wherewithal to stake a position as a student player in the revision of educational structures and, by extension, the ability to engage in a form of studying that is nonprescriptive from the outset. To impart this critical approach to the art student is perhaps essential today, helping to dissolve the idea that following a course will make her or him into an artist. Nurturing this predisposition to embark on voluntary, noncourse or examination-led investigations can increase an understanding of different methodologies in the study of aesthetic practices, just as a polymathic approach enhances a disposition toward the transaction of economic and symbolic value.

11

ARTEREALITY

(Rethinking Craft in a Knowledge Economy)

Jeffrey T. Schnapp and Michael Shanks

The following is both a report on an ongoing experiment and a speculative application of that experiment to the future of advanced-level arts education. Our aim is to rethink some of the most productive institutions and moments from the modern(ist) past—William Morris's arts and crafts workshops, the Bauhaus, and the laboratory of Russian Constructivism among them—in terms of the altered cultural and economic circumstances of the late industrial age. We are

making the assumption that art's autonomy, one of the decisive conquests of the modernist era, has led not only to an extraordinary proliferation of artistic forms and freedoms but also to the current impasse that places arts education in the service of upmarket commodity culture and at arm's length from other forms of knowledge production. In particular, among these forms are the very technology and media transformations that are reshaping the cultural norms of our times.

We have coined the neologism *Artereality* to designate some guiding principles that could contribute to repositioning arts education closer to the center of the contemporary knowledge economy. As we envisage it, Artereality places the design and production of art objects and goods in a more discipline-dynamic context, shifting the focus away from "pure" creation toward the management of networks, links, flows, translations, and mediations—in short, rethinking creation in terms of arteries and nodes. This implies a number of things: teamwork-based education as a complement to the traditional individualized studio; a scrutiny of process as an essential complement to a product; the embrace of project-based and performance-based learning; and a conception of arts practice that is coterminous with research and pedagogy. We draw on our experience at the Stanford Humanities Lab to outline the features of Artereality as a kind of manifesto for a new model of arts education within the academy: a model embodied by the Ph.D. in arts practice. The M.F.A. was an institutional expression of the modern(ist) era in university-level arts education.[1] The Ph.D. in arts practice is the expression of the distinctive complexities, demands, and opportunities provided by the present era.[2] Its time is now.

INTRAMURAL ART

Stanford isn't atypical of universities of its kind in publicly espousing the arts' centrality to the life of the mind while promoting a de facto segregation. However, Stanford *is* distinctive in the absence of architecture from its mix (aside from a fledgling program run out of the School of Engineering). The overall arts imprint remains relatively small. Less distinctive is the marginality of domains tainted by any whiff of work done by hand or of vocational labor: graphic design, animation, textiles, fashion, and the like. (Among the exceptions, there is a small product design major that has been sustained over several decades by a handful of faculty.) Separate departments distinguish the fine arts from

music and the performing arts, with internal partitions shielding discourse, critique, and history from studio practice, and vice versa. Almost without exception, members of the faculty teach on one side or the other, rarely on both. Studio majors cross the boundary in order to fulfill requirements; nonstudio majors do so only as a function of individual quirks. A small number of interdisciplinary programs provide formal bridges between various disciplinary silos, without, however, compromising or contesting their separation. Within this overall setting, student arts associations, campus arts programming that presents student and professional performances, and the university's museum provide standard cultural offerings. As well, a newly created center within the School of Humanities and Sciences aims to promotes campuswide "creativity" in the arts by means of sponsored events, residencies, and research support (with creativity as the defining attribute of art).

Whether looked at from the standpoint of teaching and training or from that of intramural or extramural programming, what is striking about this landscape—a landscape shared with many (if not most) leading contemporary research universities—is at once the richness of the options that are made available and what is best described as a collateral cost: the tendency for arts practice, education, and training to find themselves atomized and distanced from the university's core knowledge production and reproduction functions. Within this model, humanities scholarship that involves critical reading, reflection, and writing on the history of literature and the arts is cast in a role that is at best complementary, at worst ornamental, but never integral to arts education. The social sciences are relegated to an even more accessory role, perhaps with the lone exception of domains involving issues of cognition and perception. Even further removed are the very technology and science disciplines within which the transformative techné of our era have developed—from gene splicing to robotics to global positioning satellites to 3-D visualization.

Space often speaks far more eloquently than declarations of intent from deans and provosts, and at Stanford the location of the M.F.A. studios, which are out in a remote corner of the campus, speak all too loudly about an attitude that Artereality seeks to overturn. The location is close by the stables where Eadweard Muybridge once carried out his experiments with instantaneous motion capture and animal locomotion. That the climax of an art student's graduate career is marked by exile from the university's center is more than coincident with the availability of facilities. The attitude speaks of an unfortunate paradigm. In premodernist art and architectural education, the study and imitation of the past were of central importance, and cultural history overflowed all too

seamlessly into studio practice and vice versa. In the modernist era and our own, the gap has become a gulf. Ever more fractured or attenuated versions of survey courses, designed as background, have stepped into this curricular void. In fact, the instructors of survey courses at the beginning of the twenty-first century often feel the need to include smatterings of "theory"—meta-discourses usually stripped of reference to their genesis within distinct disciplinary genealogies, be they within the fields of history, linguistics, anthropology or philosophy—as if art practice might find itself deprived of authority and legitimacy if it couldn't establish ties to abstract narratives that may or may not have any direct relevance to the work.

The anxieties to legitimize the artist and drive such acts of theoretical self-identification are sadly well founded. There is a contradiction at the heart of the way we think in the West about artistic creation. On the one hand, market forces demand a demystified model of production, with the artist pressed to churn out a continual stream of "product" at the same time that he or she is fully immersed in the business of the art world and its marketing. Yet on the other hand, artists continue to be thought of in the romantic tradition as solitary figures who operate outside of, and comment on, society at large. The artist as a cultural shaman is construed as delivering messages from the heart of the human condition, and it hardly matters whether the tools of delivery are new (an LCD screen) or ancient (a wall) or whether the shamanism in question is sustainable, intellectually fertile, or even plausible. Entire careers, institutions, and funding programs feed a cultural market that relies on individualism as the flip side of an ever renewable system of brand names. In order to raise the value of objects, the market ties the individual to the fetish of particular artistic techniques, processes, and formats. Even while immersed in the global stock and derivatives markets for luxury goods known as the "art scene," the successful artist and artistic product are necessarily positioned as detached, unique, and "pure": as one-offs or limited-edition multiples. Even when the artist's production is invested in collapsing the divide and commenting directly on the ironies and contradictions implicit in the market and cultural perception—work that really does feel like a product and intends to—it is seen within the special, auratic frame of the artists as a "seer."

Arts education today remains mired in these contradictions. Training is individualized, and the core art school experiences—the studio, the critique, the thesis show—are interpreted as events in which "research" is ultimately conceptualized as a solitary quest. Collaboration and teamwork are rare. Humanities, social science, and science education are relegated to secondary

roles, as is the study of history. They are preliminaries to be quickly moved beyond. High-level technical and technological skills or areas of exploration with the suggestion of the manual or vocational—animation, game design, Web design, textiles, ceramics, metalwork—tend to get handed over to more narrowly vocational, for-profit art academies or polytechnics, as if they were inferior places. The terminal degree is set as the M.F.A., as if the idea of art as a mode of inquiry or a form of knowledge had no further place in the domain of research that is the university. In fact, that an art practice might be *built* on research questions that could potentially overlap with research in other disciplines is still outside the pedagogical structures of most universities, certainly in the United States. Instead, only small-scale initiatives around the world offer artists this possibility to do transdisciplinary, research-based work beyond the M.F.A., and usually in very short-term residencies.

For all of theory's often attenuated relation to artworks, at least it places the artist within larger contexts: disciplinary, cultural, spatiotemporal, conceptual, sociopolitical, material. The most adventurous niches within higher education have started to register these complexities. They have begun to expand their models of training, research, and output in keeping with the distributive nature of innovation, creation, and authorship within the knowledge economy. Among the many accompanying shifts, there is an increasing erosion of the boundary line once separating the roles of scholar, artist, and technologist, as the old means of distributing knowledge give way to far more fluid means that easily allow creative producers to function in many roles and to disseminate their productions to vast, geographically disparate audiences. What has emerged are varieties of creative practice that bridge the gap between thinking and doing, between the excavation of the past and the creation of the present, based on what Aristotle referred to as *phronesis*: knowledge integrated with practical reasoning.

Artereality represents a rethinking of arts education as just such a phronetic practice within the framework of a digitally inflected humanistic production. On the humanities side of the divide, the rise of postprint and hybrid print/postprint models of scholarship is already beginning to mark a breach with the past that is at once generational and epistemological. On the arts side, the breach is instead the more longstanding one between art practices that are oriented toward the production of artifacts for the art market and practices that are either socially based or process oriented and defy the market (or at least attempt to do so). They focus on dominant institutions (the museum, the government bureau, the mainstream media) and how or why they dominate—what is commonly known as institutional critique.

Nowhere is the battle being fought with greater seriousness and intensity than in the cultural spaces being opened up by digital technologies, so we turn to them now.

DIGITAL POETICS

With the advent of the Web, separate media—such as radio, television, movies, and newspapers—have entered into new and far more fluid relationships. With this has come the multiplication of possible outputs, such as video, photography, CD-ROMs, DVDs and high-definition discs and downloads, paper-based printed text, Web pages, broadcasts, podcasts, blogs, wikis, archival databases, live events, exhibitions, site-specific installations, 3-D models, etc. This vastly increased variety of media has exponentially expanded the modes of authorship, while the rise of social networks, with their delocalized arenas of association, exchange, and interaction, has created another global means of distributing interests, tastes, recommendations, and direct links to media. These are new social settings for innovation and creation.

At the heart of digital mediation is *fungibility*. Digitization allows the gathering of moving image, still image, music, text, 3-D design, database, geological survey, graphic detail, architectural plan, virtual walk-through, and so forth into a single environment. These may be infinitely manipulated and remobilized without loss. The eventual medium of expression—the outputs listed directly above or some combination of them—is only weakly constrained by limiting factors that are inherent in the "originals" being reworked, and the ways in which they are reworked (cutting, pasting, reformatting, mixing, layering) implicitly take on a speculative, investigative, critical, or creative character. All of this reflects a powerful game-changing fluidity that is only made more powerful by the ease with which these new expressions can move through the digital networks that encircle the globe. This raises issues about differences of power and influence between center and periphery, urban and rural, and traditionally privileged and newly empowered classes. Small-scale and locally based artisanal practices gain enhanced potential. The virtual world, as an ever-expanding experiential, cognitive, sociocultural, and economic domain, moves alongside or into competition with the physical environment. "Mixed reality"

experiences (think of the online community Second Life, for example) are gaining recognition as creative and capitalist economies in their own right.

To this volatile and still somewhat inchoate mix must be added the digitally enabled deterritorialization of data. Vast amounts of cultural, social, and other information are now available online, wreaking havoc with Enlightenment and post-Enlightenment ideas concerning intellectual and private property. The culture of remix is everywhere around us, in which artists create while entering a contested field that pits law against creative prerogatives. The ongoing efforts to restrict data are regularly thwarted by the sheer ubiquity of means to promote their uncontrolled circulation and proliferation. There can be little doubt that this process of deterritorialization will continue. What we have entered is a "poetic" space, and we do not mean by "poetic" the idiosyncratic modes of writing that give birth to expressive voices. No, what we mean is the definition of the ancient Greek word *poesis* that focuses on making, especially in the material and manual sense. In fact, for us *poesis* holds the seed of making and remaking, so much in keeping with the varied sources and informational strata combined in the digital field. And with these paradigm shifts comes the issue of how this poetic space and its processes of deterritorialization need to be reflected in the teaching of artistic practice and cultural production. That is the task of Artereality.

MODES OF ENGAGEMENT (MEDIA) AND THE CHARGING OF CULTURAL FIELDS

The passage of diverse materials into the digital realm inevitably attenuates their integrity as isolated media. The fluid, rapid manner in which visual materials can now be transmuted back and forth from and into animations, photographic prints, paintings, video footage and digital video grabs, and so on points to the loss of "stickiness" that once cemented a medium to a given material substrate, guaranteed its particularity, and limited the ways in which it would be received and used. But today, given this mutability, the medium is less the message, while the way that it is framed and engaged by viewers and readers is crucial. *Modes of engagement* is a more useful term for the task of analyzing the creation, placement, and circulation of cultural works, in both public and private arenas, and for understanding the poetics of ubiquitous design, reworking, and redistribution.

Some typical examples of contemporary modes of engagement include private engagement, such as Web sites, interactive CD-ROMs, single-player games, headset-based music and video players, and most printed materials; experiences within small groups, such as TV, radio, film, multiplayer games, speaker-broadcast music, and vocalized forms of reading; workplace experiences, such as lectures, demonstrations, and multimedia presentations; and experiences in the public arena, such as digital or printed billboards, exhibitions, live performances of performance art and theater in public spaces, and films viewed publicly.

As we envision a program that meets the requirements of twenty-first-century arts practice and education, an understanding of engagement is essential. The immense flow of data needs to be controlled by the artist and directed toward the viewer in such a way that the viewer enters the rich strata of data that are joined in the work and are completed by the viewer. This flow, its processes and enactment in the work of art, must be understood to be endemic to the networked media culture in which all art, digital or not, now belongs.

Rigor and discipline, imagination and technical skill, expanding knowledge, and exploring the boundaries of communication, representation, and recreation are all elements of the education necessary today. Essentially the ambition is to resituate art within larger knowledge-making processes and expand art's potential impact and reach. Already a good deal of contemporary art, particularly socially oriented work, is engaged in an intensive dialogue with research questions from other disciplines. Artists pick up the skills necessary or outsource them to execute their visions. In this same way, we see individualized models of training coexisting with collaborative counterparts in which students learn through disciplined, constrained, and directed doing, much as in a science laboratory or a digital humanities research center like the Stanford Humanities Lab.

Artereality imagines a new quality of commitment to research and interdisciplinary depth. We think that the current terminal M.F.A. needs to be enhanced with more extended periods of research and production. The answer is a Ph.D. in art practice, based on high-level pairings between studio or post-studio work and advanced inquiry into other fields of study, or both. The aim is to revise the notion of craft and design in keeping with the current demands of the networked knowledge economy.

WORKINGS

The main features and principles of Artereality's arts curriculum for a doctoral program in arts practice are extrapolated from eight years of experience within the Stanford Humanities Lab (SHL), a lab embedded within the larger setting of Stanford University, though we consider the plan broadly applicable to a reform of advanced arts education. (SHL's courses are electives, and the lab does not offer a degree.) We have categorized these features and principles as follows:

An expanded humanistic base

Modeling

The animated archive

Research, theory, context, and process as product

Risk taking

Cocreation

Community

Digital technologies as (situated) means

Craft in the laboratorium

SHL is a diverse, collaborative ecology of experimental research and pedagogy. The lab operates as a kind of incubator for work that links the arts and humanities to science and technology—not in abstract terms, but by means of large-scale, hands-on projects with concrete deliverables as outputs. Much as in a natural science lab, SHL projects are based on teamwork. They explore matters of common human concern with a risk-taking ethos that involves a triangulation of arts practice: scholarly research rooted in commentary, critique, and interpretation; and outreach beyond the academy in the form of partnerships with museums, public performance spaces, industry, and foundations. Staffed by students working under the supervision of a faculty principal investigator, they wed knowledge acquisition to knowledge production: the development of high-level specialized knowledge to communication with nonspecialist audiences. Students learn by *making*, whether this involves producing a piece of original scholarship, writing a piece of code, developing a visualization, storyboarding an animation, or building a physical structure. Each

serves as a tessera within a large transdisciplinary mosaic. Projects have been devoted to the reconstruction of lost Renaissance optical instruments and the material culture of their production; the role of physical and virtual crowds as the protagonists of public life in the modern era; the cultural impact of interactive simulation and video games; experiences of presence in contemporary performance art; body language in twentieth-century Russian and Soviet society; and the analysis of the cultural-historical strata of Berlin, Shanghai, and Paris. (See http://shl.stanford.edu for a full list.)

SHL projects have resulted in scholarly publications, software tools, interactive time lines, Web sites, games, databases, exhibitions, analytical and analog models, hardware devices, works of installation art, reconstructions of lost or imaginary structures, and, most characteristic of all, in combinations of these outputs merged into experimental hybrids. Media hybridities are at the core of the SHL experiment in the belief that the hybrid of today is the likely standard genre of tomorrow. All creation is re-creation; every revolution marks a new return.

AN EXPANDED HUMANISTIC BASE

Artereality implies a shift in scale from the small to the big (driven by collaboration and teamwork) and a shift in focus from the gated communities of disciplinary orthodoxy to matters of shared human concern (driven by a desire to build bridges between high-level research and expanded audiences by means of new communicative tools). In contrast to a conventional interdisciplinary agenda premised on longstanding disciplinary borders, Artereality assumes the complementarity of the arts, humanities, and social, behavioral, and natural sciences, precisely because of its focus on the big picture. For some decades now, deans, presidents, and other academic opinion leaders have gone about waving the banners of interdisciplinarity and innovation while defending institutional practices that remain backward looking and tradition bound. Deep interdisciplinarity (or, as we prefer to call it, transdisciplinarity) begins where and when one summons high-level expert practitioners to alter their disciplinary practices: to adopt new media and modes of communication, to speak new hybrid languages of expertise, to do *otherwise*. Artereality issues such a summons.

MODELING

Artereality favors modeling and simulation as part of the research and learning that are integral to any art practice. Rather than simply reflect on presence effects in performance, for example, we have found it better to model them, work them out in practice, track the design of a performance, build virtual worlds, operate avatars, monitor and document, analyze and interpret. In order to better understand the temporal topography of Berlin, an SHL project built various "deep maps" and visualizations of the city, working out conceptual and design issues in a hands-on fashion.

THE ANIMATED ARCHIVE

We think of the archive in two ways. In the figurative sense, it is the cultural storehouse of knowledge concerning human achievement, commonly associated with the arts and humanities. In the literal sense, it is the physical institutions entrusted with the organization and preservation of human memory—be they museums, libraries, depositories, or historical archives. As much as a heritage to be curated, preserved, and studied, works of art and culture handed down to the present are resources for contemporary work and reworking, as we have already described. Today the digital juggernaut has collapsed a great deal of the distance between the present and the past, as societies have traditionally experienced it. Modern institutions of memory have begun to be knocked off their conventional moorings.

The contemporary archive has exploded, moreover. It now contains not just manuscripts and letters, but vast seas of ephemera, locks of hair, a century of recorded sounds and gestures, legions of celluloid ribbons, terabyte upon terabyte of memories. The library is at once a world of paper and pictures and a digital repository a million times more extensive than the Library of Alexandria, readable from the office, a coffee house, or your living room. In the premodern era, information was scarce, and the Muses were put in place for purposes of preservation; in a mnemonically superabundant world, data preservation and retrieval have become decentralized and democratized activities—expressions not only of an institutional will to promote the conservation of collective memory but also of individuality, personality, and selfhood.

Artereality champions the notion of the animated archive in order to emphasize the need for *active, affective, and effective engagement* with the cultural past. It implies an intensified concern with the interface between the lived present and the material remains of human achievement. The remix of data and materials poured from the digital crucible obviously draws from the life lived and from lives and achievements drawn from the archive. This understanding and praxis are of critical and creative importance if pedagogy is to have a *contemporary* usefulness to artists and thinkers in the activities of their practices.

RESEARCH, THEORY, CONTEXT, AND PROCESS AS PRODUCT

Research, theory, and context are all essential features of the program we propose. In order for the past to be known and brought to bear in cultural production, research must be done. In order for multiple fields of knowledge to be active components in a work of art, research must be done. Just as the past and its materials are of equal use in the digital foundry as materials from the present, theory is an integral element along with empirical research. Force can be given to research and practice through both rigorous historicization and an insistence on theorization understood as a critical practice. Long a mainstay of the academy, theory as critique is an essential component of Artereality and offers a way of assessing certain aspects of an artist's practice, holding it up to philosophical, social, and historical models that may help to substantiate its internal logic and integrity. In the same way, context needs to be considered for the framing, execution, and reception of the work. The "background" cannot be separated from the "foreground," historical data from current experience, research and theory from artistic practice.

All of these figure in what we call project-based learning. Artereality draws on age-old paradigms of apprenticeship. Project-based learning implies an emphasis on both process and output. Process involves a focus on the ways in which different forms of work (leading to the creation of objects, textual artifacts, soundscapes, constructions, and so on) are carried out, and it assumes the form of iterative trials: create, monitor process, test reaction, adapt, and repeat is the standard pattern. Output sets the bar high, though within the confines of a structure akin to an apprentice system. Instead of deferring the moment of "truth" until the end of the training period, when what students

do and make is placed in public circulation and evaluated as the product of an expert practitioner. we think it is crucial to demand high-level outcomes right from the start—though within the limited capabilities of each student.

RISK TAKING

Iterative processes and modeling, as well as a transdisciplinary reach that moves one out of established disciplinary domains into ill-defined though compelling new fields of inquiry, work best with an experimental attitude, precisely of *making trials*, of learning from experience by prompting problems and failures, of crisscrossing media and language boundaries. This contrasts with standard academic practices in the humanities of sharing early or intermediate iterations of a given research project only with close and unthreatening colleagues so that final publication will be as invulnerable to "failure" as possible.

COCREATION

A transdisciplinary approach to themes of overarching common concern means that projects in Artereality exceed the boundaries of any individual specialist's expert field of knowledge. Accordingly, we see the value of projects that are collaborative almost by definition, involving as they do many fields of substantive and expert knowledge.

Our proposed program is not about the vulgarization or watering down of expert knowledge for purposes of outreach or in the service of some sort of throwback to a happily comprehensive humanism. On the contrary, it is about building ambitious, high-impact, large-scale mosaics out of the dense tesserae provided by located and specialized forms of knowledge. Individual thinking serves as the foundation for making, but the creative act is carried out within a setting of collaboration and teamwork rather than the hierarchical structure of the traditional artist's studio or classroom.

Cocreation implies a model of collegiality, unlike the reality of traditional humanities and art research centers, not to mention the typical management and labor hierarchies found in corporate structures. Within the academy, collegiality has been associated with congenial listening and commentary: exposing one's ideas to colleagues for their reactions and commentaries in the process of improving one's work. So-called interdisciplinary projects in the humanities and arts have rarely moved far beyond *parallel* approaches to a common theme, as exemplified by the themed conference or the standard edited multiauthor book. The norm remains centered on the individual researcher or author endowed with acknowledged expertise, however complementary their work may be to those of colleagues and however much their expertise may be rooted in the work of their own students and research assistants.

We think that the team-based process is a core component in rethinking and redoing advanced training in the arts, with these features as crucial elements:

- Devolution of project management from top-down design to team decision making—a flat project management structure, incorporating various levels of expertise from apprentice to expert, from undergraduate to senior tenured faculty.
- Devolution of management from top-down direction of tasks to project housekeeping. The crucial management task is housekeeping, maintaining clarity and order in order to enable team decision making.
- Small enough teams to enable the personal relationships that facilitate this flattening. Community and affiliation are essential to collaboration.
- Clear translation of interests and reciprocity. Each team member needs to value what he or she stands to gain from contributing to the project.
- Iterative and organic research and learning—agile adaptation of the project to what is learned as work proceeds.
- Extensible tasks and contributions. Projects need to be able to adapt to such change by facilitating many different scales of contribution.

COMMUNITY

Cocreation requires focus on personal, team, and community dynamics. Artereality puts people at the heart of projects in their roles as creators, researchers, learners, audience, or simply as those who pose the questions considered worthy of address. As a corollary, Artereality implies that projects maintain a pragmatic and opportunistic aspect that looks out beyond the traditional

confines of the academy and its disciplines and schools in order to establish links wherever they might enhance the project's address to a particular matter of common concern, just as contemporary artists regularly cross boundaries to work with experts in diverse fields to realize their visions.

DIGITAL TECHNOLOGIES AS (SITUATED) MEANS

We find that social software like wikis, blogs, and Web 2.0 authoring and content management systems are extremely useful for enabling the features of cocreation that we just listed. But rather than a driving force behind the establishment of a new field, such as "digital humanities," digital technologies should be located within an evolving political economy of creativity as a means and not an ends. They are best understood as project-specific tools, not as the stable foundation for a new field of knowledge. Media foreground modes of engagement, as described above. Rather than envision a single predetermined, normative output for each project—a published monograph or scholarly paper coming at the end of research, a gallery exhibition coming at the end of a period of artistic production, a performance after a long series of rehearsals—Artereality embraces the designed-in multiplicities and even redundancies of the digital age, such as scholarly papers, books, blogs, Web sites, art works, catalogues, videos, performances, radio programs, public exhibitions, lectures, classes, and so on. Media are chosen as integral parts of a project for their cognitive and communicative value, at once to enhance the production of knowledge and to cement the bond of theme, researcher, student, and audience.

CRAFT IN THE LABORATORIUM

Craft is power in its ability to unify design through the articulation of hand, heart, and mind. We wish to recover craft's power through intelligent physical making and reject the thinness of any conceptualization that would place "art" in an antithetical relation to craft. This is because we consider craft the deeper, abiding meaning of the word *art*. Craft bears witness to the complementarity of know-how and propositional knowledge, of ethical and political responsibility and productive capacity.

Both project-based learning and practice as research and craftwork find their home in the laboratory. Labs are places where knowledge and power are conjoined; where learning is not limited to the discourse but instead based on a richer experiential sensorium; where labor is carried out. They are usually associated with the sciences, where teamwork and multiauthored papers are often the norm. In the humanities and arts, we are regularly asked about team projects—"Just what or how much did so-and-so actually contribute?" "Who was its real author?" The standard practice is to assign credit only to individuals and to relegate acknowledgments of debts to footnotes. The single artist's work, the monograph, the individually authored paper are all granted automatic primacy of collaborative works. The distributed nature of our creations is either treated as inconsequential or is buried like a dirty secret.

That this is an obstacle to collaborative lab and craftwork may be taken for granted. The problem is complex, intertwining an array of nontrivial cultural, anthropological, and economic factors. It is not reducible to appointments and promotions committees and examinations boards refusing to grant tenure and qualifications on the basis of jointly authored work. At stake are also far broader issues of trust that involve the politics of individualism and (political) representation: How do you know that a particular person within a particular community is not a freeloader? How do you recognize and reward individual performance when it can be viewed only within a collectively produced artifact?

Artereality, with its focus on flows through distributed networks, suggests that a way to address this legitimate concern is to rethink the future of advanced arts and humanities training. The program we envision identifies collaboration with continuity and community, which is to say with the framework within which reputations are established. This, of course, requires various forms of peer review and appraisal of individual progress and contributions. An established lab has a history independent of its members. A track record will establish a reputation that facilitates trust in the lab's collaborative practice—that people there genuinely work together. So when a new joint publication or work is produced, it will be far easier to associate individual effort and talent with that of the group. Individual scholarship gains credit from its location within a discipline that is precisely identified with its peer practitioners and community. At the core of Artereality lies a new conception of collegiality and of a teaching-learning community: the craft workshop for the digital age.