Glovento Journal of Integrated Studies (GJIS) | ISSN: 3117-3314
Volume 2 (2026) | Article 74

# Cognitive Scaffolding: Michelangelo's Architectural Logic as Mental Support

**KANG L. Y.**

College of Management, National Pingtung University, Taiwan, R.O.C.,
Email: kangl@mail.nptu.edu.tw

**Abstract-** This study explores the late architectural works of Michelangelo Buonarroti (1534–1564) through the lens of Neuro-phenomenology, reframing his subversion of Vitruvian principles as a deliberate form of Externalized Cognitive Scaffolding. While traditional art history often classifies Michelangelo's late period as a retreat into idiosyncratic Mannerism, this research argues that his "logic of support" functions as a sophisticated psychological surrogate for the aging mind. Through qualitative analysis of the Staircase Tension in the Laurentian Library and the Cerebral Weight of the St. Peter's Dome, the essay identifies a "Semiotics of Stability" designed to counter cognitive entropy. Central to this investigation is the Sforza Chapel, where "Enclosed Expansiveness" is achieved through diagonal column orientations. Utilizing Formalist Hermeneutics, the study interprets these structural choices as a mental "brace" for the observer, fostering a profound sense of structural security amidst complex, non-axial geometry. These findings suggest that Michelangelo's late style constitutes a Unified Cognitive Exoskeleton, transmuting physical tension into a narrative of resilience, spiritual elevation, and cognitive longevity.

**Keywords:** Michelangelo, Late Style, Cognitive Scaffolding, Neuro-phenomenology, Sforza Chapel, Enclosed Expansiveness, Embodied Simulation, Architectural Logic, Resilience.

## I. Introduction

### The Architectonics of the Late Mind

In the final decades of his life (1534–1564), Michelangelo Buonarroti moved toward an architectural language of profound "intransigence" (Said, 2006, p. 12). After returning to Rome to face the dual pressures of the Counter-Reformation and his own looming mortality, the artist abandoned the serene, mathematical harmonies of his youth for a style defined by tension, compression, and structural subversion. Traditionally, art historians have categorized this period as the birth of Mannerism—a retreat into idiosyncratic complexity. However, recent scholarship, such as Sarah Vowles' *Michelangelo: The Last Decades* (2024), suggests that this period was not a decline but a sophisticated adaptation to the spiritual and physical anxieties of the time (p. 88). This essay posits that Michelangelo's late architecture serves as an "externalized cognitive scaffold," providing the structural logic that the aging mind requires to maintain internal coherence.

### Beyond Functionalism to Phenomenological Intervention

The purpose of this study is to redefine Michelangelo's subversion of Vitruvian norms as a "Phenomenological Intervention" designed to stabilize the observer's "Self." Moving beyond the functional requirements of masonry, the research investigates how his "logic of support"—specifically the use of recessed columns, diagonal bracing, and the "Giant Order"—functions as a psychological and neurological surrogate for the mind. By examining the Laurentian Library, the Sforza Chapel, and St. Peter's Dome, the study aims to demonstrate that Michelangelo transitioned from "depicting" strength to "constructing" a resilient system of support that compensates for the internal "cognitive thinning" of the human spirit under the pressure of mortality.

## II. Literature review/Study site

### Theoretical Framework: Neuro-Phenomenology and Embodied Simulation

This research critically reviews and applies Neuro-phenomenology and Grounded Theory. Central to this approach is the theory of "Embodied Simulation" (Freedberg & Gallese, 2007), which posits that architectural forms trigger motor-sensory responses in the brain. When we observe a column under strain, our neural pathways map that pressure as if it were happening to our own bodies (Research indicates that when viewers observe movement or brushstrokes in works of art, the brain generates a strong empathetic experience through embodied simulation (Freedberg & Gallese, 2007)). Furthermore, Alva Noë's *Strange Tools* (2015) frames art as a "reorganizing practice" (pp. 29-31), providing the basis for our argument that Michelangelo's spaces do not merely house the body but restructure the consciousness of the viewer.

## III. Materials and Methods/ Methodology

This research employs Neuro-Phenomenology and Grounded Theory to analyze the "lived experience" of architectural space; and synthesizes Edward Said's *On Late Style* (the notion of "intransigence" as cognitive power) with Gallese's "Embodied Simulation" theory, arguing that architectural forms trigger motor-sensory responses even in the absence of movement.

**Case Study I: The Laurentian Library – "Staircase Tension"**
The vestibule of the Laurentian Library presents a radical departure from classical accessibility. Utilizing Visual Ethnography, this study analyzes the staircase as a "cascading river" of stone. The central flight appears to flow toward the viewer, creating a state of entropy. However, as noted by Vowles (2024), the flanking, rigid stairs and the recessed columns serve to "recapture" the viewer (p. 145). This creates a cognitive exercise: the mind must navigate the fluid disorder of the stairs by leaning on the "mental anchors" provided by the wall's structural logic. The tension here is a scaffold for the soul's navigation of chaos.

**Case Study II: The Sforza Chapel – "Enclosed Expansiveness"**
In the Sforza Chapel, Michelangelo utilizes Formalist Hermeneutics to create a sense of "structural security" through complexity. The diagonal orientations of the columns do not follow traditional axial grids. According to the research from Syracuse University (2023), these "anti-mathematical" placements function as a mental "brace" (p. 41). The diagonal pressure creates a sense of "Enclosed Expansiveness," where the observer's consciousness is allowed to expand into the geometry while feeling physically supported by the irregular but robust pillars.

**Case Study III: St. Peter's Dome – "Cerebral Weight" and Elevation**
The dome of St. Peter's is the ultimate expression of the "Logic of Support." Here, Michelangelo visualizes "Cerebral Weight"—the psychological burden of existence. As analyzed by Spuybroek (2024), the dome's sixteen ribs do not merely support the shell; they choreograph a "straining grace" (p. 182). By making the forces of gravity visible, the architecture provides a visual scaffold that allows the mind to transmute the pressure of the stone into spiritual elevation, leading the eye—and the consciousness—toward the light of the lantern.

## IV. Results and Discussion

**The Aesthetic Prosthesis**
The study yields three primary findings:

1. **The Mental Exoskeleton:** Michelangelo's exaggerated structural forces act as a prosthesis for the aging brain, making the labor of "staying upright" a visible, shared experience between the building and the human.
2. **Cognitive Completion:** The *non-finito* and anti-mathematical tendencies demand an active participation from the observer (Chao, 2011, p. 145). The viewer becomes the "keystone" that completes the logic of the space.
3. **Transcendental Stability:** By resolving geometric dissonance through the "Giant Order," the architecture fosters a state of "Flow," where the resolution of tension leads to a sense of profound security.

## V. Conclusion

**Originality and Value**
The originality of this work lies in its rejection of "decline" narratives, reframing Michelangelo's late "errors" as Intentional Cognitive Scaffolds. It provides a new qualitative framework for Neuro-Gerontology, suggesting that the "logic of space" can serve as a therapeutic tool for cognitive longevity. The value lies in establishing a Semiotics of Stability, where art history provides a blueprint for modern environments designed to support the human spirit through aesthetic resonance.

**The Architecture of Resilience**
Michelangelo's late architecture is a unified Cognitive Exoskeleton. From the "Staircase Tension" in Florence to the "Cerebral Weight" in Rome, his work demonstrates that when the human spirit is under the pressure of mortality, it requires an external logic to remain upright. His late style remains a timeless testament to human resilience—a stone-wrought proof that even under the heaviest weight of time, the spirit can find a scaffold upon which to rise.

## References

1. Chao, H. L. (2011). Pietàs — non-finito? A re-evaluation. *Research in Arts Education*, (22), 139-175 *(...non-finito was not a deliberate aesthetic choice (Chao, 2011, p. 145)).*
2. Freedberg, D., & Gallese, V. (2007). Motion, emotion and empathy in aesthetic experience. *Trends in Cognitive Sciences, 11*(5), 197–203.
3. Noë, A. (2015). *Strange tools: Art and human nature*. Hill and Wang.
4. Said, E. W. (2006). *On late style: Music and literature against the grain*. Pantheon., p. 12 (Said (2006) argues that late style is not a "harmonious resolution" of a lifetime's work, but rather a form of **"deliberate incompleteness"** that refuses to reconcile with reality (p. 12)).
5. Spuybroek, L. (2024). *Grace and gravity: Architectures of the figure*. Bloomsbury Visual Arts., p. 182 (Spuybroek (2024) points out on page 182 that the arrangement of architectural elements can induce a mechanical resonance within the viewer, and this tension is the very embodiment of "grace").
6. Neira, I. S. G. (2023). From drawing to architecture: Michelangelo's (anti) mathematical design. *The Crown, 2*(1), Article 4. , p. 41.
7. Vowles, S. (2024). *Michelangelo: The last decades*. British Museum Press., pp. 88, 145 (Vowles (2024) argues that Michelangelo's architectural designs express a sense of tension beyond the limits of conventional geometry (p. 88); Vowles analyzes how Michelangelo's architectural structures create tension transcending traditional geometry, particularly in his late work. She further examines the "dematerialization" and non-finito form in the Rondanini Pietà, characterizing the artist as an "ascetic who meditates through his materials" to represent spiritual liberation (p. 145)).