

Sara Phillips

Professor Adam Rabinowitz

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### Think Fast: Greek Poets, Improvisation, and Memory

Improvisation and memory are two important yet underappreciated abilities of the human mind. Incredible things happen when the brain forms a freestyle rap, or extemporizes an oral poem, or memorizes information through spatial visualization. By comparing Homer's formulaic tools to modern freestyle rap composition, we can discern the techniques used in oral/improvisational creation in both ancient and modern societies. Analysis of modern sounding/freestyling competitions and improvisational contest in Ancient Greek symposia reveals the social usefulness of improvisation as well as some of the possible neural substrates involved in the process of spontaneous creation. Finally, a look at the anecdotal and formal evidence of the effectiveness of the Ancient Greek memorization technique called the method of loci emphasizes the potential usefulness of this visualization mnemonic with regard to learning and remembering.

First, it is necessary to establish the meaning of oral composition, because improvisation is closely associated with oral composition. In the case of Homer, oral meant that a work was both composed and performed almost instantaneously (Lord 1960, 5). However, while "improvisation is not a bad term for [this] process," it is not entirely accurate to label the methods of epic poetry composition as such (Lord 1960, 5). Epic poems were not composed thoughtlessly; in fact, in the 1930s, Milman Parry proposed theories of the bardic tradition in which "the poet who habitually makes his poems without the aid of writing can do so only by

putting together old verses and old parts of verses in an old way” (Parry 1933, 181). That is to say, Greek poets would have used stockpiled phrases to create their performances (Parry 1933, 182). For instance, word groupings such as epithets could be used to fit a certain meter. This aided the poet in his storytelling by allowing for efficient, spur-of-the-moment composition. Parry was able to discover this technique by noticing rhythmic and structural trends in Homeric epics “which are rhythmically the same [as those used by modern Southslavic bards]” (Parry 1933, 182). This was key, as it meant Homer did not completely improvise or rely on strict word-for-word memory.

Modern-era freestyle rappers also utilize structural techniques for composition, although not quite in the same way as ancient poets. By definition, freestyle is “rapping spontaneously with no pre-written materials,” and similar to Greek poets, “it is composed and performed simultaneously” (Pihel 1996, 252). However, whereas Homer would have used meter to aid in his arrangement and did not have to incorporate rhyme, the main compositional requirements of freestyle raps – that is, rhyme and rhythm – do more to hinder the performer than to help the performer (Pihel 1996, 255). This is primarily because “there is no set metrical pattern that predetermines the rhythm or line length,” and while this allows for more creativity and freedom, it also makes the rapper’s job more challenging (Pihel 1996, 257). There are countless rhymes and rhythms that can be used within the beat of a freestyle, and the rapper’s challenge is turning these “structural challenges into verbal art” (Pihel 1996, 255). He must vary his rhyming and rhythmic patterns to keep an audience engaged. This being said, there are tools an experienced rapper can use to aid in his composition of a rhyme, even if these tools are not formulae in the strictest sense. For instance, a freestyler might stockpile rhyming words and rely on somewhat

generic phrases like “I’ll tell you what” or “far as I can see” to stall for time and cultivate the rhythm of the rap (Pihel 1996, 263).

Aside from the structural qualities of freestyle rapping, another important component of this improvisational art is competition. Freestylers are rapping “for boasting rights” and “competitions often involve bitter exchanges” (Pihel 1996, 265, 266). Insults are not limited to freestyle rap; they are the focal point of sounding competitions, which are insult battles closely related to freestyle rap competitions.

In sounding, the number one goal is to remain calm, cool, and collected even when bombarded with the most personal or abusive of insults (Kochmann 1983, 334). Issuing “an impulsive...heated, defensive protestation or denial to a personal insult is tantamount to losing” because defense is the equivalent of acknowledging an insult as true (Kochman 1983, 334). Contrary to the earlier beliefs established by his predecessor William Labov, Kochmann views sounding insults as characteristically personal. He places any heated or disorderly reaction on the shoulders of the insulted, as it is he who should have maintained his composure in a game of taunts.

Parallels to modern sounding games can be found in ancient Greek society, particularly during symposia (Collins 2004, 74). These drinking parties were often “venues for the agonistic display of learning and non-professional poetic talent” (Collins 2004, 63). Like in sounding competitions, improvisational insult games during symposia were a place for Greek men to develop a resistance to insults, as it would be degrading to one’s own honor to deny any insult or seek legal redress because a defensive stance hinted that the insult hit too close to home (Collins 2004, 77). These symposia games also had political weight, as “a politically powerful aristocrat might not be challenged publicly in the council in the way that he can be through a...verbal

contest game at the symposium” (Collins 2004, 67). At these symposia, all men had the chance to be equals and to be insulted equally.

These symposia went deeper than just insult contests, however. Competitors, by partaking in these improvisational games, were chancing potential defamation and exposure of their less favorable attributes (Collins 2004, 70). The drinking and gaming that occurred throughout the evening at symposia provided aristocrats with a chance to discern who their enemies were by witnessing the uninhibited thoughts, feelings, and actions of their peers, and thus “there was always a calculated degree of risk involved in exchanging thoughts over cups with other guests” (Collins 2004, 70). Part of the nature of the games was fueled by excessive alcohol consumption that was common at such events – but perhaps carelessly chosen words were spoken because of a more neuroscientific reason than one too many glasses of wine. Provocative insults and reckless behavior could have to do with the areas of brain that are activated – or more importantly, deactivated – during improvisation. In novel research performed by Doctors Charles Limb and Allen Braun, six professional male jazz musicians were monitored through use of a functional magnetic resonance imaging (fMRI) machine to detect changes in brain activity during improvisational versus memorized tasks. The musicians’ brains were observed while the performer played memorized scales/songs, and then reevaluated when the performers played improvised scales/songs. “Activations during improvisation were matched by deactivations during the control task, and vice versa,” primarily in the prefrontal cortex of the brain (Braun and Limb 2008, 3). More specifically, the medial prefrontal cortex (MPFC), which is most likely responsible for integrative functions, was activated, and the lateral orbitofrontal cortex (LOFC) and the dorsolateral prefrontal cortex (DLPFC) were deactivated during improvisation. The LOFC in particular “may be involved in assessing whether [goal-directed]

behaviors conform to social demands, exerting inhibitory control over inappropriate or maladaptive performance” (Braun and Limb 2008, 4). In addition, deactivations may allow for “free-floating attention that permits spontaneous unplanned associations, and sudden insights or realizations” (Braun and Limb 2008, 4). Essentially, improvisation releases inhibition and allows for a more creative performer, but it might also potentially allow for a less cautious or self-conscious performer. This type of performer might not reason through actions with strong focus. Combined with the effects of alcohol, it is not surprising that insults went too far and images were tarnished during improvisational events at symposia.

Insult battles perhaps appear petty, but upon further inspection, they are anything but. They are tied to important social cues for both societies. Urban black youth, who live in racist societies, must encounter “accusations and vilifications in non-play contexts,” and sounding battles provide a relatively safe opportunity to learn how to control emotional impulses (Kochmann 1983, 335). For Greek men, poetic games at symposia were a way of invoking political voice and discerning the true nature of ones’ colleagues. Improvisation performed by modern rappers and ancient Greeks during events like sounding, freestyling, and poetic games was also indicative of elevated status. Only a true rapper will have the audacity and skill to burst out an unrehearsed and impromptu rhyme before a “potentially hostile audience” (Pihel 1996, 252). Likewise, Greek men were expected to have poetic education, and those who refused to perform risked dishonor before their peers (Collins 2004, 68). Anyone can be clever or poetic if given time to prepare, but it takes true mastery and artistry to compose and perform at the same time.

In addition, the audience also contributes an element of pressure involved with improvising, as the crowd was a key aspect in both freestyling/sounding and poetic symposia. In

both societies, the crowds placed pressure on individual performers to do well. In sounding, “there is always a group of spectators either laughing at a clever insult or criticizing a weak and predictable one” (Pihel 1996, 253). In Greek poetic game, “decisions about victory...almost always rest with the group or audience observing the contests” (Collins 2004, 67). A performer in both societies needed to rely on his own internal abilities but also respond to the external stimuli of an audience.

In addition to public image, group interaction, and tolerance of insult, the modern and ancient examples of improvisation also reflect on the overall culture of the two societies and a performer’s ability to effectively convey the meaning of his culture. Symposiasts’ poems were “structured according to traditional themes and topics...[and] the poetic heritage of the Arcadians is repeatedly ratified and renewed in performance” (Collins 2004, 68). Furthermore, these improvisational games “confirm for [Greek men] an array of ethnic, social, and gender identities” (Collins 2004, 68). Original composition was important for symposiasts, but their creations largely reflected a greater culture.

Similarly, the best freestyle rapper is “the one who is most representative of the hip hop community” (Pihel 1996, 265). A rapper might largely be focused on himself during a competition, and his rap can technically be about anything, but part of his reputation comes from his ability to convey communal ideas. His originality is not separate but rather intrinsically tied to his ability to cleverly express shared values, even if these values are constantly transforming.

So far in this paper, parallels and inferences between ancient Greek poets and modern rappers have been drawn, with an emphasis on the formulae and improvisation used in poetic composition and competition; however, we have yet to look at the exact opposite of improvisation: memory. To begin, let us return to the works of Homer, particularly the epic

similes within those works. Elizabeth Minchin argues that these similes are attached to images that give the poet “access to the verbal code, to the words he sings” (Minchin 2001, 157). By using his visual memory or mind’s eye, a poet can efficiently call forth information and words (Minchin 2001, 157). This concept is connected to something called a memory palace, sometimes also referred to as a mind palace or method of loci. The mind palace is a powerful mnemonic that uses visual spaces and images to organize and retain information. Memory palaces, which have been used by ancient orators such as Cicero, are thought to have originated with the 6<sup>th</sup> century poet Simonides of Ceos, who “saw poetry, painting, and mnemonics in terms of intense visualization” (Yates 1966, 28). According to Cicero’s *De Oratore*, the story goes that one night Simonides left a banquet hall after performing a poem. Shortly thereafter, the entire building collapsed, crushing those within. It was nearly impossible to distinguish whose body was whose among the rubble. Simonides, however, was able to reach into his spatial visual memory and recall the seating arrangement of all the attendees, and thus realized that “the best aid to clearness of memory consists in orderly arrangement” (Cicero 1942, 355). And thus the method of loci was born. This method works as follows: the memorizer sets up a locus, such as a house or room, within his mind. He then proceeds to place images within the loci that he associates with the name, number, or topic he wishes to remember. When the time comes to recall the information, he must walk through the loci in his mind and visualize the images connected to the stored information. This is done within the artificial memory, which is the part of our minds “strengthened or confirmed by training” that “is established from places and images” (Yates 1966, 5, 6). The mind palace goes far beyond ordinary mnemonics, and “the word ‘mnemotechnics’ hardly conveys what the artificial memory of Cicero may have been like,

as it moved among the buildings of ancient Rome, *seeing* the places, *seeing* the images stored on the places” (Yates 1966).

Unlike today, “in the ancient world, devoid of printing, without paper for note-taking or on which to type lectures, the trained memory was of vital importance” (Yates 1966, 4). However, aided by our smartphones and pencils, seldom do we employ memory palaces in everyday life; in fact, this Ancient Greek mnemonic tool is if anything sensationalized and elevated rather than viewed as an achievable skill. For instance, in the television show *Sherlock*, the brilliant yet unconventional detective utilizes the technique to recall case information and life-saving information after he’s been shot (*His Last Vow* 35:13). This memory method is not reserved for the geniuses among us, however, as proven by a study done in the early 2000s that aimed to determine why some people are able to memorize incredible amounts of information. Researchers Eleanor Maguire, Elizabeth Valentine, John Wilding, and Narindur Kapur presented 20 subjects with learning tasks, 10 of whom were “renowned for outstanding memory feats in forums such as the World Memory Championships” and the other 10 of whom were “control subjects who did not report any exceptional memory capabilities” (Maguire et al. 2002, 90, 91). Notably, the participants with high-performance memories were not “driven by exceptional intellectual ability or structural brain differences” (Maguire et al. 2002, 90). However, nine out of ten of the exceptional memory participants did use the method of loci to aid their memory process, which activated different parts of their brains. In particular, use of the method of loci is associated with the parts of the brain such as “the medial parietal cortex, retrosplenial cortex, and right posterior hippocampus” that are responsible for “spatial memory and navigation” (Maguire et al. 2002, 93). Essentially, the subjects who were capable of extraordinary memory feats did not rely on superior intelligence or brain structure, but rather visual memory techniques.

Anecdotal evidence for the attainability of such methods is evidenced by journalist Joshua Foer. After observing competitors at a memory competition and learning all about Simonides and the aforementioned study, he decided to start developing his own memory. Every morning, he would spend a few minutes attempting to remember something by coming up with wild and unforgettable associations (Foer 16:01). After about a year of training his brain, Foer decided to enter a memory competition as part of a journalism story – and he ended up winning.

Foer was a man of fairly ordinary intellect who was able to master this memory technique in a short amount of time, and he was left with some relevant insight. Despite their magic-trick like veneer, mind palaces are more than just tricks – “they work because they make you work” (Foer 18:46). This method requires concentration, association, practice, and anything typically required in the process of memorizing information. However, even if it took effort, Foer noted an unexpected but important side-effect of developing his memory: it was fun. Fun is one of the greatest incentives there is. For instance, imagine studying for a vocabulary test. Which study technique sounds more interesting: writing the words and their definitions over and over again until they have been embedded into one’s memory, or breaking down the structure and meaning of the words and associating them with vivid and entertaining images? If “the sense of sight is the strongest of all senses,” it is worth investing in the development of skills that utilize our most powerful abilities (Yates 1966, 4). Something that is engaging will do more to educate than something that is boring.

Method of loci might even be an effective tool of preventing proactive interference, or the phenomenon in which prior learning disrupts the recall process of more recent information (Bass and Oswald 2014, 49). In a California State University study, 94 participants were told to memorize and then recall five lists of five fruits; some groups were instructed to use the method

of loci, and the other groups were not given instructions to use any particular method. The subjects who used the method of loci were able to recall a higher percentage of words from later lists than subjects who did not use the method. Since the method of loci requires placing images within an architectural structure, recollection of information thus occurs in “serial order” (Bass and Oswald 2014, 49). This keeps information learned last relatively separate from information learned first, and thus prohibits proactive interference. Since proactive interference is “considered a main cause of forgetting,” using sequential/visual techniques like the mind palace may prevent forgetfulness and aid in retention (Bass and Oswald 2014, 49).

If the method of loci is so effective, and mastery of the technique is possible through practice, why is it not currently a prevalent method? Psychology professor Jennifer McCabe suggests that this is because the advantages of the method of loci “are not obvious because they slow down learning in the short term, only showing their memory benefit over a longer period of time” (McCabe 2015, 169). McCabe performed an experiment on her class to demonstrate the effectiveness of the method of loci and increase awareness and use of the method among her students. The experiment involved testing how well students were able to memorize two separate shopping lists. The first list could be memorized using any method each individual student desired, while the second list was memorized using the method of loci as described by Joshua Foer (McCabe 2015, 169). From the first to second test, “the percentage [of students] who recalled the list perfectly or near perfectly nearly doubled” (McCabe 2015, 172). McCabe also noted that there was an increased use of the method of loci and similar techniques among her students after the second test (McCabe 2015, 172). Simply by introducing the method to her students and having them experience firsthand the implications of the technique, McCabe was

able to emphasize the effectiveness of memory palaces enough to convince some students to invest further in the technique.

Analysis of ancient and modern use of improvisation reveals the important compositional techniques, social connections, and possible brain activity associated with the ability. Likewise, inspection of the visual memory technique called the method of loci exposes its potential impact on learning and information retention if utilized more often. Though modern-day humans are far removed from the poets and performers of Ancient Greece, our underlying capabilities are not all that different. Improvisation and memory are not limited to the Homers, Simonides, Sherlocks, or rappers of the world. They can be used by everyone.

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