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14. ABSTRACT

This thesis applies Clausewitz's framework of military genius to explore Marine Corps officers' mid-career training and its educational pedagogies. The growing research on neurological diversity lends itself to the recognition that a broader range of methodologies may resonate with a broader range of its military officers at Marine Corps University's Command and Staff College (CSC). Therefore, a possible complimentary arts-based educational approach is explored in order to nurture officers who may be on their way towards becoming a military genius. A "creative warrior" draft elective course is provided.

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SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
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Executive Summary

Title: Can Today's Marine Corps' Military Officer Education Expand to Better Support Clausewitz's Vision of *Military Genius*?: Using Neurodiversity to Enhance Education Through the Arts

Thesis: To increase the opportunities for a broader range of Marine Corps officers ability to strive towards a military genius, the Marine Corps University's Command and Staff College could enhance the curriculum by supplementing its program by including arts-based work.

Discussion: Clausewitz provided a framework by which to identify and strive towards *military genius* through the comprehensive development of the temperament and the complete mind, what is now considered the right- and left-hemispheres of the brain. Recent functional Magnetic Resonance Imaging has demonstrated the neuro-diversity of different brains as well as demonstrating the brain's continued plasticity to adapt and rewire itself for new learning. With this new research reinforcing what was perceived by Clausewitz to be critical in the making of a *military genius*, this analysis explores how this information might assist in complimenting the existing mid-career officer's educational program in the Marine Corps.

Conclusion: The paper provides recommendations which may pro-actively strive to increase military genius types through the current residential Marine Corps officers' mid-career training while considering its current educational pedagogies. The growing research on and appreciation of neurological diversity lends itself to the recognition a broader range of applied educational pedagogies may resonate with a broader range of its military officers at Marine Corps University's Command and Staff College (CSC). Therefore, a possible complimentary arts-based educational approach is suggested to further enhance CSC's year-long educational program in order to nurture officers who may be on their way towards becoming a military genius. A sample elective course for the "creative warrior" is provided.

DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREOGING STATEMENT.

ABBREVIATIONS AND ACRONYMS

CSC – Command and Staff College

fMRI – Functional Magnetic Resonance Imaging

MCU – Marine Corps University

Table of Contents

What is art but a way of seeing?
- Saul Bellow

INTRODUCTION

The U.S. Marine Corps provides its Marines regular training and educational opportunities throughout their careers to better prepare them, initially for the battlefield, and, secondly, educating their best for positions of leadership. The Marine Corps University's Command and Staff College (CSC), focused on the education of its mid-career officers primarily at the major level, serves as an excellent example to explore the Marines' approach to education to determine how best it might support the opportunity to achieve *military genius* as proposed by the renowned military theorist, Carl von Clausewitz. Bookended by Clausewitz's seminal work in *On War* and its commentary on the education of a strong officer, current work in neurological diversity provides insight into how complementing CSC's educational curriculum may resonate better with some officers so that all officers in attendance may benefit from graduate level training to their highest potential.

This paper shall use the framework as proposed by Clausewitz regarding the broad definition of how one may develop into what eventually becomes a military genius. The applicability of this framework shall be explored as it relates to other types of genius found today, e.g. the professional mathematician, and what that may indicate regarding the brain and its functions. The growing research on and appreciation of neurological diversity lends itself to the recognition a broader range of applied educational pedagogies will better serve a broader range of all its military officers at CSC. Therefore, a possible complimentary educational approach will be explored within the context of the current curriculum to explore and confirm its usefulness for enhancing and nurturing an

increasing number of Marine Corps officers. While this may or may not encourage the development of a military genius at these times, at a minimum, it further enhances the Marine Corps' CSC educational experience and may even increase the opportunity of nurturing some officers who *may* be on their way to becoming a military genius. Irrespective of whether a military genius may arise in our time, such an approach better expands and invests in all its top-level officers. Therefore, this paper explores the application of neuro-diversity using examples from a well-researched area upon which neuro-diversity is based, dyslexia, along with the feasibility of complimenting the CSC educational curriculum. To better demonstrate what this proposal might look like, a sample elective course is provided.

Clausewitz on Military Genius

Since the 19th century, the training and education of military officers has grown in importance just as other fields such as medicine, engineering, and law were concurrently professionalized. During this period, Carl von Clausewitz played a significant role in the military wave of professionalization. Vanya Eftimova Bellinger synthesizes the key influences on the development of Clausewitz into this aforementioned key strategic influencer into five key areas: the French Revolution; mentorship; supportive, connected partner; broad experience; and time, time for his ideas to develop, be explored and tested, and mature into what would eventually become *On War*.[1]

While Carl von Clausewitz was not born of high nobility, he was driven to succeed as a child, which only intensified as he grew older, according to Donald Stoker's biography, *Clausewitz: His Life and Work*.[2] Clausewitz discovered books and the Enlightenment as a junior officer. Along with the daily routines of a soldier, including

tactical drilling, practicing with the tools of his trade, and participating in regular army maneuvers, his education was further developed under the tutelage of his superiors, including the commander of his regiment, Colonel von Tschammer und Osten. Col. Tschammer was a leader who believed in education for all under his direction, irrespective of nobility or upbringing, so that they would avoid acting as uneducated "beasts."[3] In 1799, he established a school, run by Major Max von Sydow, and attended by Clausewitz. It was a school that "distinguished between raw and educated courage" per Tshcammer's priorities and one which is closely mirrored by *On War*'s theme and definition of a military genius.[4] These early years of a junior officer set the stage for Clausewitzean thinking on the critical role that education plays in the development of all soldiers, but especially so at the higher levels of leadership among the military's officers and commanders.

As a result, Clausewitz notes in his seminal piece, *On War*, that it is not just a matter of brute strength that determines the winner in war but, rather, it requires something more complex in the form of a military genius to lead and win at war. In Jon Tetsuro Sumida's work to reconceptualize Clausewitz, the author notes that at the most developed level of command in an advanced society, it is a "region dominated by the *powers of intellect"* because the needed leadership of its officers must function in the realm of great uncertainty and stress.[5] Clausewitz notes that "if the mind is to emerge unscathed from this relentless struggle with the unforeseen, two qualities are indispensable: *first, an intellect that, even in the darkest hour, retains some glimmerings of the inner light which leads to truth; and second, the courage to follow this faint light wherever it may lead."*[6]

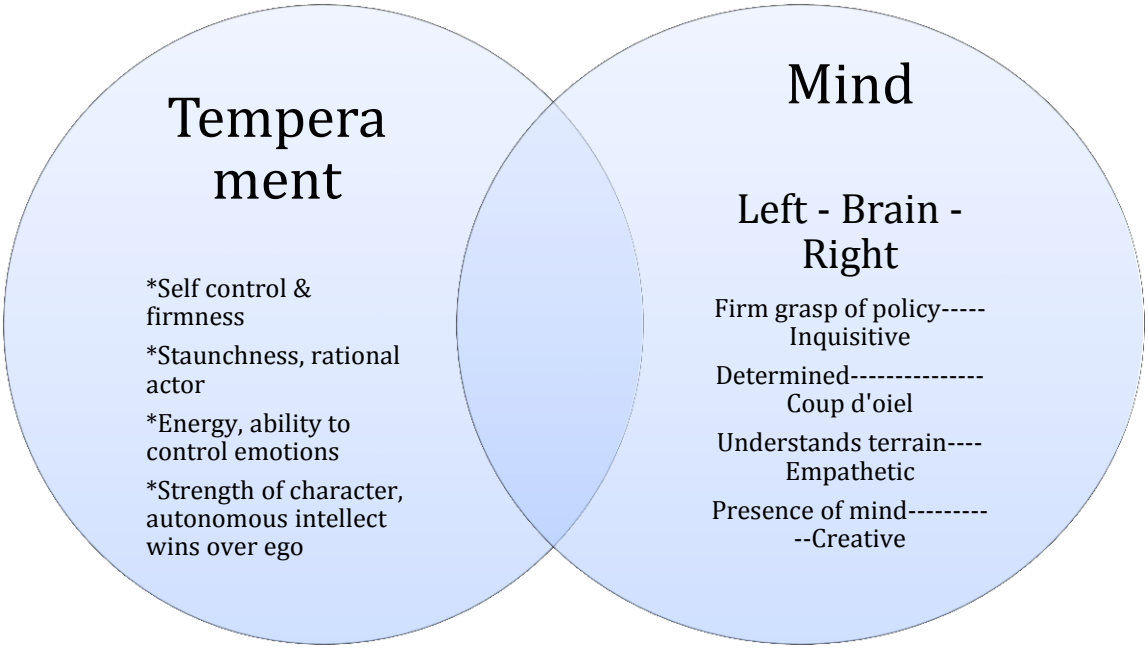
It is this inner light mentioned above that shapes the Clausewitzean use of *coup d'oeil*, meaning a comprehensive view formed in an instant, similar to concept postulated by Malcolm Gladwell in his 2007 book, *Blink.* In the strategic sense on the battlefield, Clausewitz applies this as a "concept [that] merely refers to the quick recognition of a truth that the mind would ordinarily miss or would perceive only after a long study and reflection."[7] In other words, *coup d'oiel,* as proposed by von Clausewitz, is used as a sense of intuition and applied in the military arena, something that not all officers may inherently possess as Napoleon did but may be considered something to strive towards through a broadening education and experience.

As noted, this type of intuition does not instantly appear but rather develops through a broad-based education, training, and a breadth of experiences, coupled with the increasing ability by which a military professional can conquer his fears, emotions, and *ego* and perform consistently as a result of determination. Clausewitz finalizes the intellectual components of military genius with the need for a military leader to have a presence of mind. With this intellectual triad of *coup d'oeil*, determination, and presence of mind, Clausewitz implies that problems posed by uncertainty can be overcome as a military leader. However, he suggests that intellectual strength alone does not fulfill the definition completely. Rather, genius must include not just the intellectual triad but must also be based on a military leader's ability to command his troops, or, rather, he must have the right temperament to command, control, and motivate his subordinates even in the most stressful times during the uncertainty in war. These four elements of temperament as used by Clausewitz include energy, staunchness, strength of character, and firmness.[8] For the purpose of this exploration, the focus of educational impact will

primarily be focused on the intellect or mind of the military genius, recognizing that temperament is no less important but is more likely to have been developed earlier in an officer's career during times of battle.

Seen below, in this visual model based on the two hemispheres of the brain, the military genius model is separated between intellectual properties of the mind and the properties of temperament to better envision how these two components interact and compare. Additionally, the areas related to the mind are further broken down by which areas or hemispheres of the mind they are traditionally seen to fall in, the left-brain and the right-brain, an analysis rarely referenced in the military training dialogue but will be addressed in the next section of this paper.

Clausewitzean Military Genius Model:
Strength of mind and character sustained over time and through multiple tests[9]



A more common way of referencing this perspective is to think of it as multiple concepts that reflect what has come to be known as a "Renaissance Man," a man that was

considered to be well-read, an accomplished artist, while concurrently having a quick witted mind that excelled at policy or strategic decisions. During the Napoleonic times in which Clausewitz matured, this, too, was the sign of a gentleman and officer groomed to succeed, adept in a wide variety of roles. However, in today's world, the divisions have been reapportioned such that these multiple concepts of the Clauswitzean mind are now more often grouped in categories of the left-brain and the right-brain, reflecting both the physical nature of the two hemispheres of the brain as well as two perceived different dominant tendencies – either the more rational, linear thinker or the more creative, empathetic thinker. Specifically in the world of CSC, *On War* provides the over-arching framework used by the U.S. Marine Corps as they have sought to better clarify their work in relation to modern warfare and the investment and the development of their officers and future senior leadership. As such, Clausewitz' framework also includes the educational and training needs of the military officer to achieve the enlightened status of a "military genius," something for which the Marine officers strive towards in their future in such an institution as the Command and Staff College.

To better understand how an officer might be supported to possibly get closer to reaching their own version of a military genius, one can turn to current research to better understand the brain, the impact on the intellect, and insights into new thinking into the broadening educational concepts and neuro-diversity. These *may* then lead to nurturing a military genius in the Marine Corps' officer rank or, at a minimum, provide an enhanced, appropriate educational curriculum for more of its officers to better prepare them for their next assignments and future careers.

Neuro-diversity and Today's Military Genius

For purposes of this paper, the emphasis is on the less-explored area of the development of the mind, rather than the equally important aspect of temperament, and how to better achieve this through education and training, specifically as CSC. For Clausewitz, he sought the full complement of areas of the mind to be developed, not realizing that his cognition of what makes a genius, including the varied functioning of the brain itself, would be found to naturally underpin his theory centuries later. As Thomas Armstrong demonstrates in his book, *The Power of Neurodiversity*, that through the recent development of neuro-diversity studies and scientific use of functional Magnetic Resonance Imaging (fMRI), researchers have been able to distinguish how the mind works between the left- and right-brain hemispheres as well as within each hemisphere. Additionally, fMRIs are also able to differentiate between individuals as well as measuring pre- and post-intervention impacts on an individual. Science now permits us to measure the actual functioning of the brain and distinguishing activity within different parts of the brain through modern medical technology.[10]

The research field on dyslexia compared with control or non-impaired brains provides a strong example of how fMRI comparative research on learners can be understood and applied in the educational field. With dyslexia, there are clear ways to measure a single deficiency as well as specific interventions so it serves as a strong example for this discussion.

It is estimated that ten to twenty percent of English speakers have some form of dyslexia or non-specified learning difference related to the person's ability to gain or apply their language decoding skills.[11,12] Rates of dyslexia vary between languages

based on the number of characters and combinations used in each language – the more characters and combinations that exist in a language results in higher rates of dyslexia.[13] In all languages, brain research (Appendix A) demonstrates that the primary parts to decode and articulate language are located in Boca's area (inferior frontal gyrus), the parieto-temporal region, and the occipito-temporal regions, all located on the left side of the brain.[14] When the brains of dyslexics are compared with brain activity of controls (non-impaired) (Appendix B), one can see that the brain activity of dyslexics is significantly less than found in the non-impaired brains. But what is even more telling is that following six-weeks of intense intervention focused on those areas of language/reading used by dyslexics, their brains demonstrate that there is an increased amount of activity. However, while there is some increase in activity in the expected left-side of the brain to match those of non-impaired brains when reading, there is significantly more activity in the right-side of the brain and in areas that are not typically used to process language in non-dyslexic brains. Similar findings of new, non-predicted areas of activity have also been found in the brain activity of recovering stroke patients following interventions.[15]

In *In the Mind's Eye,* Thomas West writes that there is evidence that there is different wiring in the brain even before birth. In Appendix C, studies have demonstrated that not only are there differences in the brains between dyslexics and non-dyslexics, there are also differences in the development of their neural systems over time with different mechanisms for reading are they develop.[16] West notes that while dyslexic brains are known to be inefficient at processing requirements for decoding language in the left brain hemisphere, this is counter-balanced by dyslexics' increased efficiency in

their ability to process spatial ability, otherwise known as strengths found in the right brain, which include art, computer systems and graphics, and design. For example, this translates into some dyslexics having the ability to see an object turn three-dimensionally, a perspective that could prove unique and a useful strength on the land-based or cyber-space battlefield.[17] As evidenced over the past two decades, neurological research demonstrates that there is significant neuro-diversity among the wiring of individuals' brains and, yet, what is more encouraging is that the brain can be re-wired to become more efficient and adept at new activities with focused intervention. In other words, while brains can process reading and thinking in very different ways, brains maintain their plasticity and, thus, their ability to learn and respond provides a platform by which to continue to develop and achieve higher learning, perhaps setting the stage for an officer to continue to learn and grow into that of a military genius.

It is worth nothing that even before such technology as fMRIs became more available in brain research, Alvin and Heidi Toffler's futuristic work published almost one-quarter of a century ago, *War and Anti-War*, predicted that the military had new needs and required a new breed of soldier, one driven by information. It was no longer sufficient to rely merely on traditional military doctrine from the beginning of the twentieth century. Rather, the missing piece in today's military fight was now for correct and comprehensive information in a fast-paced manner – it was proffered that through the military's "learning, de-learning, and re-learning" requirements of the ever-changing landscape created the rise of importance of the military's training, intentionally communicating knowledge and anti-knowledge. With a need for increased knowledge and an effective knowledge-distribution system, the authors suggested that the need for

the military to deliver the right training to the right person at the right time was critical.[18] This approach reflects the Marine Corps University's CSC approach and has demonstrated CSC's continued success at investing in and developing their mid-career officers. But has this educational design taken full advantage and incorporated current neuro-diversity research findings into its curriculum? Would an expansion of the application of recent neurological research benefit a broader range of CSC students and heighten their educational experience?

In *Philosophy and the Two-Sided Brain*, the philosopher Carol Nicholson neatly lays out the historical tension and perennial confusion that has existed since pre-Socratic times regarding those that have sought clarity and precision in a so-called left-brain world versus one of ambiguity and generality as the right brain has thought to lend itself. Nicholson lauds Iain McGilchrist's *The Master and his Emissary: The Divided Brain and the Making of the Modern World* (2009) as providing an explanation as to how these two perceived contrary concepts are not unique but can successfully co-exist. While the left- and right-brains result in an evolved asymmetrical brain, the right- and left-brains remain separated (as well as connected) into different hemispheres by the corpus callosum. While they have remained separate since each hemisphere tends to the get in the way of each other in their operations, Nicholson highlights that the practice of philosophy (or any other field, including the operational art of war to be practiced by a military genius) is two-sided because the brain is two-sided.[19]

Even when educators strive to clearly define an aspect of education as falling into the more linear, less creative side, e.g. math, the brain defies our simple logic. In practice, for example, studies were undertaken to compare the brains of higher-level

mathematicians with those of their non-mathematical academic peers. Researchers hypothesized that the same system in the brain that functions at basic math, using the logical left-brain side, would also be used at the highest level of mathematical thought. It could be assumed that the "beautiful" minds, mathematical geniuses such as Albert Einstein, Stephen Hawking, and John Nash would function the same, for example, as the brains of left-brain learners learning basic math, such as high school algebra.

In this example, researchers found that when they compared the fMRIs of professional mathematicians with non-mathematicians, something unexpected happened. In the mathematicians, listening to math-related statements (their area of expertise), stimulated completely different networks within their brains, demonstrating that their neuronal circuitry was affected in other ways as well as compared with the non-mathematicians and with their own brains when they were not being tested in their area of expertise. This unexpected neural network finding involved the bilateral intraparietal, dorsal prefrontal, and inferior temporal regions of the brain, areas not usually associated with processing and semantics. Rather these areas were found to dominate the right brain or bridge the two hemispheres.[20]

In other words, the functioning of the human brain is not an either/or situation but, rather, variation between the areas of both sides of the brain hemispheres. With modern research, measured by such tools as fMRIs, clearly demonstrate that those higher levels of thinking are limited to a single area of the brain but can be nurtured and groomed through the development and use of the higher brain functions, including the right brain and the connections between the two.

As demonstrated, research and science have applied the latest technologies to explore and test theories proposed by Clausewitz but have not necessarily remained exclusively applied to the military arena. What Clausewitz deemed "military genius" is a holistic approach, using both the left and rights sides of the brain, towards training and critical thought. Military insights are shared to inform the civilian world and *vice versa.* Similar verbiage is used in today's works including Shawn Achor's reference to "positive geniuses," similar to the Clauswitzean version of a military genius, where a positive genius is someone who has a high IQ, high emotional intelligence, as well as high social intelligence. However, what breeds success is not about how much of these three types of intelligence one possesses but, rather, how much intelligence one believes they can use and "also see they have the ability to do something about the [challenges]".[21]

Achor uses an example of two U.S. Army Rangers in Afghanistan and their different perceptions of a hill they must climb to reach the safety of a helicopter landing space. Is it the positive genius, or perhaps the Ranger's military genius, of one that perceives the hill correctly, reorients her map to ensure their safe evacuation, find the energy to accelerate and achieve their goals faster, cancel out any distractions in order to focus, and successfully transmit the successful Ranger's reality to the second Ranger who is beaten before he begins by his own distorted view of reality, originally viewing the mountain as one and one-half times as high and treacherous as it was really was. The "positive genius" found in today's business and personal development arenas begins to mirror what Clausewitz described in his tenets of the military genius.

With these multiple cross-sectoral lessons applied, one realizes that the military genius, just as with a business or civilian genius, may be more intentionally sought. And

while few, if any might achieve genius *per se*, more might strive to achieve more attributes of such a genius. While a military planner might initially use more of his logical left-brain functions, for him to become a higher level operational artist in the world of warfare, he may benefit from the further develop and use his right-brain functions, practicing these skills in a place such as the Command and Staff College. In that way can he seek achieve the status of "military genius" as proposed by Clausewitz, or attain greater *coup d'oiel* in his warfare practice.

Command and Staff College and Its Curriculum

An exploration of the Marine Corps University CSC's curriculum and structure can provide an example by which to explore how this knowledge of the brain might be affected in practice. The CSC residential graduate level education, attended by its approximately top twenty percent, expect that its senior leaders will have successfully graduated from CSC at Quantico and setting them to eventually become its senior leaders.

Throughout the U.S. military services, graduate level military institutions have increased over the past century for its officers with an increasing emphasis placed on its investments in educating its officers following the Second World War. After World War II, joint colleges of higher learning were established including the Joint Forces Staff College, the National War College, and the Army Industrial College (now known as the Dwight D. Eisenhower School for National Security and Resource Strategy). Centers of higher education for military officers continued to evolve to meet the changing character of warfare, for example, began with the establishment of the National Defense University

in 1976, thereby consolidating educational resources and providing a platform to reinforce the increasing emphasis on the joint armed services.[22]

In the U.S. Marine Corps specifically, the Marine Corps University's current structure was founded on August 1, 1989. This effort, similar to the other service branches, represented a long history of educating its officers. As early as 1891, twenty-nine company grade officers were the first to attend the first resident military schooling, the School of Application, which became the Officers Training School in 1909. Major General John A. Lejeune ensured a commitment to training its officers with the establishment of the Marine Corps Officers Training School in 1919. Brigadier General Medley Darlington Butler built on Lejeune's vision and established the Field Officers Course in 1920 and the Company Grade Officers Course in the following year. It was these three Officer Training Programs that formed the Marine Corps Schools, establishing the basis for what would become the Marine Corps University almost eighty years later thereby demonstrating the continued commitment of the Marine Corps to educate its officers.[23]

Today's Marine Corps University (MCU) is a well-respected educational institution and holds two significant accreditations. Regionally, the Southern Association of Colleges and Schools Commission on Colleges was awarded to the Marine Corps University so that the Marine Corps University may award a Master Degree. MCU currently awards three types of Masters, including the Master of Military Studies at the Command and Staff College. Within the military arena, Marine Corps University and its program at CSC meets the accreditation standards of the Joint Professional Military Education (JPME) as overseen by the Joint Staff (Phase I only).[24]

The Command and Staff College's accredited ten-month long program focuses on the development of critical thinking in officers primarily at the major and above level. The curriculum focuses on the following courses:

- Think, Decide, Communicate to promote self-reflection and begin to learn and apply critical thinking skills as well as strengthen individual research and writing skills
- Leadership provides the space by which officers are prompted to explore the challenging questions of what makes a morally right and ethically strong leader
- War Studies uses the history or war to explore theory of war, and lessons of war at the tactical, operational, and strategical levels.
- Security Studies focuses on the use of war as a means by which to explore the application of different strategies.
- Warfighting uses Practical Applications or case studies by which to learn and practice applying the steps in the multi-stages Marine Corps Planning Process.

The format by which these are taught is most commonly requires reading of approximately eighty pages of related books or journal articles beforehand followed by a lecture and then a smaller seminar with one's standing conference group. Every few weeks, a written paper is required to identify if a student has fully grasped the theme of each module and apply lessons learned, often by writing in-depth on an historic period or battle.

To broaden the approach, the curriculum also includes a limited number of staff rides to examine decision-making by military commanders. During the visit, pairs of students are assigned battle-related sites and dispersed throughout the day for each conference group to better understand the terrain, time and space, planning challenges, and the relationship among ends, ways, and means in war. Additionally, insights are gleaned from the personalities of its leaders, sometimes cleverly re-enacted by students to highlight unique attributes that may have shaped a maneuver, decision, or battle.

In William Robertson's classic *Staff Ride*, he shares the evolution of staff rides beginning in 1906 for Ft. Leavenworth Army Officers. He points out that these are not to be considered tactical exercises but rather a combination of historical preparations coupled with an examination of the actual terrain covered. He also highlights that this approach should not be limited to military officers only, but these can also be used to enhance the learning of his subordinates while "enliven[ing] his unit's esprit de corps," a consideration for leadership in times of peace.[25]

Underpinning these educational approaches is the emphasis that the Command and Staff College places on applying the Socratic method of questioning throughout their instruction. Within this format, CSC clearly meets acceptable levels of educational achievement to be accredited and thereby award Master's degrees to its students. However, the question remains as to whether this format as represented is as responsive to neuro-diversity as it could be or whether there might be additional ways by which to enhance the curriculum to increase its reach to its neuro-diverse students and potentially enhance its *coup d'oeil* training to all of its students. In other words, future leaders of the Marine Corps could expand their perspective, this aspect of Clausewitzean military genius model. While it must be acknowledged that such genius is rare, it is not inconceivable, and this paper takes on the premise that to have military geniuses within its ranks and dominating the highest levels of leadership would be to the benefit of the Marine Corps.

If the Marine Corps determines that the Command and Staff College curriculum meets its defined needs as is, then there is no problem, and therefore no solution or improvements are needed. However, if one supports the effort to improve the probability

of increasing the numbers of military leaders to become more military genius-like or there is an interest in improving the current educational structure as represented by the Command and Staff College based on current neuro-diversity studies on the brain and those practices most supportive of neuro-diversity, then there are several approaches that can and should be explored further to enhance the Marine Corps' educational program for its mid-career officers.

Enhancing Command and Staff College's Curriculum

The Command and Staff College's curriculum might be enhanced so that methodologies that are more broad-reaching and less linear are included to reinforce the existing curriculum, thereby expanding its reach, recognizing neuro-diversity and its potential impact on achieving military genius. With CSC's focus on the use of the Socratic methods coupled with lectures, seminar discussions, broach-reaching readings, essay writing, and case studies (including practical applications, planning exercises, war gaming, and battlefield staff rides), several dimensions of adult learning have been included as is often defined. Such definitions are found in the literature over the past three decades and have included some of the strongest, most beneficial aspects of adult learning. These include learning that is voluntary, self-directed, experiential, and collaborative, all of which employ the more evolutionarily developed areas of the brain, which result in longer-term transformational learning. Some of these components are stronger than others at the Command and Staff College.

In order to explore and strengthen another possible educational approach at Command and Staff College, an approach that follows the existing flow and chronology of the CSC course but incorporates an approach based on right-brain strengths, might be

included in the future curriculum. Stephen Brookfield and John Holst propose an approach that uses formal academic structure and combines it with artistic creativity, otherwise applying the aesthetic dimensions of learning. Or, as Antonino D'Ambrosio is quoted in this work, art "grabs a hold of you in a place you never knew existed, shakes you to the core and shatters everything you hold as true. It is transcendent."[26] At the core of this aesthetic dimensions that reinforces the creativity found in the right brain this learning challenges the student officer to "assign meaning to and…opens you up to the spontaneous, nonrational, and emotional elements of your being."[27] By incorporating a new facet in CSC's learning methodologies, a new dimension could be brought about by an infusion of art in the broadest sense thereby "what art offers us is a chance of breaking with the familiar of inducing in us an awareness of other ways of being in the world,"[28] other ways that serve an officer well as he further develops his mind and his temperament as his knowledge and experience of the broader world shape him into both a critical thinker and one that can follow his intuition or coup d'oiel.

The authors further suggest that the use of art as a method by which to learn allows the student to break from the everyday and, instead, learn about a struggle and how that struggle built people's pride: the history of the struggle, lifting people out of a struggle and finding the strength to fight, *apropos* to numerous CSC lessons found in the curriculum. Brookfield and Holst apply Marcuse's perspective that "art can raise consciousness and develop awareness; but the nuts and bolts of learning how to build an organization, broaden a movement, decide when to negotiate with authority, and when to challenge or bypass it completely – those things happen at an individual and group level between specific people in specific contexts." So, while art cannot replace leadership and

warfighting lessons of the CSC curriculum it could, however, bring a higher awareness as sought by the potential Clausewitzean military genius.

This suggested broadening of the current curriculum methodologies might look something along the same lines as it currently but could include supplemental references in appropriate lesson cards so that some students preferred form of art might match the days' thematic lessons. As one senior leader recommends, choose your battle and know it intimately since all lessons can be found in one battle if examined closely enough. Perhaps this same approach could be applied with the addition of an art-based perspective. If officers were to choose their preferred form of art and related lesson cards, they would gain a new perspective and higher awareness of all the lessons and emotions captured in a battle or specific period of study. In the Epilogue of *Hamilton: The Revolution*, President Barak Obama illustrated the impact of this artistic performance is that "part of what's so powerful about this performance is that it reminds us of the vital, crazy, kinetic energy that's at the heart of America – that people who have a vision and a set of ideals can transform the world"[29] something so often portrayed with greater energy and impact than just reading and discussing it.

Another possible format that might resonate with some CSC students would be to explore whether the creative warfighter is more effective with the exploration and use of the arts - music, singing, painting, and dance, all those artistic endeavors that tap into the emotions of students – in their develop as an officer. This could be achieved through an elective which may mirror the chronological develop of war with a broader arts-based curriculum (see Appendix D).

These suggestions would not to replace the in-depth readings, lectures, and discussions provided in the current CSC curriculum. Rather, this would enhance and expand the overall learning experience by deepening it through the arts, better understanding their own personal emotions to events *as well as* the range of possible emotions of their subordinates, thereby formally recognizing that as a military leader, it is not exclusively about their individual responses or their brothers beside them but, rather, more fully appreciate the breadth of possible emotions of all those under their command. This would thereby support an effort to be more creative, deepening their responsive to *coup d'oiel* situations as well as by experiencing a broader range of emotions in order to be better suited to control their emotions and their own ego when applying their intellect and temperament to respond as a military genius in any military crisis in their future professional career.

What might this look like? It might vary depending on what type of art – from paintings to music to performance arts - resonated with each officer. For example, there is a strong case for linking the curriculum with paintings, given Clausewitz's experience as a painter as well as the long-standing tradition of military combat artists. In Paret's analysis, he noted that Clausewitz liked to:

> compare the study of war with the study of painting; both concern activities that demand specific technical expertise, but whose processes and outcome are not predictable and cannot be mechanically pursued if we strive for important results. Few artists today would read an early nineteenth-century treatise on painting to help them practice their art or even to gain a theoretical understanding of it. An artist interested in the history and theory of painting may nevertheless read the treatise for its observations and concepts, some perhaps of permanent validity, which he can use to construct his own theories and which might even influence the application of his ideas. [30]

A warfighter who successfully combined the two worlds of war and art, combat artist Col. H. Avery Chenoweth USMCR (Ret), highlighted his experience of war through the eyes of an artist, two worlds that "managed to capture other times, other worlds, and some of the essential truths thereof.[31] For example, every officer would instantly recoil from the horror seen and felt John Singer Sargent's *Gassed,* considered his World War I masterpiece, and a dark reminder of the lessons learned in the Great War (See Appendix F) or even his preliminary sketches, *Studies for Gassed* (See Appendix G). While the same officers would instantly reflect on their pride and, perhaps their gloom, when seeing William S. Phillip's painting, *Those Last Critical Moments,* of an F-14 Tomcat's landing on *Kitty Hawk* off the coast of Vietnam (See Appendix H). So many lessons from these wars are instantly encapsulated in combat paintings.

Music is also replete with examples of expressing the wide range of emotions experienced in war; before, during, and after. First and foremost within the realm of the Marine Corps, the Marines' Hymn resonates with and inspires Marines to proudly recognize their history, something that is taught in CSC's first reading, General Krulak's *First to Fight,* and whose message is further enhanced with the messaging and emotions that occur with *The Marines' Hymn.* The Battles of Chapultepec and Derne are memorialized in its first stanza, "From the Halls of Montezuma to the shores of Tripoli" and serves as a key reminder to Marines to remain honorable and proudly be the first to fight for right and freedom.

Other pieces of inspiration music replete with history include such classics as the *1812 Overture,* a piece composed by Pyoti Ilyich Tchaikovsky in 1880 to commemorate Russia's defense of Napoleon's *Grand Armée* invasion in 1812, for example, when played

after the readings, officers would have a much greater understanding European countries faced, which would complement CSC's lesson card on *Paradigm Shift: The French Revolution and Napoleon* (Lesson 3104 (AY17)).

In American military history, the story and playing of *Taps* fosters emotions in all who hear it. Richard Schneider notes that "If 'God Bless America' has become our second national anthem, then 'Taps' has become America's requiem for its fallen heroes."[32] Another musical example from more recent times is Frank Matthews, a Marine who survived Iwo Jima and has since composed musical pieces. For Matthews, he left the island of Iwo Jima with the melodies in his head, painting the picture of the war he survived and had buried too many of his friends. The music "remind[s] me of what I saw and felt. They were like sketches that other guys drew."[33]

Another art form, ranging from musical theater to movies, are replete with examples of using the backdrop of war and a world of political tension to address the full range of human emotions in response to risk and the difficult choices military leaders were often forced to make. While we know their backdrops of oftentimes great upheaval, and we know how they end, musicals such as *Hamilton*, *1776, Les Miserables, Pirates of Penzance*, *Chess*, and *HMS Pinafore* all bring the tensions, the fights, the loves, the strifes of the time, and the gut-wrenching pain of war to life if only for a brief period. For example, *1776: The Musical Play*, is an excellent overview as to the heady days of May, June, and July in 1776, three steaming months, in Philadelphia leading up to men risking becoming either saviors for a new country or criminals having committed treason if they lost. One can relive the very tension as the Founding Fathers debated, agreed, and

signed their lives, fortune, and honor and their fledging nation, culminating in the Declaration of Independence.

1776 portrays the immediate tensions and stresses of those eventful three months. While not entirely historically accurate or complete, *1776* does present the debates among some of the strongest personalities of the times. It also presents an excellent foretelling of future issues that were not directly dealt with but shifted to future generations, most prominently the issue of slavery.

Following the American War of Independence, France soon followed in its own Revolutionary War. *Les Miserables* is an inspiring musical post-revolution that captures the tension between nobility and the people – the angry men taking to the streets. The music and the words quickly capture the lessons taught in the CSC curriculum but speedily reinforce those messages already learned during the readings and lecture series so the proposed approach in this paper would reinforce the lessons learned albeit in a different format which some CSC students could benefit from in solidifying lessons learned.

As demonstrated there is a wide range of artistic mediums with an even wider range of relevant linkages between the arts and enhancing the existing CSC curriculum for training its military officers. While this might appear to be repetitious of what which officers might have already read or heard in a lecture, history and strategy presented in a different format using the arts might make new neural connections, thereby reinforcing or challenging a new perspective on history and its multitude of lessons.

Conclusion

Modern neurological research has demonstrated that the breadth of the intellect (brain) and temperament of a military genius, as suggested by Clausewitz in *On War,* exists. Therefore, the probability of achieving this status may be more likely to occur with the intentional development of several areas of the brain, including both the left- and right-brains. Modern theory and neuro-diversity research continues to demonstrate that with the application and exposure to an expanding array of educational pedagogies, different types of learning reach different areas in each of the two hemispheres of the brain in many people.

Upon closer reflection of the Marine Corps University's Command and Staff College, an excellent curriculum and Socratic methodology has been developed. However, some of its officers may further benefit from an enhancement of the key learning objectives of the current curriculum. These might include supplemental arts-based lessons in individual lessons cards or offer an arts-based curriculum to further support the creative warfighters. Such an opportunity could be afforded to some officers who have different learning styles while all officers might benefit from such an enhancement as well.

This paper recommends that to take full advantage of this new scientific knowledge, the Command and Staff College explore including an aesthetic dimension to learning, which may result thereby an improved educational experience for the mid-career officers, thereby potentially strengthening the core of the Marine Corps leadership as it faces its warfighting future.

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Appendix A – Brain's Left Hemisphere

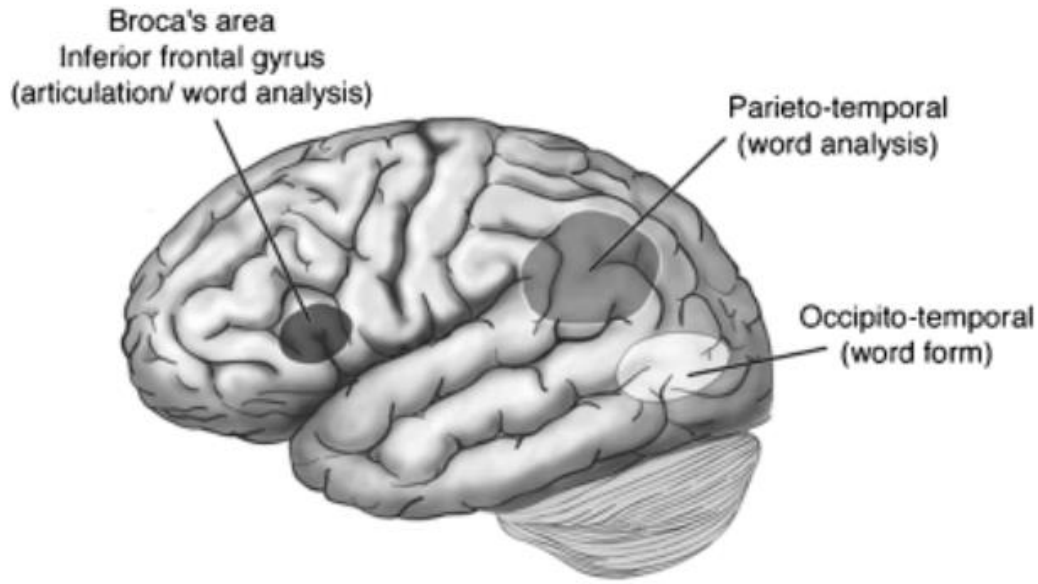

Fig. 1. Neural systems for reading in the brain's left hemisphere. An anterior system in the region of the inferior frontal gyrus (Broca's area) is believed to serve articulation and word analysis. A system in the parieto-temporal region is believed to serve word analysis, and a second in the occipito-temporal region (termed the word-form area) is believed to be responsible for the rapid, automatic, fluent identification of words. Reprinted from *Overcoming Dyslexia: A New and Complete Science-Based Program for Reading Problems at Any Level*, by Sally E. Shaywitz, 2003, p. 78, New York: Alfred A. Knopf. Copyright 2003 by Alfred A. Knopf. Reprinted with permission.

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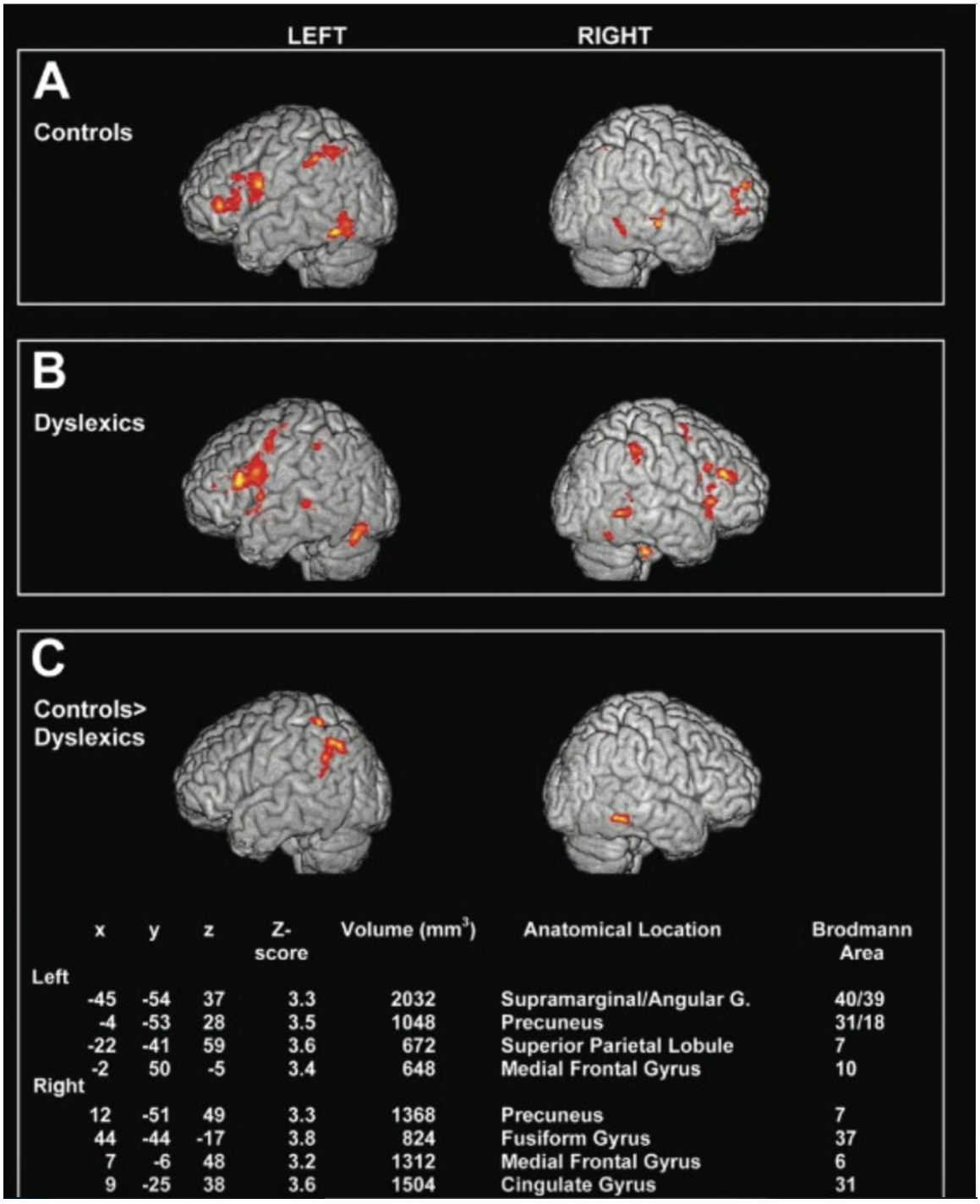
Appendix B – Functional Anatomy of Control and Dyslexic Brains



	x	y	z	Z-score	Volume (mm^3)	Anatomical Location	Brodmann Area
Left							
	-45	-54	37	3.3	2032	Supramarginal/Angular G.	40/39
	-4	-53	28	3.5	1048	Precuneus	31/18
	-22	-41	59	3.6	672	Superior Parietal Lobule	7
	-2	50	-5	3.4	648	Medial Frontal Gyrus	10
Right							
	12	-51	49	3.3	1368	Precuneus	7
	44	-44	-17	3.8	824	Fusiform Gyrus	37
	7	-6	48	3.2	1312	Medial Frontal Gyrus	6
	9	-25	38	3.6	1504	Cingulate Gyrus	31

Functional Anatomy of Phonological Manipulation in Normal Readers, Dyslexic Readers, and Normal Readers Greater Than Dyslexic Readers
Task-related signal change was derived by contrasting simple Word Repetition of an aurally presented word with repeating words after performing Sound Deletion on the first

phoneme. Localization is based on stereotaxic coordinates in x (medial-lateral), y (antero-posterior), and z (superior-inferior) directions and refers to the location of maximal activation within a cluster (indicated by the highest Z score). Areas of significant activity within 15.0 mm of the cortical surface are projected to the surface of the brain ($Z = 3.10$; $p < 0.001$, uncorrected; limited to clusters >80 contiguous 2 mm cubic voxels). Brain activity attributed to phonological manipulation in normal readers (A) was observed in left occipitotemporal, inferior parietal, and inferior frontal cortex, consistent with previous studies. The thalamus and cerebellum were also bilaterally active (these deeper foci are not seen in the figure). In the right hemisphere, the following regions were identified: inferior and middle temporal cortex as well as middle frontal gyrus. The dyslexic group (B) showed activity related to phonological manipulation in bilateral inferior parietal, inferior frontal, middle temporal cortex, precuneus, and cerebellum. A between-group statistical comparison of the control and dyslexic groups (C) revealed less activity in the dyslexic group in left inferior parietal regions (supramarginal and angular gyri), superior parietal lobule, precuneus, and medial frontal gyrus. Dyslexic subjects also displayed less activation in several right hemisphere regions compared to controls: the occipitotemporal junction, as seen in the figure, and medial structures including precuneus, medial frontal, fusiform, and cingulate gyri (not seen in these lateral projections).

Guinevere F. Eden, Karen M. Jones, Katherine Cappell, Lynn Gareau, Frank B. Wood, Thomas A. Zeffiro, Nicole A.E. Dietz, John A. Agnew, D.Lynn Flowers. "Neural Changes following Remediation in Adult Developmental Dyslexia" in *Neuron*. Vol 44(3), 28 October 2004:411-422.

Appendix C – Dyslexic and Non-Dyslexic Brains Over Time

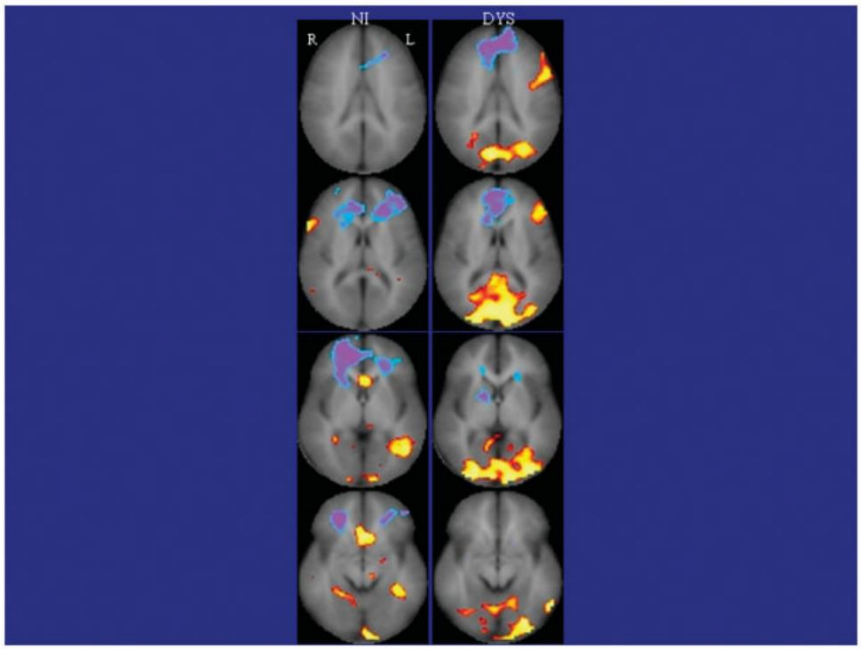


Fig 2. Correlation maps between age and activation for nonimpaired (NI) and dyslexic (DYS) readers during a nonword rhyming (NWR) task. For each group of readers, a correlation with age was calculated using general linear model (GLM) with skill (in-magnet accuracy) included as a covariate. Areas in yellow and red indicate a positive correlation between age and activation (threshold, $p < 0.05$*). Brain regions in blue and purple indicate a negative correlation between age and activation (threshold,* $p < 0.05$*). The four rows of images from top to bottom correspond to* $z = +23, +14, +5,$ *and* -5 *in Talairach space.*[32] *Age-related* increases *in NI readers are seen primarily in the left anterior lateral occipitotemporal region, and in DYS readers in the left inferior frontal gyrus and left and right posterior medial occipitotemporal regions. Age-related* decreases *in NI readers are seen mainly in the left and right superior and middle frontal gyri, and in DYS readers in the bilateral superior frontal gyri and anterior cingulate gyrus.*

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Appendix D – SAMPLE Electives Course

Marine Corps University/Command and Staff College
The Electives Program

Lesson Title: Creative Warriors Make Better Warriors - War and Culture Through Art

1. Introduction

A course on War and Culture Through Art will build on the Command and Staff College's professional development program of its officers. The course will review key traditions, military wars, and national and cultural perspectives on these as viewed through cultural perspectives nested in the real-time perspective and with an historical perspective.

This course will cover major time periods as already applied in the first half of the CSC academic year program and shall be considered supplementary to the CSC leadership, TDC, and military history modules. This elective may be best suited for the officers who are non-traditional learners and are seeking to gain a broader perspective on war in a variety of broader cultural contexts including through different mediums such as music, art, and performing arts.

2. Student Learning Outcomes

1.1 Analyze classical and emerging theories of the enduring nature and changing character of war.
1.2 Analyze the nature and character of war as interrelated military, political, economic, and social activities.
1.5 Analyze evolving concepts of operational art.
1.6 Evaluate the practice and application of operational art.
2.1 Comprehend the concept and facets of national power.
4.1 Recognize the complexity and nature of problems.
4.4 Analyze cognitive processes that affect decision making.
4.5 Apply insights from history and other academic disciplines to enhance decision-making.
7.2 Create well-organized, clear, and concise written documents, in formats appropriate to their audience and purpose.
7.3 Employ effective oral communications techniques and styles appropriate to the audience, venue, and purpose.

Supporting Education Objectives

This course will improve the ability of the CSC student to:

a. Use historical context to inform professional military judgment. [CSC 4.4, 4.5, 7.2, 7.3; JPME 6b, 6e]

b. Analyze the major factors that shaped the evolution of warfare and military institutions. [CSC 1.3, 1.5, 4.1; JPME 3c, 3d, 3e, 4a]

c. Analyze the historical trends that have shaped the contemporary operational environment. [CSC 1.6, 4.1]
d. Analyze the impact of societal, economic, and political revolutions on military institutions and battlefield performance. [CSC 1.2, 4.1; JPME 4f]

3. Student Requirements/Schedule

a. Class 1 – Course Introduction on the Arts and the Military
   1. Chapter 1: "All Eyes on the Global Stage" in Lull, James. *Culture-on-Demand: Communication in a Crisis World*. Oxford: Blackwell Publishing, 2007.
   2. Chenoweth, H. Avery. *Art of War: Eyewitness U.S. Combat Art from the Revolution Through the Twentieth Century.* New York: Michael Friedman Publishing Group, Inc., 2002.

b. Class 2 – Culture-on-Demand from "cultural traditions and values guid[ing] all forms of self-expressions" from music, art, and dance to group identity, rituals, and collective expression.
   1. Chapter 2: "Human Expression" in Lull, James. *Culture-on-Demand: Communication in a Crisis World*. Oxford: Blackwell Publishing, 2007.
   2. Supplemental Art and War books in chronological order:
      a. Dawson, William Forrest (ed) *A Civil War Artist at the Front*: *Edwin Forbes' Life Studies of the Great Army*. New York: Oxford University Press, 1957.
      b. Knudsen, Dean. *An Eye for History: The Paintings of William Henry Jackson.* Gering, NE: Scotts Bluff National Monument, 1997.
      c. Cobb, David. *The Making of a War Artist: the Falklands Paintings.* London: Conway Maritime Press, 1986.
      d. Fay, Michael (USMCR). *Fire and Ice: Marine Corps Combat Art from Afghanistan to Iraq.* Quantico, VA: History Division, Marine Corps University, 2007.

c. Class 3 – From Ancient Wars to Shakespeare
   1. Chapter 4: "The Push and Pull of Culture" in Lull, James. *Culture-on-Demand: Communication in a Crisis World*. Oxford: Blackwell Publishing, 2007.
   2. Richard III Act V Scene 3 Earl of Richmond's oration to his soldiers (See Appendix E)

d. Class 4 – British Arts and War
   1. Chapter 6: "Cultural Transparency" in Lull, James. *Culture-on-Demand: Communication in a Crisis World*. Oxford: Blackwell Publishing, 2007.
   2. Gilbert and Sullivan's Operatic Theater e.g. *Pirates of Penzance, H.M.S. Pinafore*

e. Class 5 – Revolution and Social Change in France

1. Review lesson cards and readings from French Revolution to Napoleon Bonaparte.
2. Watch *Les Miserables*, an account of the impact of a major social dynamic change between the classes resulting from the earlier French Revolution.

f. Class 6 – The American Revolution: Comparing Its Artistic Narratives
   1. Chapter 7: "The Open Spaces of Global Communication" in Lull, James. *Culture-on-Demand: Communication in a Crisis World*. Oxford: Blackwell Publishing, 2007.
   2. View *1776.*
   3. Miranda, Lin-Manuel, and Jeremy McCarter. *Hamilton: The Revolution*. New York: Hachette. 2016.
   4. Music comparison: *Hamilton: The Musical* vs. *Hamilton: The Mixed Tape*

g. Class 7 – The American Revolution on Stage
   1. Staff Ride to see *Hamilton*: *The Musical*

h. Class 8 – From Civil War Through World War II
   1. Choose two to compare:
      a. *The Civil War* and *Shenandoah;* or
      b. *Oh, What a Lovely War* and *West Side Story;* or
      c. *South Pacific!, Over Here!,* and *This is the Army*
   2. Supplemental Music and War Materials:
      a. Dolph, Edward Arthur. *"Sound Off!": Soldier Songs from Yankee Doodle to Parley Voo*. New York: Cosmopolitan Book Corporation, 1929.
      b. United States Adjutant General's Office. *Army Song Book*. Washington, DC: The Library of Congress and published by order of the Secretary of War, 1941.
      c. Palmer, Roy (ed.) *The Oxford Book of Sea Songs*. Oxford: Oxford University Press, 1986.
      d. Schneider, Richard H. *Taps: Notes from a Nation's Heart*. New York: HarperCollins Publishers, 2002.

i. Class 9 – Vietnam until Present Day
   1. Chapter 8: "Fundamentalism and Cosmopolitanism" in Lull, James. *Culture-on-Demand: Communication in a Crisis World*. Oxford: Blackwell Publishing, 2007.
   2. View *Miss Saigon* on Vietnam or
   3. View *Chess* on the Cold War

j. Class 10 – Integration

4. Additional Student Requirements

In addition to attending class on a regular basis, complete the reading and/or viewing assignments, and participate in class, it is proposed that each student shall review a collection of cultural and artistic medium to compare and contrast different interpretations on a single subject matter and its implications with varying degrees of interpretation and re-interpretation.

For example, a CSC might be interesting in comparing the different interpretations of military history during the American revolutionary period. Or, a student might consider the evolution and purpose of the use of music in inspiring, motivating, and containing troops during different military periods (e.g. by century) or during an extended war with different phases of combat (e.g. Vietnam). The final product can be submitted as a written paper (8-10 pages) or as a compilation of artistic mediums with a clear learning message captured in the selected in the mode of communication. This shall then be developed into a short summary presentation for the elective class in the last week of instruction.

5. Assessment

The course grade is weighted as follows:

Seminar Contribution	40%
Written/Compiled Paper	40%
Presentation	20%

6. Relationship to Other Instruction

This elective compliments the Think, Decide, Communicate, Leadership, and Military History course topics. This expands upon previously completed coursework related to military history and presents several perspectives and interpretations on how one might conceptualize and apply the different cultural discourses found in the artistic interpretation of military history.

7. References

Lull, James. *Culture-on-Demand: Communication in a Crisis World*. Oxford: Blackwell Publishing, 2007

Others as listed by each class.

8. Lesson Hours

18.0 hours – seminar discussion
8.0 hours – Staff Ride/Battle Study

Appendix E – Earl of Richmond Act 5, Scene 3

RICHMOND Act 5, Scene 3

Earl of *Richmond*

[*His oration to his soldiers*]
More than I have said, loving countrymen,
The leisure and enforcement of the time
Forbids to dwell upon: Yet remember this, ---
God and our good cause fight upon our side;
The prayers of holy saints and wronged souls,
Like high-rear'd bulwarks, stand before our faces.
Richard except, those whom we fight against
Had rather have us win than him they follow:
For what is he they follow? Truly, gentlemen,
A bloody tyrant and a homicide;
One rais'd in blood, and one in blood establish'd;
One that made means to come by what he hath,
And slaughter'd those that were the means to help him;
A base foul stone, made precious by the foil
Of England's chair, where he is falsely set;
One that hath ever been God's enemy:
Then, if you fight against God's enemy,
God will, in justice, ward you as his soldiers;
If you do sweat to put a tyrant down,
You sleep in peace, the tyrant being slain;
If you do fight against your country's foes,
Your country's fat shall pay your pains the hire;
If you do fight in safeguard of your wives,
Your wives shall welcome home the conquerors;
If you do free your children from the sword,
Your children's children quit it in your age.
Then, in the name of God and all these rights,
Advance your standards, draw your willing swords.
For me, the ransom of my bold attempt
Shall be this cold corpse on the earth's cold face;
But if I thrive, the gain of my attempt
The least of you shall share his part thereof.
Sound drums and trumpets boldly and cheerfully;
God and Saint George! Richmond and victory!

Shakespeare, William. *The Complete Works*. Oxford: The Shakespeare Head Press, 1994.

Appendix F – John Singer Sargent, *Gassed*

John Singer Sargent. *Gassed.* March 1919. London: Imperial War Museum.

Appendix G - John Singer Sargent, Studies in *Gassed*

John Singer Sargent, Studies in *Gassed*, August 1918. London: Imperial War Museum. Presented by the great-nieces and great-nephews of the artist, in memory of Miss Emily Sargent, 1987.

Appendix H – William S. Phillips, *Those Last Critical Moments*

Those Last Critical Moments
by William S. Phillips