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REVIEW ARTICLE

Narrative Minds and Material Ecologies: Reconfiguring Classical Hermeneutics through Polycentric Classics and Digital Humanities

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Abstract

This narrative review outlines a polycentric future for Classical studies. It combines philological precision with computational tools, ethical governance, and public-facing teaching. The review is organized into seven sections. These move from corpus and tool transparency, to ethics, eco-sensory and affective interpretation, cognitive narratology and genre theory, and finally to reception, pedagogy, and civic engagement. The review synthesizes current research pipelines used in digital Classics. These link TEI and EpiDoc encodings, CTS URNs, and IIIF delivery systems with OCR and HTR correction workflows. They also include multispectral and hyperspectral imaging, virtual unwrapping, stylometry, and constrained large language model collation. All methods are assessed using explicit uncertainty limits and reproducibility standards. Decolonizing practice is addressed through clear provenance tracking, consent registries, and transparent credit systems. The review reframes race, ethnicity, and disability by emphasizing precise terminology, accessibility-focused design, and enforceable custodianship. It advances eco-materialist and multispecies approaches by connecting textual evidence with archaeological, environmental, and climatic data. Sensory history and affect are treated as structured, testable interpretive domains. The review draws on cognitive science to link narrative techniques such as focalization, metalepsis, and temporal structure with predictive processing, theory of mind, and appraisal theory. This alignment supports auditable interpretations across epic, lyric, historiography, philosophy, satire, and oratory. Reception is examined across film, comics, podcasts, and games. These are framed within universal design for learning, sustainability planning, and risk management. The review proposes clear standards for disclosure, auditing, and long-term maintenance. It concludes with an agenda focused on benchmark corpora, gold standard collation graphs, model cards and open pedagogical studios. Together, these elements form a modular framework for a credible, equitable and durable discipline of Classics.

Keywords

Classical Philology, Digital Humanities, Computational Philology, Textual Criticism, Papyrology, Epigraphy, Multispectral Imaging, Stylometry, Cognitive Narratology, Reception Studies.

1. Introduction

Classics now functions as a polycentric knowledge regime that sutures philological exactitude to theoretically saturated hermeneutics and to data-intensive infrastructures that recalibrate how claims are assembled, verified, and communicated. The field negotiates fragile textual substrates, dispersed material repositories, and volatile platformed publics while absorbing methodological shocks from artificial intelligence, platform governance, sensory humanities, cognitive narratology and environmental history (Zaremba & Moskvina, 2024; Zulfiya, 2024). A narrative synthesis that aligns these currents is necessary because interpretation increasingly

depends on auditable toolchains, explicit uncertainty budgets, and enforceable ethics that cross traditional subfield boundaries. The present review treats ten high-momentum themes as an integrated ecology and organizes them around evidence accountability, methodological transparency, equitable governance, and public intelligibility. The objective is operational rather than celebratory, with an emphasis on protocols that can be executed in laboratories, archives, classrooms, and civic venues. The argument advances from infrastructures and methods to equity and governance, then to environmental and affective analytics, followed by narrative cognition and poetics, and finally to media ecologies, pedagogy, and the public humanities, so that conceptual scaffolding precedes application domains and capacity building. Section 2 provides the initial operational anchor and explicitly introduces Table 1 in Section 2 as a standards matrix that stabilizes corpus disclosure, workflow specification, and reproducibility artifacts.

Definitions, Scope and Boundary Conditions

This review adopts an expansive yet disciplined definition of Classics that centers Greek and Latin textual and material corpora while engaging cognate languages, contact zones, and cross-regional antiquities when those comparanda sharpen philological and theoretical inference. Classical literary theory denotes historically situated poetics, rhetoric, and hermeneutics in sustained dialogue with contemporary repertoires that include decolonial critique, disability studies, feminist and queer analytics, affect theory, cognitive science of narrative, and media theory (Weber, 2020; Yang, 2024). The scope privileges evidence-bearing argumentation over antiquarian inventory and foregrounds reproducible method wherever computation or imaging informs textual restoration, collation, or stylistic attribution. Constraints are explicitly stated when inference relies on fragmentary archives, genre noise, or skewed digitization. The temporal window emphasizes twenty-first century developments while integrating earlier conceptual landmarks only when they supply indispensable terminology or problem frames that remain operative in current practice (Thomassen, 2021; Tuttle, 2021; Uug'bekovna, 2024). Exclusions include project marketing narratives, unsourced claims, and narrow technical tutorials that do not enhance interpretive accountability. The boundary condition is actionable utility for scholars, educators, curators, and policy actors who must justify decisions about resource allocation, curricular design, data governance, and public communication under budgetary, legal, and reputational constraints.

Aims, Research Questions and Review Objectives

The principal aim is to map ten research arcs into a coherent methodological and ethical architecture that improves the credibility, portability, and teachability of classical scholarship across institutional and public contexts. The first research question specifies what problems, corpora, and procedures define each arc and how these components support defeasible and testable claims. The second identifies where novel infrastructures and algorithms shift interpretive baselines and what disclosure standards are required for evaluation and replication. The third clarifies how equity, accessibility, and governance obligations reshape collection building, data release, editorial practice, and pedagogy across diverse jurisdictions. The fourth formulates near-term agendas that align research, teaching, and public engagement while minimizing technical debt and maintenance risk.

Operational objectives include minimal disclosure norms for computational and noncomputational methods, evaluation heuristics that scale from seminar to repository, training pathways that braid philology with design and data stewardship, and cross-theme synergies that reduce duplicative effort. Section 2 inaugurates this program by presenting Table 1 in Section 2 as a compact instrument that links corpus provenance, preprocessing conventions, model parameters, error budgets, and citation credit.

Narrative Review Heuristics and Methodological Protocol

The review employs a humanities-appropriate narrative synthesis that blends systematic exploration with purposive sampling of exemplars where techniques, risks, or payoffs are most legible. Discovery pathways combine disciplinary bibliographies, curated repositories, project documentation, museum interfaces, and selective citation chaining, with a standing preference for sources that expose datasets, code, or parameterizable workflows. Screening follows a triadic lens of question, evidence, and procedure and logs for each item the inferential posture, uncertainty profile, and ethical disclosures that bear on portability. Appraisal prioritizes philological precision, clarity of analytical moves, verifiability of tool configurations and preprocessing pipelines, and explicit handling of counterevidence and rival explanations. Synthesis proceeds within each thematic cluster and then across clusters through matrices that align method, ethics, evidence class, and pedagogical applicability, thereby generating transferrable heuristics. Reflexive disclosure clarifies linguistic competencies, archival access, and positional assumptions that may shape inclusion and weighting. Where computational results are central, evaluation attends to ground truthing, error propagation, domain shift, and reproducibility artifacts. Section 2 operationalizes these heuristics through Table 1 in Section 2, which enumerates reporting minima that journals, repositories, and projects can adopt without impeding interpretive nuance.

Structure, Table Roadmap and Limitations of Coverage

The architecture of the review is stair-stepped from capacity to consequence so that infrastructures precede obligations and applications. Section 2 consolidates infrastructures and computational methods and introduces Table 1 in Section 2 as a standards matrix for corpus and workflow transparency. Section 3 addresses ethics, equity, and governance across decolonizing frames, race and identity analytics, and disability and health and deploys Table 2 in Section 3 as a governance checklist suitable for funding proposals, repository policies, and editorial practice. Section 4 analyzes environmental, sensory, and affective methodologies and provides Table 3 in Section 4 as genre-sensitive heuristics for eco, sensory, and emotion modeling. Section 5 examines narrative minds and classical poetics and presents Table 4 in Section 5 as a crosswalk that links narratological categories to cognitive constructs and empirical probes. Section 6 evaluates media ecologies, reception, pedagogy, and the public humanities and installs Table 5 in Section 6 as a design map for engagement, accessibility, assessment, and sustainability. Section 7 synthesizes cross-theme priorities into a five-year agenda. The review acknowledges language and access asymmetries, uneven corpus maturity, and the volatility of platformed media while using the table roadmap to anchor operational clarity without sacrificing interpretive depth.

2. Infrastructures and Methods for 21st Century Philology

Contemporary philology operates on an integrated scaffold of digitized corpora, interoperable metadata, and auditable machine learning pipelines that render textual inference both tractable and contestable. Optical and handwritten text recognition for Greek and Latin has improved with script-aware tokenization, diacritic normalization, and active learning correction, although quality still varies with page capture, ligature density, and marginalia noise (Szczęsna, 2023; Tasheva, 2024). Imaging regimes such as multispectral and hyperspectral acquisition enable recovery of low-contrast ink, while virtual unwrapping of carbonized scrolls separates curvature from inscription with mesh reconstruction and volumetric segmentation. Stylometry and intertext detection now combine character n-grams, metrical features, and distributional semantics to differentiate authorial habits from genre constraints, yet metrical regularity and formulaic diction still introduce confounds that require disclosure of genre baselines (Sommerschield et al., 2023). Large language models can expedite collation and variant clustering when constrained by rule-based filters and error budgets that keep human editors in the loop. Interoperability depends on TEI and EpiDoc conventions, Canonical Text Services identifiers for citation granularity, and IIIF for image delivery with tiled manifests. Section 2.2 introduces Table 1, which condenses corpus provenance, workflow specification, evaluation metrics, and reproducibility artifacts into a compact matrix suitable for editorial and repository adoption.

Operational Pipelines and Reporting Standards

Operational credibility in computational philology rests on transparent declarations of where texts originate, how they are cleaned, which models transform them, and how uncertainty is communicated. Corpus statements should disclose acquisition channels and licenses, with explicit indication of diplomatic or normalized transcription (Rahmi et al., 2024; Roelli, 2020). Pre-processing must specify tokenization, lemmatization, and orthographic normalization, along with any segmentation for line, sentence, or sense. Model sections require architecture, hyperparameters, and training or adaptation regimes, as well as guardrails for hallucination suppression in generative components. Evaluation needs character and word error rates for recognition, precision and recall for retrieval, and calibration plots or confidence intervals for restoration suggestions (Perevorska et al., 2024; Piotrowski, 2022; Porter, 2024). Reproducibility demands code repositories, data DOIs, and workflow manifests that enumerate versions, seeds, and environment hashes. Credit statements should recognize data curators, software maintainers, and imaging specialists. The following matrix provides minimal but enforceable reporting elements that projects can adopt without constraining interpretive latitude. This Table 1 also functions as a bridge to Section 3, where governance and equity considerations require the same level of procedural clarity.

Table 1. Standards Matrix for Contemporary Computational Philology Workflows and Provenance

Corpus or Project	Access and Formats	Workflow and Toolchain	Quality and Error Metrics	Reproducibility and Credit
Perseus Digital Library	Open access, TEI XML, CTS URNs, IIIF images	Tokenization, lemmatization, morphological tagging, rule constrained LLM collation	CER, WER, lemmatizer accuracy, variant clustering purity	Public repo, data DOI, containerized workflow, named curator and maintainer credit
Thesaurus Linguae Graecae	Subscription repository, CTS references, normalized orthography	Controlled export, citation alignment, stylometry with genre baselines	Sampling disclosure, confusion matrices, cross genre drift checks	Registered protocol, versioned scripts, institutional acknowledgment, persistent citation
Papyri.info	Open access, EpiDoc encoding, linked identifiers, IIIF manifests	HTR correction, diplomatic to normalized mapping, variant graph assembly	CER on diplomatic layers, normalization alignment error, reviewer agreement rate	Git history, issue logs, data DOI, contributor roles, imaging credit
Open Greek and Latin	Open pipeline, TEI XML, CTS catalog, multilingual normalization	OCR post correction, language model assisted restoration, audit trails	CER, WER, restoration acceptance rate, human veto accounting	Workflow YAML, container checksum, contributor taxonomy, code citation
Herculaneum Virtual Unwrapping	Controlled access, volumetric datasets, IIIF derivatives, metadata rich meshes	Volume segmentation, texture mapping, line extraction, HTR post processing	Slice level recognition accuracy, uncertainty bands, low signal flags	Protocol registry, environment hash, imaging team credit, restricted data note
EpiDoc Epigraphic Corpora	Open schema, project specific corpora, RDF links	Epigraphic markup, normalization, expansion rules, named entity linking	Expansion accuracy, entity linking precision, provenance consistency	Schema version pinning, style guide DOI, citable release note, acknowledgments

The matrix foregrounds brevity to aid adoption while encoding the non-negotiable elements that transform artisanal practice into accountable science. Projects can expand cells with local specifics, yet each cell already captures the minimum needed for a reviewer to reconstruct the workflow and for a curator to index the artifacts. The inclusion of subscription and controlled access resources alongside open initiatives acknowledges heterogeneous regimes of availability while insisting on uniform reporting discipline. The emphasis on containerized execution and version pinning reduces configuration drift, while explicit credit lines correct chronic invisibility of technical labor. As Section 3 demonstrates, these standards also underpin equitable collaboration with source communities and memory institutions by making provenance, permissions, and benefit sharing legible.

Epistemology, Ethics, and Stewardship in Philology

Data-intensive philology must articulate a defensible epistemology that treats machine outputs as probabilistic proposals rather than authoritative resolutions and that retains human editorial primacy wherever textual stakes are high. Ethical claims begin with provenance logic that records acquisition conditions and any constraints on redistribution, especially for images that include culturally sensitive content or fragile artifacts (Palladino et al., 2022; Parshutkina & Turko, 2024). Stewardship requires sustainability planning that covers storage refresh, dependency updates, and migration away from deprecated libraries. Environmental externalities from training and inference should be disclosed with approximate energy accounting and with mitigation plans that favor model distillation and task-specific adapters over gratuitous retraining. Accessibility is nonoptional and includes alt text for images, transcripts for audio, and screen-reader compatible navigation for complex apparatus (Mitcham, 2020). Governance instruments must specify change control for texts and metadata, conflict resolution for competing readings, and sunset clauses for experimental features. The cross-referencing of these obligations in Table 1 encourages social as well as technical accountability and prepares the ground for the equity frameworks in Section 3, where consent, credit, and co-curation formalize duty of care.

Gaps, Horizons and Near-Term Priorities

Several lacunae inhibit robust accumulation of knowledge and impede the comparability of results across projects and venues. Recognition benchmarks for polytonic Greek and medieval Latin remain fragmented and often lack stratified test sets that reflect page condition, hand variability, and genre mix, which complicates transfer claims. Restoration evaluation seldom reports calibration alongside accuracy, which obscures the reliability of probability scores for editorial triage (Middleton, 2024). Collation exercises rarely publish gold-standard variant graphs with licensing that permits reuse, which reduces the value of negative results. Genre-sensitive stylometric baselines are not consistently declared, which magnifies false inferences about authorship or intertext. Maintenance planning remains underfunded, which leads to orphaned code and broken manifests that degrade trust and deter adoption (Macías Borrego, 2023; Maiocchi, 2021). Immediate priorities include a shared suite of open gold sets with precise licenses, model cards tailored to philological tasks, and lightweight audit forms that capture the fields visible in Table 1. These measures will allow Section 6 pedagogy to leverage stable resources and will enable Section 5 cognitive

modeling to integrate trustworthy corpora without incurring hidden technical debt.

3. Ethics, Equity and Governance in Classics

Decolonizing and Globalizing Frames

Decolonizing practice in Classics requires a shift from extractive custodianship to co-constituted knowledge production in which source communities, regional institutions, and diasporic publics exercise meaningful agency over description, access, and reuse. Provenance logic must move beyond inventory to a causal narrative that records acquisition conditions, negotiation histories, and any constraints on reproduction or derivative works (Li, 2020; Locaputo et al., 2024). Language justice demands multilingual metadata, parallel editions, and discovery interfaces that honor local naming conventions and transliteration norms rather than enforcing monolingual standardization. Comparative antiquities should be mobilized to illuminate entanglement rather than to expand a metropolitan canon, which means that analogies are warranted only when evidentiary pathways are explicit and reversible. Funding and authorship structures must internalize the cost of participation for non-metropolitan partners through shared intellectual property and revenue models (Krasniuk & Goncharenko, 2024; Kudinova et al., 2021; Lamb, 2020). Training pipelines should braid philology with legal literacy, collections care and community liaison skills, so that students can navigate permissions, restitution and sensitive display. The operational criteria that secure these commitments appear in Table 2 in Section 3, which codifies stakeholder identification, risk appraisal, compliance instruments, and reporting minima, while remaining interoperable with the workflow transparency established in Table 1 in Section 2.

Race, Ethnicity, and Identity in Antiquity

Analysis of race, ethnicity, and identity in ancient contexts must distinguish ancient classificatory lexica from modern biologized constructs while still interrogating patterns of exclusion, hierarchy, and boundary policing that carry clear social effects. Methodologically sound work triangulates philological semantics, epigraphic onomastics, and spatial distributions with care for genre filters and rhetorical postures that can distort social description (Krasniuk, 2024). Bioarchaeological proxies, where ethically collected and lawfully shared, require strict provenance and contextual controls, since decontextualized markers invite essentialism and erase cultural self-definition. Classroom and public communication should disclose the epistemic status of contested categories, document translation choices, and foreground the limits of inference when the archive is lacunose or partisan. Data governance applies with equal force in this domain, which means that datasets must carry usage constraints, derivative rules, and credit lines that prevent secondary misuse (Jackson, 2021). Editorial policy should require terminology notes that separate historical semantics from modern racial vocabularies, along with sensitivity review where public harm is foreseeable. The governance scaffold enumerated in Table 2 in Section 3 operationalizes these requirements by specifying stakeholders, risks, and mitigations, while the pipeline disclosures in Table 1 in Section 2 ensure that any computational augmentation remains auditable.

Disability, Health and Ancient Body

Disability attentive Classics treats impairment not as a deficit intrinsic to bodies but as a relational outcome of built environments, legal regimes, and cultural scripts that either enable or foreclose participation. Evidence spans juridical texts, theatrical corpora, medical treatises, votive landscapes, and domestic architectures, each of which embeds normative assumptions about capacity, dependency, and care work (Hatzel et al., 2023). Access analysis requires granular reconstructions of movement paths, sensory affordances, and social permissions rather than generic invocations of inclusion. Descriptive protocols should avoid pathologizing metaphors and instead mark the rhetorical function of impairment language within a communicative economy that may stigmatize or valorize difference. Digital resources must be accessible by design, with alt text for images, full transcription for audio, screen reader compliant navigation, and dyslexia friendly typography in public editions (Graziosi et al., 2023; Gryaznova et al., 2022; Gryaznova et al., 2022). Attribution should record the labor of access specialists and disability consultants with the same precision granted to technical and curatorial roles. When community collaborators are living stakeholders, consent artifacts must travel with the dataset and bind subsequent reuse. The compliance and reporting regime collated in Table 2 in Section 3 provides a portable template for these obligations and aligns with the standards of reproducibility and credit that were consolidated in Table 1 in Section 2.

Governance Architectures for Consent, Credit and Custodianship

Governance in Classics needs enforceable instruments rather than aspirational statements, since risk concentrates at the interface between institutional policy, platform affordances, and community expectations. Consent must be recorded with scope, duration, and withdrawal clauses, and must specify image resolution, redaction rules, and downstream derivative permissions. Credit requires named roles for field technicians, digitization staff, translators, data engineers, and community reviewers, together with citable release notes that document change over time (Ganiyeva et al., 2024; Ghali, 2023). Custodianship should define change control, escalation paths for disputes, and archiving plans that include media migration and dependency updates. Infrastructural alignment with the transparency regimen in Table 1 in Section 2 reduces configuration drift and exposes hidden dependencies that otherwise complicate compliance audits. To consolidate these principles into an actionable instrument, the following matrix enumerates stakeholder constellations, risk diagnostics, compliance anchors, and mitigations that projects can adopt at proposal, review, and publication stages. The structure of Table 2 in Section 3 privileges concision while encoding obligations that hold across decolonizing collaborations, identity analytics, and disability attentive practice.

Table 2. Governance Checklist Across Equity-Critical Vectors in Contemporary Classics

Stakeholder Constellation	Data and Artifacts	Principal Risks and Harms	Governance and Compliance Instruments	Operative Mitigations and Reporting
Decolonizing Collaborations	Provenance files, images, field notes, bilingual metadata	Extractive use, misattribution, cultural harm, opaque access	MOUs, community protocols, licenses, restitution frameworks	Co-curation, shared IP, multilingual releases, provenance logs
Race and Identity Analytics	Text corpora, onomastic tables, spatial layers, curated bioarchaeology	Anachronism, essentialism, stigmatization, dataset drift	Terminology notes, data use agreements, ethics review	Scope limits, sensitivity review, audit trails, revision history
Disability and Access	Editions, alt text, audio transcripts, interface schemas	Exclusion, inaccessible formats, erasure of access labor	Accessibility policies, WCAG conformance, inclusive style guides	Usability tests, assistive tech checks, credit for access roles
Digitization and Provenance	High resolution images, manifests, repository records	Orphan works, rights breach, privacy leakage	Rights clearance, takedown policy, embargo rules	License labels, redaction pipelines, consent linkage
Consent and Community Protocols	Consent artifacts, contributor rosters, approval emails	Scope creep, nonconsensual reuse, reputational damage	Time bounded consent, withdrawal clauses, approval checkpoints	Consent registry, release notes, public stewardship plan
Credit and Benefit Sharing	Contributor taxonomies, software citations, data DOIs	Invisible labor, credit theft, grant inequity	Contributor roles, credit taxonomies, funding disclosures	Named credits, persistent IDs, benefit sharing statements

The matrix sets a floor rather than a ceiling and should be embedded in journal author guidelines, repository submission flows, and grant evaluation rubrics. Each cell proposes a minimum disclosure that can be adapted to local legal contexts without diluting obligations. The architecture discourages ambiguous phrases about partnership by binding commitments to artifacts such as consent registries, provenance logs, and release notes. It also aligns with the reproducibility stack in Table 1 in Section 2, since version pinning and environment capture facilitate compliance verification. Downstream sections will rely on these controls, since environmental and sensory reconstructions in Section 4, as well as classroom and community engagements in Section 6, cannot be credible without documented permissions, credit, and redress mechanisms anchored in the fields itemized in Table 2 in Section 3.

Agenda for Equitable and Accountable Practice

An actionable agenda follows from the preceding architecture and emphasizes capacity building, incentive redesign, and iterative audit. Capacity building means sustained training that couples philology with data stewardship, intellectual property literacy, accessibility engineering, and community liaison practice. Incentive redesign means that promotion and funding structures must value curation, open data maintenance, and public scholarship with the same seriousness accorded to single author monographs, and that benefit sharing must be budgeted rather than aspirational (Elwert, 2021; Fitzmaurice & Mehl, 2022). Iterative audit requires periodic reviews of governance artifacts, stress tests for consent revocation, and community reporting that discloses incidents, fixes, and lessons learned. International collaborations should harmonize vocabulary for rights and roles to reduce friction across jurisdictions while preserving local specificity. Tool builders should ship governance presets that instantiate defaults from Table 2 in Section 3 so that small teams can comply without bespoke engineering. Editors can demand minimal disclosures aligned with Table 1 in Section 2 and Table 2 in Section 3, thereby converting equity talk into enforceable practice. The field advances when governance is infrastructural rather than rhetorical, and when every dataset, edition, and teaching artifact advertises the chain of care that made it possible.

4. Environmental, Sensory and Readings of Antiquity

Framework for Textual and Material Ecologies

Ecocritical inquiry in Classics now treats texts and things as coextensive media that register hydrologies, extractive regimes, vegetal and animal agencies, and atmospheric perturbations within legible narrative and ritual forms. Eco materialist and multispecies perspectives recast landscapes as actants whose affordances and constraints shape plot arcs, legal schemes, and religious performance, while deep time thinking aligns textual representation with paleoclimatic pulses and geomorphological change (Dubrovskaya et al., 2023). Resource imaginaries such as timber, ore, and water rights are analyzed not as scenery but as governance infrastructures that structure obligation, debt, and risk. The philological craft adapts by treating lexical fields for weather, soil, and growth as indices of resource pressure and by reading metaphor clusters for moral ecologies of care, scarcity, and sacrificial calculation. Stagecraft and urban topography function as sensors for wind, smoke, crowd noise, and animal

presence, which permits reconstruction of performative ecologies with plausible constraints. Method requires cross calibration of literary signals with inscriptions on irrigation, quarry marks, and botanical residues, followed by uncertainty budgeting that is explicit about lacunae and genre noise (Del Grosso et al., 2023; Dörpinghaus, 2022). The operational heuristics that stabilize this practice appear in Table 3 in Section 4, which systematizes environment dimensions, sensory axes, emotion models, and method pairings by corpus and genre.

Sensory Humanities and Embodied Philology

Sensory humanities reposition classical texts and artifacts as archives of situated perception in which sound, smell, touch, taste, and sight function as cognitive scaffolds and social regulators. Soundscapes encode power through trumpet calls, judicial acoustics, and choral antiphony, while smellscapes record sacrificial smoke, civic sanitation, and domestic aromatics as markers of purity, contagion, and rank. Haptic and proprioceptive cues such as weight of armor, heat of hearths, and grit of roads modulate action selection and ritual pacing (Cugliana & van Zundert, 2022; De Gussem et al., 2022). Taste registers conviviality and taboo, which allows inference about hospitality regimes and status performances. Visual regimes vary from glare in marble fora to dim oil lit interiors, which recalibrates plausible gesture and gaze in performance and law. These modalities are neither interchangeable nor epiphenomenal and demand genre aware modeling that respects metrical constraint, rhetorical posture, and scenographic architecture. To convert these insights into a reproducible analytic, the review installs a compact matrix that condenses genre, environment, sensory axis, emotion model, and method pairing. The matrix is a direct descendant of the standards logic in Table 1 in Section 2 and is governance ready for the equity obligations consolidated in Table 2 in Section 3.

The matrix favors concision so that scholars can transplant it into protocols and syllabi without cumbersome overhead while still retaining the discriminations needed for credible inference. Each row encodes a minimal recipe that links ecological constraints and sensory cues to a defensible emotion model, then binds them to a complementary method duet that yields a specific output form such as a cartographic argument, a staging reconstruction, or a causal diagram. The design assumes that emotion scripts are situational and collective rather than purely interior, which is consistent with the performative and civic orientations of ancient genres. The table also anticipates interoperability with digital corpora and imaging workflows by naming markup and spatial tools where they stabilize claims. Downstream sections will reuse this scaffold when narratological modeling in Section 5 requires sensory and affective priors and when pedagogical design in Section 6 translates these heuristics into studio and field exercises.

History of Emotions and Affective Governance

The history of emotions in antiquity now advances on the premise that affect is jointly produced by scripts, settings, and semiotic cues that regulate attention, inference, and action. Appraisal theory clarifies how agents evaluate events relative to goals and norms, while practice theory explains how repeated participation in ritual and civic routines consolidates emotion repertoires that feel natural and mandatory (Cimiano et al., 2020; Cowen-Breen et al., 2023). Pity and fear in civic theater, anger

and shame in forensic oratory, and grief and pride in commemorative acts are not free floating sentiments but institutional energies that legitimate sanction and solidarity. Lexical clusters for sorrow and rage, together with gesture verbs and bodily markers, permit reconstruction of affective choreography with genre specific baselines. Iconography and spatial arrangement materialize proximity and vantage that escalate or dampen arousal. The

analytic consequence is that emotional claims must specify scripts, triggers, and enforcement mechanisms rather than posit timeless psychology. Table 3 in Section 4 encodes these requirements by pairing genre and environment with a designated emotion model and an output format that forces explicit articulation of mechanism, which improves comparability across corpora and reduces projection from modern emotional folk theories.

Table 3. Heuristics for Eco Sensory and Affective Classical Analysis

Corpus or Genre	Environment Dimension	Sensory Axis	Emotion Model	Method Pairing and Output
Epic and Hymnic Traditions	<i>Sea lanes, forests, storms, resource scarcity</i>	<i>Sound, smell, sight</i>	<i>Collective arousal, appraisal of threat, awe</i>	<i>Philology, environmental history, narrative cartography, argument schema</i>
Attic Tragedy and Satyr Play	<i>Urban precinct, altars, caves, plague ecologies</i>	<i>Smell, sound, touch</i>	<i>Ritual catharsis, pity, fear, shame scripts</i>	<i>Performance studies, archaeometry, staging reconstruction, inferential map</i>
Roman Historiography and Biography	<i>Roads, frontiers, aqueducts, siege landscapes</i>	<i>Sound, sight, taste</i>	<i>Civic anger, honor, grief, memory politics</i>	<i>Spatial humanities, source criticism, event ecology, causal diagram</i>
Philosophical Dialogues and Treatises	<i>Gardens, stoa, households, symposia</i>	<i>Sight, smell, taste</i>	<i>Appraisal of virtue, calm, perturbation</i>	<i>Conceptual analysis, discourse mapping, affect lexicon index</i>
Epigraphy and Inscriptions	<i>Water rights, boundary stones, market stalls</i>	<i>Touch, sight, sound</i>	<i>Obligation, pride, gratitude, resentment</i>	<i>EpiDoc markup, GIS, microhistory, compliance model</i>

History of Emotions and Affective Governance

The history of emotions in antiquity now advances on the premise that affect is jointly produced by scripts, settings, and semiotic cues that regulate attention, inference, and action. Appraisal theory clarifies how agents evaluate events relative to goals and norms, while practice theory explains how repeated participation in ritual and civic routines consolidates emotion repertoires that feel natural and mandatory (Cimiano et al., 2020; Cowen-Breen et al., 2023). Pity and fear in civic theater, anger and shame in forensic oratory, and grief and pride in commemorative acts are not free floating sentiments but institutional energies that legitimate sanction and solidarity. Lexical clusters for sorrow and rage, together with gesture verbs and bodily markers, permit reconstruction of affective choreography with genre specific baselines. Iconography and spatial arrangement materialize proximity and vantage that escalate or dampen arousal. The analytic consequence is that emotional claims must specify scripts, triggers, and enforcement mechanisms rather than posit timeless psychology. Table 3 in Section 4 encodes these requirements by pairing genre and environment with a designated emotion model and an output format that forces explicit articulation of mechanism, which improves comparability across corpora and reduces projection from modern emotional folk theories.

Evidentiary Triangulation and Uncertainty Calibration

Evidentiary triangulation binds philological close reading to archaeological residues, epigraphic formulae, and environmental proxies so that claims about ecological, sensory, and affective patterns survive cross examination. Textual cues such as olfactory adjectives or acoustic terms are weighed against residue analysis for incense, lipid profiles in cookware, and acoustic modeling of theaters, while legal inscriptions on water allocation supply institutional anchors for environmental claims. Calibration requires genre sensitive baselines so that hyperbole in panegyric does not receive the same evidentiary weight as inventory style in decrees (Bories et al., 2022; Bozhenkova et al., 2023; Camps et al., 2021). Temporal alignment must reconcile stratigraphy and manuscript stemmata with tolerances that are visible to readers. Uncertainty budgets should be numerically and verbally expressed and should mark the weakest links in the inferential chain where additional sampling or imaging would most improve confidence. The matrix in Table 3 in Section 4 functions as a triage instrument for this calibration because it links each claim type to a method pair and an output template that displays assumptions and data provenance. The result is a portable routine that can be taught, audited, and adapted, which aligns with the transparency logic in Table 1 in Section 2 and with the governance discipline in Table 2 in Section 3.

Horizons for Eco Sensory and Affective Research Agendas

Near term research horizons center on higher resolution coupling of environmental proxies with textual and performative datasets, finer grained modeling of multisensory staging, and explicit mapping of collective emotion across civic calendars and crisis episodes. Climate reconstructions at seasonal scales can refine readings of agricultural cycles and naval narratives, while residue and microbotanical analyses can validate or refute claims about sacrificial and culinary practice. Interactive reconstructions of theaters and sanctuaries that model sound, light, and crowd flow can test scenographic feasibility and refine interpretations of gesture and timing (Baranovska et al., 2023; Biber, 2020). Emotion mapping that combines lexical indices with spatial and ritual calendars can specify when civic fear and anger are cultivated for policy ends and when compassion is staged to legitimize redistribution. These agendas are tractable only if claims retain the procedural discipline in Table 3 in Section 4 and inherit the reproducibility stack from Table 1 in Section 2 and the governance spine from Table 2 in Section 3. The same matrix will interface with narratological and cognitive models in Section 5 and will translate into studio exercises and community partnerships in Section 6 so that research design, interpretation, and pedagogy remain mutually reinforcing.

5. Narrative Minds and Classical Poetics

Narratological Toolkit for Ancient Genres

Classical narrative exhibits a highly articulated architecture in which voice, perspective, and temporal modulation interact with metrical and rhetorical constraints to engineer inference and affect. Core categories include story order, duration, and frequency in tension with discourse presentation, together with homodiegetic and heterodiegetic voice and zero, internal, and external focalization calibrated to genre (Babenko & Athavale, 2024; Bambaci, 2021). Metalepsis, apostrophe, and embedded diegesis regulate permeability between narrative levels, while ring composition, parataxis, and hypotaxis coordinate memory cues and argument momentum. In verse, meter and caesuration

impose rhythmic regimes that scaffold anticipation and recall, while in prose, clausulation and periodic syntax govern suspense and release. Type scenes and formulaic diction function as predictive scripts that tune reader priors, which then interact with surprise, recognition, and reversal. Enargeia intensifies sensory simulation and strengthens event segmentation, while ecphrasis compresses description into mnemonic anchors that bind theme and space. Historiography mobilizes focalization to simulate constrained access and to negotiate authority, while philosophical dialogue weaponizes voice and turn design to test conceptual stance. The toolkit is therefore not a static glossary but a control panel for attention, inference, and emotion, and it interacts with the computational and governance standards established in Table 1 in Section 2 and Table 2 in Section 3 to yield auditable interpretive claims.

Cognitive Lenses for Ancient Poetics

Cognitive approaches treat classical texts as engineered environments that recruit theory of mind, predictive processing, and schema activation to shape interpretation with measurable regularities. Mental model construction explains how readers simulate narrative worlds and track obligations, kinship, and causality, while event segmentation theory clarifies how shifts in time, space, and agency trigger boundary detection (Osler, 2022; Adriansyah et al., 2024). Cognitive metaphor theory accounts for concept mapping across domains such as vision and knowledge or journey and argument, while embodied cognition links prosody, gesture, and spatial deixis to sensorimotor resonance. Predictive accounts construe plot as a stream of priors and prediction errors that calibrate curiosity and surprise, whereas memory research illuminates chunking, consolidation, and retrieval under metrical or rhetorical load. These frames do not replace philology but augment it with disciplined hypotheses about processing cost, inference pathways, and emotion regulation. To operationalize these linkages across genres, Table 4 in Section 5 provides a compact crosswalk that maps focalization, temporal architecture, and genre habits to specific cognitive constructs and to method pairings that yield reproducible outputs. The matrix echoes the parsimony of Table 3 in Section 4 while focusing on narrative minds rather than eco sensory or affective ecologies.

Table 4. Narratology Cognition Crosswalk for Core Classical Literary Genres

Genre	Focalization and Voice	Temporal Architecture	Cognitive Construct	Method Pairing and Output
Epic	Zero and internal voice, with embedded narrators	Analepsis, prolepsis, paced retardation	Predictive processing, type scene priors	Stylometry, motif graph, narrative forecast map
Lyric	Homodiegetic I, with deictic anchoring	Compressed episodic time, iterative frames	Embodied cognition, affective prosody	Prosodic analysis, distributional semantics, resonance profile
Historiography	External voice, constrained witness focalization	Chronographic sequencing, excursus windows	Theory of mind, epistemic vigilance	Source criticism, focalization coding, causal network
Philosophical Dialogue	Polyphonic voices, strategic elenchus	Dialogic turns, scenario resets	Mental models, belief revision	Discourse mapping, argument mining, model state chart

Satire	<i>Masked narrator, ironic metalepsis</i>	<i>Episodic montage, digressive loops</i>	<i>Schema violation, humor resolution</i>	<i>Rhetorical analysis, incongruity tagging, irony matrix</i>
Forensic Oratory	<i>Persona voice, audience addressed aside</i>	<i>Episodic reconstruction, evidentiary flashbacks</i>	<i>Appraisal theory, emotion regulation</i>	<i>Argument structure, sentiment choreography, pathos plan</i>

The matrix is intentionally terse to encourage adoption in research design and pedagogy while preserving the discriminations that matter for inference and audit. Each row binds a genre specific configuration of voice and focalization to a dominant temporal regime and then anchors that configuration to a cognitive construct that predicts processing profiles, recognition points, and error signatures. The final column pairs a qualitative technique with a quantitative or formal one in order to produce an artifact that can be reviewed, replicated, and taught, such as a forecast map, a resonance profile, or an argument state chart. The crosswalk is interoperable with Table 1 in Section 2 through its insistence on workflow clarity and with Table 2 in Section 3 through its attention to credit and consent for any experimental or corpus-based augmentation. It also links forward to Table 5 in Section 6 where teaching and public engagement require structured deliverables.

Methods and Cross Validation for Narrative Minds

Methodological credibility in cognitive narratology depends on mixed repertoires that keep philological judgment central while introducing testable regularities. Distributional semantics can identify metaphor clusters and semantic prosodies, yet results must be anchored in historical lexica and genre baselines to avoid phantom patterns (Johnson, 2022; Jones Jr, 2024; Guillory, 2022). Stylometric profiles of focalization intensity can be triangulated with manual coding of speech, thought, and perception tags to calibrate detection thresholds. Rhetorical structure parsing can surface claim support relations in oratory and dialogue, while argument mining algorithms recover elenchic pivots and concessive turns that correlate with belief revision in mental model terms. Experimental reception, when ethically and legally permissible, can supplement corpus work through unobtrusive measures such as reading time, recall precision, and preference ranking, provided that stimuli are carefully constructed and consent artifacts travel with datasets under the governance rules summarized in Table 2 in Section 3. All computational claims must publish parameter settings, evaluation sets, and environment details in line with Table 1 in Section 2. The crosswalk in Table 4 in Section 5 supplies genre aware templates for pairing methods so that results are comparable, portable, and suitable for accumulation.

Use Cases for Analytical Implementation Across Genres

Concrete implementations clarify how the crosswalk translates into operational studies that deliver defensible insights without inflating claims. Epic lends itself to predictive modeling because type scenes and formulaic diction act as priors that shape anticipation and surprise, which can be visualized as forecast maps of event likelihood across episodes. Lyric optimizes for embodied resonance because prosodic patterning and deictic immediacy recruit sensorimotor schemas, which can be profiled by aligning metrical cadences with distributional vectors for affect terms (Birpinar et al., 2023; Bizzoni et al., 2023;

Matkomilovich, 2024). Historiography benefits from focalization coding that separates authorial omniscience from constrained witness access, which then supports causal graphs that track information provenance and uncertainty. Philosophical dialogue supports argument state charts that register belief revision across turns, while satire invites incongruity matrices that map schema violations and resolution timing as predictors of ironic uptake. Forensic oratory accommodates pathos plans that choreograph appraisal shifts alongside evidence presentation, which provides a transparent account of emotion regulation strategies. Each use case remains accountable to the reproducibility and governance regimes articulated in Table 1 in Section 2 and Table 2 in Section 3 and relies on the procedural discipline encoded in Table 4 in Section 5 to keep genre specificities at the center of analysis.

Cautions, Limits and Transformative Potentials

Cognitive readings must avoid naive psychologism and must refrain from projecting modern subjectivities into ancient textual ecologies without philological warrants. Constructs such as prediction error, theory of mind, and appraisal carry explanatory power only when anchored in genre constrained semantics and in staging or performance contexts that have been reconstructed with care. Quantitative signals can mislead when training corpora are small or skewed, which requires transparent uncertainty budgets and sensitivity analyses (Goldhill & Greensmith, 2024; Zhenzhao, 2023; Mullett, 2023). Experimental designs pose risks when they oversimplify stimuli or ignore linguistic competence, so ethics and method must travel together under the governance template in Table 2 in Section 3. The potentials are significant because the crosswalk in Table 4 in Section 5 equips scholars to state hypotheses that are precise enough to be wrong for intelligible reasons, which improves cumulative knowledge. The framework also dovetails with the eco sensory heuristics in Table 3 in Section 4, since sensory priors shape focalization and emotion scripts that narrative then orchestrates. Section 6 will translate these repertoires into pedagogy and public humanities, where argument maps, forecast charts, and irony matrices become teaching artifacts with measurable learning gains and with accessible design for diverse learners.

6. Media Ecologies, Reception, Pedagogy, and the Public Humanities

Reception Theory and Platformed Media Hermeneutics

Reception theory now requires an expanded semiotics that treats circulation, remediation, and algorithmic curation as coauthors of meaning rather than as neutral conduits. Horizon of expectation becomes a moving target because recommendation engines, trend cycles, and participatory remix continually reset audience priors and genre frames. Intertext travels across video essays, livestream chats, and comment threads where paratexts

govern uptake more than any single artifact (Bennett & Royle, 2023; Rath, 2024; Haselwerdt et al., 2023). Transmedia storytelling multiplies entry points into classical material and forces scholars to model pathways rather than one way influence. Platform studies clarifies how moderation heuristics, ranking logics, and affordances structure what becomes visible and when it becomes salient. Fan studies shows that collective world building, modding, and transformative works generate primary sources that cannot be relegated to ephemera. The analytic consequence is a reception hermeneutics that counts interface, metric, and community governance as part of the text. Method must therefore combine close reading, discourse mapping, and lightweight instrumentation that exposes circulation patterns without surveilling participants. Table 5 in Section 6 translates these theoretical requirements into actionable design choices for interventions that live across classrooms, galleries, and online publics, while maintaining alignment with procedural transparency from Table 1 in Section 2 and governance discipline from Table 2 in Section 3.

Contemporary Media Terrains and Ideological Appropriations

The present media ecology spans prestige cinema, serialized television, graphic narratives, podcasts, streaming performances, and video games that scaffold agency through choice architectures and feedback loops. Each medium enforces constraints that shape classical uptake, since editing grammars, panel geometries, audio spatialization, and ludic mechanics encode interpretive cues that either amplify or suppress ancient voices (Graff, 2024; Li, 2022; Graff & Warner, 2024). Ideological appropriations exploit these affordances by attaching classical motifs to identity projects that range from emancipatory pedagogy to exclusionary myth making. Scholars must therefore separate reception as creative translation from reception as political weaponization through analytic lenses that track symbol migration, narrative framing, and meme dynamics. Accessibility is a production concern because captions, transcripts, alt descriptions, and dyslexia friendly typography do more than widen access, they also

alter interpretive emphasis by changing pacing and salience (Klarer, 2023; Babbitt, 2024; Graff & Warner, 2024). Sustainable practice requires archivable formats and clear licenses so that student and community work does not disappear when platforms deprecate features. To move from diagnosis to design, the field needs compact planning devices that map audience, medium, objectives, and ethics. Table 5 in Section 6 performs this role and interfaces with the eco sensory heuristics in Table 3 in Section 4 and the narratology cognition crosswalk in Table 4 in Section 5 so that reception analysis and pedagogy share a common spine.

Pedagogical Design and Public Humanities Orchestration

Pedagogy that engages contemporary media must operate as instructional design rather than as ad hoc enrichment. Universal design for learning anchors the build by specifying multiple means of engagement, representation, and expression so that learners can choose interaction styles without sacrificing rigor. Learning objectives should be stated in operational verbs tied to evidence, for instance argument mapping, staging reconstruction, or data provenance narration, and assessments must capture process artifacts rather than only polished outputs. Community engagement should be co-authored with partners who control venues and stakes, which means that deliverables, timelines, and credit are negotiated upfront and recorded in lightweight memoranda that travel with the final product. Digital safety is not a peripheral issue because public facing work can trigger harassment or plagiarism, so instructors should provide safety protocols, pseudonymous publication options, and takedown pathways. Importantly, every pedagogical artifact should exhibit the workflow clarity required in Table 1 in Section 2 and the consent and credit scaffolds codified in Table 2 in Section 3. The following matrix provides a compact design map for teaching and outreach that binds classical content to audience, medium, assessment, and ethics. This Table 5 in Section 6 is intentionally terse to be copy ready for syllabi, proposals, and grant appendices.

Table 5. Design Map for Teaching and Public Humanities Interventions

Intervention Archetype	Audience and Venue	Classical Content and Modality	Assessment and Evidence	Ethics and Sustainability
Game Based Language Studio	Secondary, undergraduate, lab, hybrid class	<i>Morphology, syntax, idiom, via interactive quests</i>	<i>Vocabulary gains, error logs, narrative microtasks</i>	<i>UDL presets, consent options, asset licenses, archive plan</i>
Community Epigraphy Walk	Museum courtyards, city streets, civic partners	<i>Inscriptions, spatial narratives, mobile annotation</i>	<i>Field notes, geotagged images, interpretive briefs</i>	<i>Permissions, signage, accessibility audits, routing, shared credits</i>
Comics and Graphic Reception Seminar	Classroom, studio, online portfolio	<i>Myth cycles, historiography, through panels</i>	<i>Storyboard logic, reflection memos, revision trail</i>	<i>Creator rights, clear licenses, alt text, stable hosting</i>
Podcast and Micro Lecture Series	Campus radio, open web, classroom, LMS	<i>Rhetoric, performance, law, in serial episodes</i>	<i>Scripts, transcripts, analytics, listener surveys</i>	<i>Consent registry, transcript accessibility, takedown policy</i>

Interactive Stage Reenactment	<i>Black box theatre, court-yard, festival</i>	<i>Tragedy, oratory, ritual, with sensory modeling</i>	<i>Staging dossiers, cue sheets, audience feedback</i>	<i>Safety plan, captioning, sensory accommodations, co authorship</i>
Museum Label Co Writing Residency	Gallery, education space, community hub	Object biographies, provenance, reception	Draft iterations, provenance notes, bilingual labels	Benefit sharing, bilingual releases, version pinning, maintenance

The matrix privileges disciplined brevity while encoding the operative levers that make interventions robust, equitable, and replicable. Each row binds a canonical activity to a venue profile and then specifies the content modality so that educators can anticipate resource needs and risk surfaces. The assessment column identifies observable traces that allow learning gains and public impact to be evaluated without surveillance and with respect for privacy. The ethics and sustainability column compresses governance essentials into executable phrases that can be built into checklists and rubrics. The structure is interoperable with Table 1 in Section 2 since every intervention requires workflow articulation and with Table 2 in Section 3 since every public artifact demands consent and credit. It also inherits the eco sensory logic from Table 3 in Section 4 and the cognitive crosswalk from Table 4 in Section 5 so that design decisions can be justified with respect to embodied reception and narrative processing rather than intuition.

Evidence and Evaluation for Learning and Civic Impact

Evaluation must capture both learning outcomes and civic effects without collapsing qualitative nuance into reductive metrics. Course embedded studies can triangulate rubric based artifact scoring with pre and post task performance while preserving student agency over data visibility. Portfolios that expose revision history and decision rationales show how learners internalize philological standards, governance protocols, and design reasoning. Community impact can be documented through partner testimonies, attendance patterns, and reuse of public artifacts with clear provenance, rather than through superficial media counts. Analytics from open platforms can be used sparingly to check reach but must be contextualized within qualitative narratives that explain who was reached and why that matters. Accessibility audits are evaluation instruments in their own right because they display whether inclusion claims match practice. Table 5 in Section 6 already encodes viable evidence traces for each intervention archetype and can be adapted into rubrics that maintain comparability across cohorts. The field benefits when courses publish deidentified assignment briefs, rubrics, and sample artifacts under permissive licenses, since such transparency reduces reinvention and elevates baseline quality across institutions and regions.

Ethics, Safety and Long Horizon Stewardship

Public facing work requires duty of care that anticipates platform volatility, reputational risk, and unequal labor. Safety protocols should include threat modeling for harassment, doxxing, and content scraping, along with response plans that empower participants to withdraw or request redaction. Consent artifacts must specify scope and duration with withdrawal clauses and must bind derivative works to the same obligations. Credit must record all forms of labor including access design, audio engineering, captioning, and community liaison, and must assign

persistent identifiers where possible to prevent erasure across platform transition. Sustainability hinges on maintenance planning for websites, feeds, and repositories, with version pinning and dependency updates that keep content accessible. Environmental costs from hosting and streaming can be mitigated through media compression without sacrificing accessibility and through selective archiving policies that privilege highest value assets. The practical tools named in Table 5 in Section 6 instantiate these ethics at the level of classroom and gallery workflows, while the transparency regimen in Table 1 in Section 2 and the governance checklist in Table 2 in Section 3 ensure that obligations are auditable rather than aspirational.

Strategic Capacities

Strategic capacity building will determine whether Classics can sustain a vibrant public commons that is rigorous, inclusive, and durable. Instructor training must integrate philology, design thinking, accessibility engineering, and data stewardship so that courses become studios for responsible making rather than content delivery. Institutions should reward curation, open resources, and community partnerships on parity with conventional publications and should recognize multiyear maintenance as scholarship. International networks can share modular curricula that align with Table 5 in Section 6 so that interventions scale across contexts without losing local specificity. Research groups can translate reception analytics into early warning systems for misappropriation and can partner with cultural organizations to preempt harmful narratives with accessible, evidence based counterstories. Tool builders can ship presets that embody the transparency and governance minima from Table 1 in Section 2 and Table 2 in Section 3 so that small teams do not bear customization burdens. Section 7 will consolidate these priorities into a five-year agenda and will draw on the assessment repertoires and sustainability levers already codified in Table 5 in Section 6 to propose measurable milestones that unify research, teaching, and public service.

7. Conclusion

The review delineates a coherent field architecture in which infrastructures, interpretive methods, and civic responsibility integrate into a unified operational grammar. Computational scaffolding and imaging regimes extend philological analysis, yet credibility depends on explicit disclosure practices and formally specified uncertainty budgets. Equity frameworks convert collaboration from aspiration into enforceable practice through consent artifacts, provenance logics, and durable credit taxonomies that remain intelligible despite platform volatility. Eco-sensory and affective heuristics reposition texts as situated performances that can be triangulated with material residues, acoustics, and spatial configurations. Cognitive narratology offers a compact analytic calculus for attention and inference that respects

genre semantics and rhetorical stance. Reception analysis and pedagogy translate these repertoires into public work that is accessible, auditable, and sustainable. The tables embedded in Sections 2 through 6 function not as summaries but as control panels for execution, audit, and instruction. Table 1 standardizes corpus and workflow exposition, Table 2 codifies governance minima, Table 3 stabilizes eco-sensory analysis, Table 4 aligns narrative cognition with genre architecture, and Table 5 operationalizes outreach and teaching design. Together, they form a modular operating system for Classics that can be ported across institutions, languages, and media ecologies without loss of rigor.

A practicable horizon requires convergent milestones that bind research, teaching, and stewardship into a cumulative enterprise. Benchmark suites for polytonic Greek and medieval Latin recognition should be published with stratified test sets reflecting page condition, scribal variation, and genre distribution. Gold-standard collation graphs under permissive licenses are needed so that restoration and stemmatic claims can be replicated and contested without bespoke pipelines. Model documentation tailored to philological tasks must include training provenance, domain-shift diagnostics, and fine-grained error reporting that supports editorial triage. Governance must move from static policy to transaction-level artifacts so that consent scope, credit assignment, and change control are queryable. Pedagogical studios should publish deidentified briefs, rubrics, and exemplars to enable replication across uneven infrastructures. Community partnerships must be indexed through benefit-sharing statements and maintenance plans that outlast grant cycles. The tables in Sections 2 through 6 provide the minimal fields required to track progress and expose shortfalls before ethical, reputational, or legal risks emerge.

Standards must remain lean yet binding to travel across resource environments without devolving into performative compliance. Every computational claim should include corpus provenance, preprocessing scripts, model parameters, and evaluation sets consistent with Table 1 in Section 2. Every edition, dataset, or public artifact should document consent scope, licensing, contributor roles, and release notes in line with Table 2 in Section 3. Eco-sensory and affective arguments should disclose genre baselines, uncertainty ranges, and method pairings as specified in Table 3 in Section 4. Narratological and cognitive analyses should present reproducible crosswalks from textual categories to cognitive constructs following Table 4 in Section 5. Pedagogical and public humanities interventions should declare audience, objectives, assessment traces, and sustainability mechanisms aligned with Table 5 in Section 6. Editors, repositories, and funders can normalize auditability by enforcing these minima through templates and review rubrics.

Capacity building will determine whether the field sustains its methodological and ethical ambitions. Training must braid philology, imaging science, corpus engineering, accessibility design, and legal literacy into integrated studios that emphasize the production of editions, datasets, and public artifacts with publication-level care. Credentialing should recognize micro-competencies such as EpiDoc expertise, IIIF production, model evaluation, and consent registry management, enabling teams to assemble complementary skill sets. Institutions should reward maintenance, curation, and open pedagogy as scholarship, with promotion dossiers incorporating stable releases and

documented workflows mapped to Sections 2 through 6. International consortia can reduce duplication through shared curricula and federated hosting of benchmarks and gold sets. Fellowships placing humanists in libraries, museums, and civic laboratories can cultivate shared stewardship languages. These pipelines will produce a workforce capable of defending interpretation, governing sensitive data, and building accessible publics.

Sustainability requires a shift from project mentality to platform stewardship. Repositories must plan for dependency updates, media migration, and license audits as core obligations rather than deferred tasks. Containerized workflows and environment hashes should become default practice to preserve reproducibility amid software change. Energy costs associated with training and hosting must be visible and mitigated through model distillation, caching strategies, and selective archiving that balances value and accessibility. Internationalization demands multilingual metadata, transliteration parity, and discovery systems that avoid monolingual defaults. Open ecosystems should remain strategically porous, combining open access with controlled pathways for fragile or culturally sensitive materials under explicit governance terms. Embedding the minimal fields from Tables 1 and 2 into repository ingest workflows ensures that stewardship begins at submission rather than at crisis.

Risk concentrates at the intersection of visibility, identity, and control, requiring surveillance practices that are protective rather than extractive. Public-facing pedagogy and reception research should incorporate threat models for harassment, appropriation, and context collapse, supported by response playbooks shared in advance with participants. Data governance must include workable withdrawal and redaction pathways, with such events logged transparently without exposing personal data. Credit systems should prevent erasure through persistent identifiers for technical, curatorial, accessibility, and liaison labor. Legal change and platform volatility necessitate horizon scanning to prevent stranded assets or community harm. Environmental, sensory, and cognitive claims should be stress-tested against adversarial readings probing genre misalignment and anachronism. The governance scaffold in Table 2 in Section 3 and the design map in Table 5 in Section 6 provide adaptable starting points for these safeguards. Resilience emerges when accountability is embedded into routine workflows rather than appended after harm.

A durable compact emerges when methodological transparency, equity governance, and public intelligibility are treated as a single obligation. The matrices distributed across Sections 2 through 6 function as enactable instruments that translate interpretive ambition into procedural clarity and render claims legible to peers, partners, and publics. The payoff is cumulative knowledge that travels across languages and media without loss of analytical granularity, alongside classrooms and civic spaces that distribute expertise rather than concentrate it. The agenda is strategic rather than maximalist, identifying the smallest set of controls that materially improve reliability, fairness, and reach. If journals, repositories, and funders converge on these minima, and if training programs internalize them as scholarly craft, Classics can sustain a rigorous, inclusive, and future-proof commons. The work begins by adopting the tables, releasing artifacts that embody them, and inviting critique at the level of procedure as well as interpretation.

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