspiration (Martindale 138). This is Archimedes’ Eureka moment: his epiphany where he suddenly completely understood how to find the volume of the crown. The final stage is elaboration, where the “new idea is subjected to logical scrutiny and put into its final form” (Martindale 138). After his epiphany, Archimedes constructed the logical basis as to why the volume of water displaced by the crown is its volume, thus justifying his conclusion.

These four stages outline what scholars maintain is the generally accepted process of creation of a new idea. It is important to note the impact that knowledge has on the creative process—specifically that knowledge restricts creation. Firstly, the profundity of the illumination stage’s result is dependent on how many logical steps are compressed into it: “Insights can compress thought processes that are stretched over extended periods of time to a few seconds or minutes” (Gruber 193). Suppose Archimedes did not understand the relationship between a substance’s mass and volume but had made the same realization. His realization would have been much more difficult because more steps would have been compressed into the insight; likewise his realization would have been much more profound. Thus knowledge of a subject makes the illumination step easier for the mind. In turn, that knowledge reduces the depth of an insight. Secondly, as Robert W. Weisberg writes in his essay “Creativity and Knowledge: A Challenge to Theories,” “knowledge is only in the very loosest sense related to true creativity, and may be detrimental to it (227). That is, as Weisberg quotes psychologist Edward DeBono, “‘[t]oo much experience within a field may restrict creativity because you know so well how things should be done that you are unable to escape to come up with new ideas’” (228). That is, as a creative mind rearranges preexisting ideas, the resulting idea is at least to the slightest degree determined by how the thinker expects them to be related. It is in this manner that a creator’s knowledge restricts creativity.

Conversely, divergent thinking—thinking that breaks away from previously established ideas—is naturally more conducive for more unique ideas (Gruber 105). The more unique an idea is the closer it gets to a truly creative idea, which would have no connection whatsoever to previously established ideas. It follows, then, that
minds that are more prone to divergent thinking versus reviewing the facts will be more likely to produce truly creative ideas. Primary process thought, which is “autistic, free-associative, analogical, and characterized by concrete images as opposed to abstract concepts,” is a form of divergent thinking that is believed to be more common in creative than non-creative people (Martindale 138). This is fitting because, according to Martindale, “primary process cognition is associative” and thus “it facilitates the discovery of new combinations of mental elements” (138). That is, primary process thought’s nature allows original connections between mental elements to form. Therefore, recalling the definition of creativity, primary process thought is most conducive to mental innovation.

Furthermore, it follows that more creative people have more access to primary process thought. Martindale outlines evidence to support this, stating that creative people “report more fantasy activity” and “remember their dreams better… than uncreative people” (Martindale 138). Considering the manifestation of fantasy and dreaming, both are clear products of the analogical, free-associative, image-bound nature of primary process thought. In view of all this, primary process thought is certainly necessary to create because it facilitates the recombination of mental elements. Obviously, knowledge of these mental elements is also necessary, but too much knowledge restricts their recombination.

In turn, the nature of primary process thought, and thus the nature of creativity, suggests that the actual act of creation, the illumination stage, is out of control of the thinker. Indeed, “[b]esides being nonintellectual, creation is reported as being automatic and effortless” (Martindale 137). That is, a thinker’s moment of insight involves no conscious thinking; rather the logical progression occurs nearly instantaneously outside the thinker’s consciousness. Archimedes did not logically deduce that the amount of water displaced by King Hiero’s crown was the same as its volume, it simply occurred to him. Likewise, Martindale goes on to conclude, “[f]or neither scientists nor artists do novel ideas seem to arise from intellectual deduction” (137). Instead, Grudin adds, “[g]ood scientists and artists are what you might call lucid daydreamers. They free imagination from its psychic bonds and follow it on errands of truth” (50). In essence, the recombination of ideas that allows for creativity occurs outside the realm of our consciousness in the little-understood subconscious. Subconscious, which is the source of our dreams and fantasies, is the term used to encompass all of the mental processes of which we are unaware. Thus, as we apparently very rarely have contact with our subconscious (except before and after sleep and in dreams), the production of a creative idea occurs independently of the conscious mind.

This may lead us to question the mental power of creative minds. Did the creative geniuses that shaped modernity simply have better contact with their subconscious minds? For example, Martindale writes that for Mozart, arguably the most innovative mind in music, composition was simple “because he just copied down the melodies he ‘heard’ in his mind” (137). Kekulé, who discovered the benzene ring “by having a reverie about a snake biting its own,” was either brilliant or the image was handed to him by an especially active subconscious (Martindale 137).
Our perception is that the mind, even the mind of great creators, exists in two separate pieces, the conscious and the subconscious, and that these only mix when we dream. The assumption behind this perception is that the physiological processes in the brain, as an organ, separate the conscious from the subconscious. However, as Grudin surmises, “[t]he generation of ideas involves factors… that include the physiology, the emotions, and the outer world” (5). That is, our perceptions of our environment, including emotional reactions and nerve signals from the body, determine what our mind thinks and thus what it may create. Essentially, the physical brain is not our mind.

Gruber explains that “an organ exists within an organism;” however “the special functions of that organ do not really take place within the organ” (60). In this manner, our brain exists within our bodies, but the capacities of our mind do not take place in the brain.

Grudin accordingly concludes that “[t]he mind is not an instrument distinct from the ‘body’ it inhabits” (5). Therefore, because both the conscious mind and the subconscious mind are dependent upon emotional and physical perception, the two are inescapably linked. Thus, although Mozart’s and Kekulé’s illuminations were sudden insights, they were not products of the subconscious alone.

As scholars conclude, the conscious and subconscious are not separated because they feed off the same stimuli. In addition to this inference, however, is the conclusion that creation results from the unified effort of both the conscious and subconscious. For example, consider how a unique idea can be born from sensual input and emotions. No person has ever seen a large scaly creature with wings, a tail, and four legs that can breathe fire, and yet it exists in our minds. We have seen creatures such as lizards and bats, both of which inspire fear in our imaginations. The image of a dragon is created by mentally combining these two creatures; a process orchestrated by the subconscious. Because of our innate fear of reptiles and bats, our mind grants the dragon terrifying features such as breathing fire and great size. The mind has just created an idea that cannot be perceived with the senses—a dragon—by combining two physically seen mental elements (lizards and bats) and the emotion associated with those animals (fear). This process, in which the conscious and subconscious work together to reconfigure experiences and emotions, is commonly known as fantasizing or daydreaming. Therefore, recalling that fantasy and daydreaming are forms of primary process thought, which promotes creation, when the conscious mind reverts to primary process thought it is in contact with the subconscious and creation can occur.

That is, when a person dreams or fantasizes, primary process thought enables the subconscious to present recombinations of mental elements to the conscious mind. In response, the conscious mind grapples with these new ideas and their connections with physical and emotional stimuli. Every person is very familiar with this process; it is the action of the imagination. Grundin defines imagination as “the mind’s capacity for conceiving of things that are not readily available through the senses” (47). In other words, when we imagine, we create. His definition is accurate, but it is incomplete. Comprehensive, the imagination is the utility for creation via the union of the conscious and
subconscious minds. Thus, when we allow our minds to wander and our imagination can take control, creation will occur.

Considering that our species is capable of creations ranging from Mozart’s Requiem to the atomic bomb, the imagination is clearly an incredibly powerful mechanism. Its analogical power, however, is limited by the fact that, perhaps obviously, we will not ponder anything unless motivation for thought exists. Motivation could be Archimedes’ problem, Mozart’s melodic musings, or Einstein’s curiosity. Similarly, our minds are unable to connect two different mental elements unless they are readily present in our imagination because of physical or emotional experience. This necessitates the preparation stage of the creative process. In turn, the conscious and subconscious minds jointly examine mental elements until the moment of sudden insight occurs, which is facilitated by primary process thought and divergent thinking.

In addition, however, to what has been established, the only capacity of the imagination is finding the relations between existing mental elements. The basis of this conclusion lies in the constitution of the imagination. Firstly, sensual and emotional stimulus is examined jointly by the subconscious and conscious, which again make up the imagination. Therefore all experiences exist in the imagination. Understand that because the imagination will not analyze without provocation, the mental elements that it contains are solely experiences and their analyses by the imagination. In other words, we only know what we have learned. In the same manner, the imagination only recombines these existing mental elements. Additionally, because thoughts seem to arise at the whim of the imagination, it appears that the imagination intentionally determines how mental elements are related. Thus, as the imagination’s only capacity is connecting mental elements, and thoughts arise at its direction, its objective is to compare any and all mental elements. Accordingly, the imagination’s ultimate capacity and goal is to find the interconnectedness between all elements.

If the depth of this conclusion is unclear, consider its implication: every single thought in the human mind is an attempt to find how everything is related. Every thought, whether virtually insignificant or incredibly profound, is a result of the creative process and the union of the conscious and subconscious. At every moment, our mind is preparing, incubating, and achieving insights. This is the reason why academics love to compare and contrast, and why for the last century physicists have been searching for the “Everything Equation,” and why we as individuals analyze the actions of others so closely in relation to ours, and why humans are always pondering the meaning of existence. Ultimately, the subsequent step of this analysis asks a profound question: Does our subconscious assume that everything is connected, or does it know? Whichever the case, considering how far our species has come, history indicates that if we are given enough time, we shall eventually find out.
Works Cited


