International Journal of Education & the Arts

http://www.ijea.org/ **ISSN: 1529-8094**

Volume 15 Special Issue 2.6 **October 6, 2014**

What Does it Mean to Have an N of 1? Art Making, Education, Research, and the Public Good

Graeme Sullivan
The Pennsylvania State University, USA

Citation: Sullivan, G. (2014). What does it mean to have an N of 1? Art making, education, research, and the public good. *International Journal of Education & the Arts*, *15*(SI 2.6). Retrieved from http://www.ijea.org/v15si2/.

Beyond Elusive Notions of Art and Impoverished Conceptions of Education

My response to the question posed requires a brief sweep across some historical landscapes to position enduring notions of human knowing that I would argue are in danger of becoming reified and worshipped as neo-mythologies that bear little resemblance to the multiplicity of realties evident today. The goal is to identify issues of the public good by drawing attention to connections and dislocations among art practice, education and research as forms of human engagement, provocation and insight. The paper is organized around a series of propositions and descriptions that have as their subtext a claim that the practices of art can be conceptualized as research. Given this, if 'art practice as research' has the potential to generate new knowledge that expands the landscape of human understanding, then the answer to the question posed by the panel about the validity of an 'N of 1' is an unequivocal 'yes' and that such an instance can be very meaningful indeed.

Proposition 1. *Along with all forms of inquiry, research and art practice share a long tradition, as does the practice of teasing out educational implications.*

A primary mode of investigation is 'looking': we look to see what causes things to happen. By developing instruments and strategies that intervene in nature methods of seeing were made more purposeful and goal directed. The eventual adoption by the West of the crucial idea of 'zero' meant that observations could be ordered along a continuum, with intervals clearly marked, and categories defined according to shared properties. Quantification meant that things could be organized by degrees of difference and this established measures of confidence among those involved in the new enthusiasm for coming to understand the world as it was seen.

However, a crucial realization emerged, as it was understood that no matter how accurate a measurement, there was always an element of error to contend with. This ushered 'doubt' and 'skepticism' into the picture and what emerged was a way of thinking that could put logic and rationality to the test. But as a system of 'knowing' the method was counter intuitive—the task was not to try to measure what 'was there'—rather it was easier to see what 'was *not* there.' Manipulating an action or intervening into a situation in order to see what happens so as to note some observable change was difficult. Seeing 'nothing,' however, is always easier than seeing 'something.' Bringing zero into the equation helped because everyone understood what zero meant—nothing, zilch, absence, null: nothing happens. Thus the experimental strategy was to focus on a zero outcome. Consequently, if as a result of manipulating an action or intervening into a situation something was found <u>not</u> to be zero, but something different, then things got interesting. If there was due diligence in controlling all the confounding factors that might be implicated in any intervention, and if the effect achieved meant that it could <u>not</u> be accepted that <u>nothing</u> happened, then it could be argued with a measure of confidence that the change observed was a result of the controlled intervention.

If it could not be accepted that there was zero impact, then the task was to determine if the change was caused by what was done, or whether it was just a matter of chance. Just as any measurement creates an element of error, any controlled intervention that results in a changed state might also be caused by chance. The knowledge that things were distributed naturally in the world and this pattern was dispersed in a regular, quantifiable way, made it relatively easy to see if individual instances could be placed within this predicted pattern, or whether they occurred outside the parameters. Those instances that were observed to be outside the predicted levels of inclusion could not be 'controlled' and hence were a product of chance.

What came into reach was a very efficient method of consistently putting ideas about proposed effects and relationships to the test. If conditions of causality could be confirmed then we could make predictions about the probability of similar things happening in the future. And there was comfort in knowing that others could follow the steps taken and in all likelihood achieve the same results.

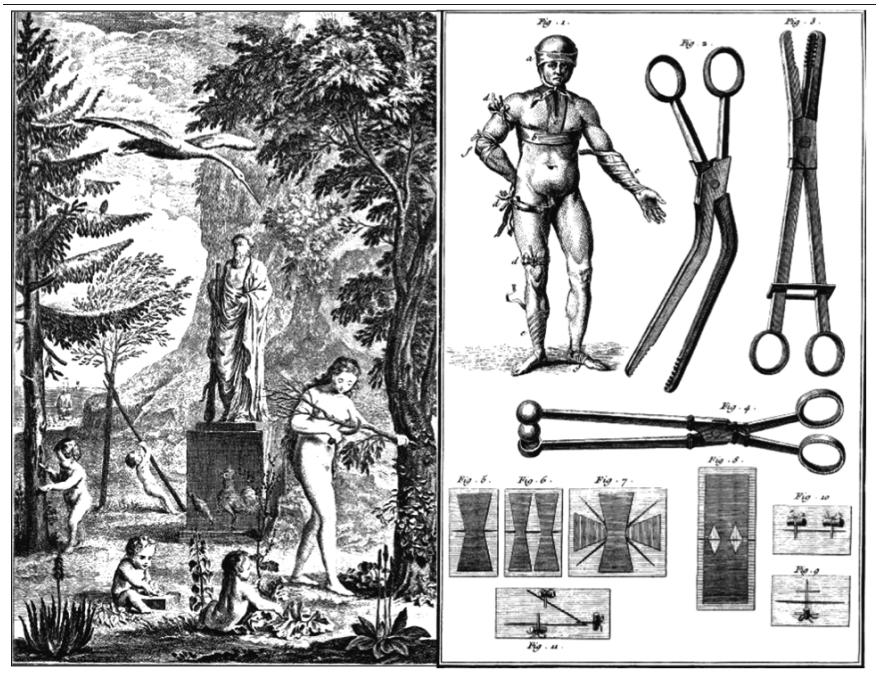

Figure 1. Denis Diderot (1713 – 1784) and Jean La Rond d'Alembert. Entries from Encylopedia, or a Systematic Dictionary of Science, Arts and the Trades. Surgery (Chirurgie). Avery Architectural and Fine Arts Library, Columbia University in the City of New York.

As long as phenomena could be broken down into constituent parts, and these components could be defined explicitly and the elements positioned on a grid, a continuum, a matrix, or any other metric, potential effects and relationships could be investigated. When phenomena were subject to study under controlled conditions using precise instruments it was possible to identify relational and causal connections of change, which made it feasible to measure the difference, to measure the cause of the probable change.

Proposition 2. *If knowledge was assumed to be 'found out there' then the means were available to access it and this opened up the possibility and probability of how to explain how things happened. Furthermore the underlying rationality of the procedure was an ideal match for the emerging modern way of looking at things*.

As a result of enlightened thinking, 'theology became philosophy' as logical explanations were sought to help understand the new empirical world coming into view. Let me give an example. An influential text in Britain in the 19th century that later crossed the Atlantic as American thought grappled with philosophical and moral dilemmas in the wake of industrialization and provocative ideas such as Darwin's explanations of the origin of how we got here, was William Paley's text, *Paley's Moral and Political Philosophy* (1838). Initially

published late in the 18th century, Paley's views garnered considerable public popularity, mostly because he gave a logical explanation of an ordered world; but it was a created world. Paley was a clergyman and a brilliant mathematician who used analogy, rationality and evidence to frame his arguments. When he published *Natural Theology* early in the 19th century it became a companion piece to his philosophy text, and the full title proclaimed his argument: *Natural Theology, or Evidences of the Existence and Attributes of the Deity, Collected from the Appearances of Nature* (1809).

Paley presented theology as philosophy. Of interest was the way philosophy was defined as a science based on logical reasoning, yet the principles of ethical human behavior were based on religious doctrines, and these were seamlessly integrated. An example of Paley's influence can be seen by the way his arguments became the basis for political justification and integrated into the laws of the land as systems to guide moral and political action.

As an Australian by birth I found the following example especially intriguing because it explained how the British were able to claim moral authority in justifying the colonization of the continent of Australia because it was 'empty' of inhabitants when 'discovered' in 1788. Paley explains why in the 1838 edition of his moral and political philosophy text, which I came across in an attic in a farmhouse in upper New York State several years ago. Paley was writing during the time of relentless colonial expansion and the inexorable possession of land. He argued that if there was no documentation showing ownership of "real estate" then those lands could be freely acquired. Tracts of land were subsequently deemed to be owned by no one and the concept of "Terra Nullius" was invoked—meaning no one lived there. According to Paley, "there were no traces of property in land …amongst the savages of America or of Australia" (1838, p. 71).

In a similar way that 'theology became philosophy,' *mythology became typology*. Reality as explained by myth was soon replaced by explanations that matched our observations. It seemed that the earth wasn't the center of the universe after all. If Copernicus had been a traveller and has seen the paintings of Piero della Francesco painted about a century earlier he would have observed that the shadow formed by a sphere is an ellipse, not a circle. And perhaps he would have found support for his view that the sun was the center of the univese because when the planets circle the sun, for they don't orbit along a circular path, but one that is elliptical. Even so, a legacy of this iterative approach to compiling insights that are confirmed empirically by experience and evidence, no matter where they originate, is that new information eventually becomes part of the structures used to organize accepted knowledge.

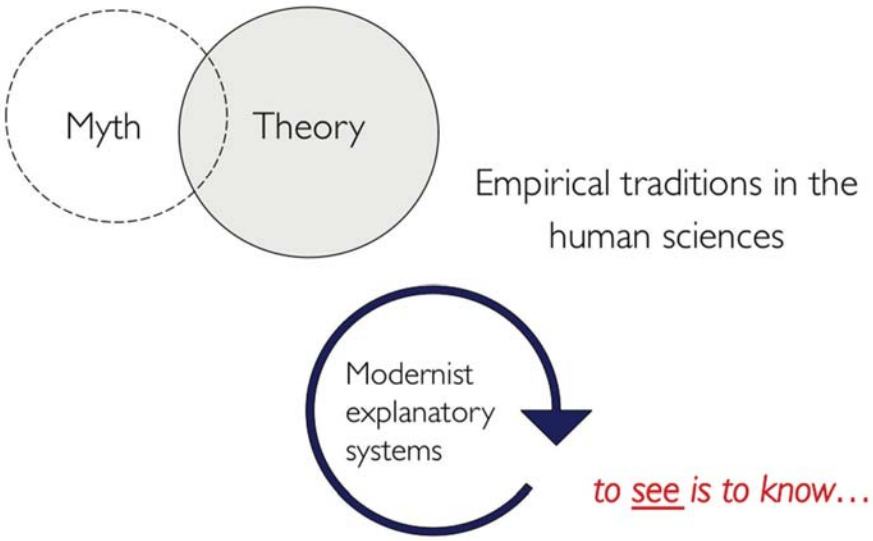

Figure 2. Move to Modernist Explanations: *to see is to know*

The typologies of knowledge created from the explosion of information during modern times grew exponentially. Conceptual structures were defined that ordered information into categories, classes, hierarchies and sequences so that all related elements could be partitioned into fields of discipline knowledge. From these fields, knowledge workers constructed communities that grew into academies and schools used to house discipline-based content and to propagate it through the industry of education. "To see is to know" was the modernist mantra – if something was observed and verified by others, it must be real and true. The new digital paradigm of information technology is repeating this process of knowledge propagation, however the disciplines that emerged in modern times have been unable to contain the sprawling landscape of knowledge now evolving. Over time, the intense pursuit to quantify worldly observations and explanations by measuring them often got it wrong.

Proposition 3. *The quest to find what causes things to happen gave rise to a brilliant methodology that put everything in doubt and then sought evidence to measure the likelihood that what we saw was not a random or chance occurrence, but the outcome of some purposeful action. But it was difficult to freeze frame the complexity of everyday reality. Finding and solving problems was not merely a linear process. As Gloria Steinem[1] said, "you don't solve problems you surround them."*

[1] Comment made in an interview on NPR Radio in the early 1990s.

Linear systems of logic are based on the probability of a proportional relationship between cause and effect. Furthermore, this relationship can be measured if operational definitions clearly prescribe how concepts are translated into degrees of difference. Non-linear systems on the other hand involve complex interactive forms, differential influences, and changing relationships. In order to capture the complexity of these dynamic, interactive systems a methodology that is inclusive of the relevant perspectives is required. This, in essence, is what is meant by the quip that one doesn't "solve problems, you surround them." The outcome is a synthesis that brings new understandings and coherence to otherwise complex phenomena. The plausibility of the outcome is determined by intersubjective agreement that arises from strategies such as an independent auditing of interpretive decisions, which provides a warrant to endorse the trustworthiness of the accrued evidence.

Proposition 4. *When problems are perceived one looks at them from all angles. As with the sense of doubt that fuels scientific inquiry, a prominent research practice in the arts is to ask the critical question, 'what is <u>not</u> there?' To take a critical perspective is to get inside a problem, to get inside an idea, in order to understand it. Dichotomies such as insider-outsider, objective-subjective, form-content, have operational utility but reduce everything to Euclidean world – a measured world of assumed order. But life is much more interesting than that.*

Support for this proposition is best presented through an example. Moving in the interpretive space that lies between concepts that resist prescriptive meaning and measured realities can often be understood through experience as much as it is revealed through the assumed authority of others, or definitional conventions. An example is shown in Figure 3, which is a section of an installation titled, *The Labyrinth*, by Angiola Churchill. In this piece, attention is drawn to form, structure and measurement, yet the precision opens up a perceptual space where the outside is also the inside, and an objective encounter is also a subjective experience.

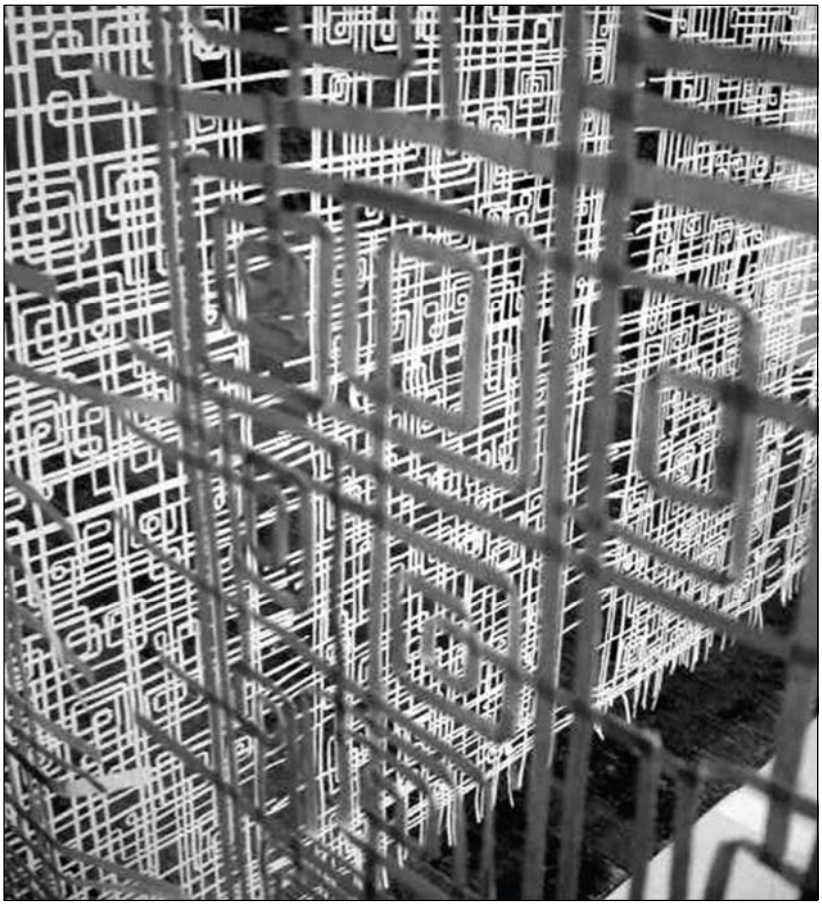

Figure 3. Angiola Churchill. *The Labyrinth.* 2003. Paper. Reproduced courtesy of the artist.

Proposition 5: *Subjective experience is a powerful form of human knowing. It frames our very being. The knowledge we bring to encounters with art and life is crucial for re-imagining what might be.*

Many sources have been attributed to the quip "there is no such thing as immaculate perception." Permit me to provide a visual example (see Figure 4). In this image, I was visiting a museum on a particularly chilly day. So I stopped by a second hand clothing store and bought a football jumper. Little did I know at the time that one of the displays was an exhibition of large paintings by the Irish-born American painter, Sean Scully. As the image indicates, I 'became' a Sean Scully painting. Part of this process of accommodation was formed by my prior knowledge of Scully's work, which was not only contained within the cognitive scripts of knowledge and awareness carried around in my head, but in this case my 'apriori' knowledge was also an emblem I 'wore' in public. I certainly was informed by this exhibition, the work itself, and the essays prepared by the curators and historians. But it was all filtered through the interpretive systems that are part of who I am. Interpretive structures of

knowledge construction don't generalize like quantitative methods where there is some probable relationship between the sample and the population. If outcomes from quantitative studies that use representative samples are significant, then we can infer from the 'specific to the general.' In qualitative studies, it is the experiential connections made among particularities and contexts that are important—in these cases the extrapolation of information involves finding deep connections between the 'specific and the specific.' We learn from others by finding connections to experiences that expand our situated knowledge in ways that help us think about our behavior, and this helps us deal with how our behavior might change.

Figure 4. Becoming Sean Scully. Photograph courtesy of Mary Sullivan.

Proposition 6: *The visual invention of modernism was radically altered by the critical and creative practices of postmodernism. New tools for thinking emerged, along with new ways of conceptualizing systems of human engagement and this provided the impetus theorizing how 'studio thinking' could be conceived as research practice.*

The empirical dictum, 'to see is to know' mentioned earlier, was replaced by an understanding of how visual culture operates. The analysis of systems of artistic production, its reception, and uses in communication, became more clearly understood as an embedded cultural practice. Gillian Rose (2001) captured this mode of cultural theorizing by flipping the modernist empirical adage, "to <u>see</u> is to know," to proclaim "to <u>know</u> is to see." When systems of cultural critique are related to the complex realities faced today, the interpretive

process invoked suggests, "to know is to see … *differently*." The probability of our quantitative world and the plausibility of our qualitative experience were expanded to consider the possibility of new perspectives. If one knew what was behind what was seen, then one could 'see through it.' Knowledge about how cultural, political, institutional, technological, and economic systems operate in our postmodern world means that one doesn't get easily fooled by inherent bias, misinformation, half-truth or spin. The capacity to look inside at what is projected on the outside, as well as to look for what is not there, is a critical approach that has a long history within artistic inquiry. Similarly, the creative process of looking forward to what's possible is often done unencumbered by the safety net of prior knowledge, yet looking backwards at cultural production of the present and past remains a contextual frame of reference that contributes to the assessment of meaning and significance.

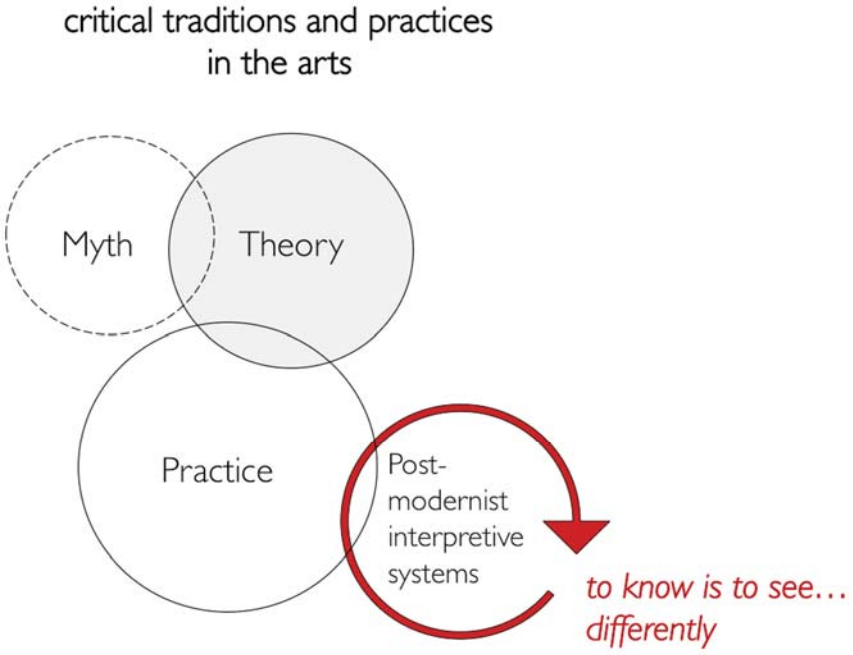

Figure 5. Move to Postmodern Explanations: *To know is to see… differently*.

Proposition 7. *When the arts utilize research practices such as data collection, analysis and interpretation, it is often not only to describe the parts, search through disaggregated bits of information, but also to understand relational and contextual factors.*

Part of the realization of the efficacy of the research process, whether working within a quantitative or qualitative domain, is to accept that for data to be transformed into useful information one has to understand that data are 'alive.' Figure 6 is an installation by Rashad Alakbarov that was exhibited in the 2007 Venice Biennale in the Republic of Azerbaijan

pavilion. Alakbarov's installation comprised a flat pedestal pressed into a corner of the gallery. Placed on the pedestal was a collection of everyday domestic objects that we routinely toss away. They were attached in various configurations by clothespins and tape to create an array that had no discernible pattern or structure. It was a collection of form in the raw. Two lamps were placed to the left and right of the pedestal facing the installation. Alternating at regular intervals each lamp would turn on and cast a shadow of the flattened profile of the objects onto each wall. On one side a profile would be cast of the skyline resembling New York City with its vertical horizons of skyscrapers. When the other light came on the shadow of the same forms would become an irregular horizontal landscape of domes and minarets that resembled a city such as Istanbul. Same source—different place; same forms—different meaning; same raw data—different information. It depended on the point of view.

I've had cause to refer to Rashad Alakbarov's installation on many occasions. This is one description: "[Alakbarov] shows with elegant simplicity how an information source when looked at in a different way, can yield a completely different outcome—much like research data that reveals competing interpretations if analyzed using different methods" (Sullivan, 2010, p. 226). Comparing the artist's intent in creating an ambiguous reading to the process of data analysis has particular resonance. In this example we see complex data that occupies real space and time reduced to simple, one-dimensional arrays that can be readily interpreted and compared. However, if raw data are manipulated—in this case by simply looking at it from a different angle— and yield different, yet equally plausible information, then this raises doubt about the explanatory power of a singular interpretation. If the process of shedding light (pun intended) on particular ideas or issues with the hope of better understanding them is central to human curiosity yet can yield such conflicting outcomes, how do the inquiry practices we engage in as artists and art teachers help us make meaning from our encounters within the worlds in which we live?

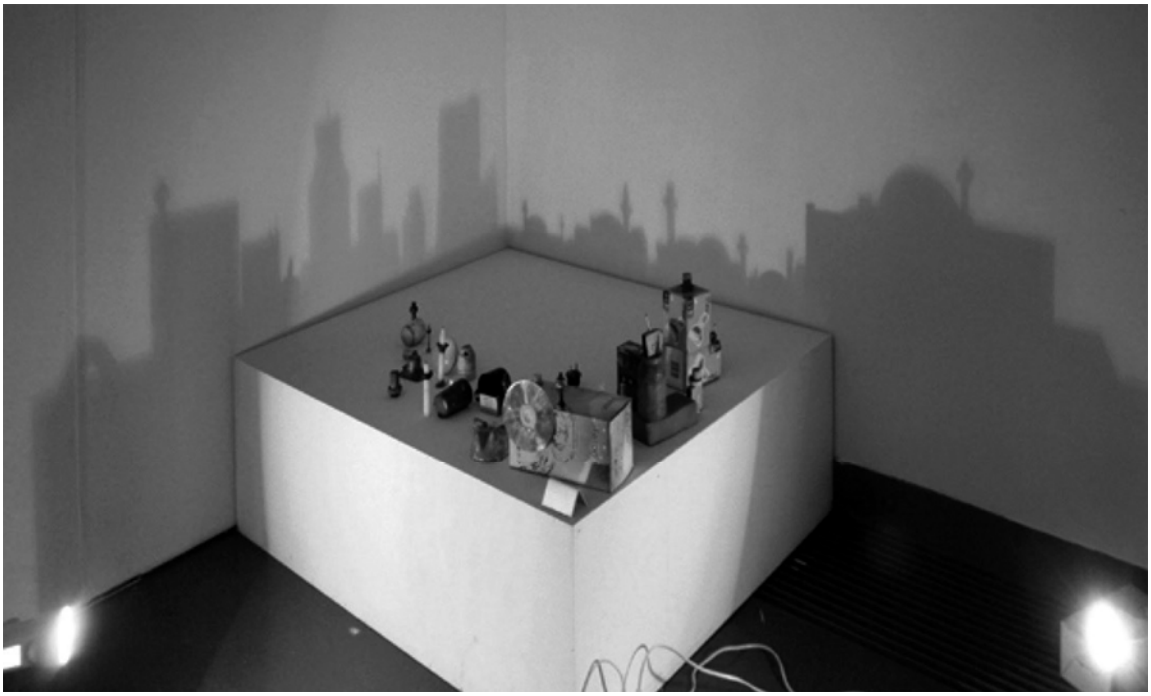

Figure 6. Rashad Alakbarov. *Looking at Two Cities from One Point of View*. 2002. Mixed media installation, light. Dimensions variable. Reproduced courtesy of the artist

Conclusion

The powerful tradition of scientific research has of course given rise to the equally powerful discourse around 'evidence-based research' and the gold standard of the randomized controlled experiment. Over the past two and half decades the tendency has been to blindly adhere to the idea of compiling rich landscapes of robust evidence as the foundation upon which to make educational decisions. The discourse around evidence-based educational research was modeled on the Cochrane Collaboration, which reviews research evidence for the medical field (see: www.cochrane.org formally set up in UK in early 1990s).

The randomized controlled experiment continues to be used as the model that is assumed to yield the evidence needed for policy makers to make decisions about educational change. Look at the successes. The chemical companies supporting agriculture have been enormously successful in eradicating disease and developing effective ways to prevent problems in farming. Similarly, the pharmaceutical industry has been able to develop blockbuster drugs that contain, prevent, and in some cases cure disease. If there is an illness, then the randomized controlled experiment is your best bet in figuring out how to go about curing that problem. Yet today, the complexity of disease resists the many attempts to find a singular cure that works in all local and global settings. The randomized controlled experiment is only part

of the collaborative research enterprise seen to be necessary to tackle diseases that are marked by their diversity, not by their singular identity.

The uncritical support for evidence-based research is hard to resist. For the past three decades we've been told incessantly that our education system is 'ill.' Give the success of evidence-based research in the drug and chemical industriesm it seems a good bet to apply the same logic to our ailing schools. However, education is not a problem to be cured; it is a human resource to be cared for. It is evidence of care, not cure that can guide efforts to improve the effectiveness of how we teach and the capacity of how others learn. Furthermore, the kind of evidence needed to shape human agency can be found in the insightful methods used by artistic practitioners.

Around the time of the early research regimes that later became the Cochrane Collaboration in the Britain, another part of the medical industry protested. The health care sector was certainly part of the medical industry, but what drove nurse practitioners was 'care', not 'cure.' A caring environment is one that *surrounds* the main areas of focus. And all sorts of complexities and contexts and a multitude of factors come into play when care is the goal. What the nurse practitioners did was to develop discourse around the idea of 'practice-based evidence.' The evidence they found important emerged from multiple modes of questioning and a raft of methods of inquiry. In many cases it was not merely collecting data and subjecting it to analysis, but in some cases, data needed to be *created* to see where a line of inquiry might lead.

For those who create new knowledge using practices that may be systematic, rigorous, yet different, the discourse circles around arguments about 'practice-based evidence' rather than evidence-based research.' And this is what arts practitioners do. It's what nurse practitioners do. In expanding the methodologies of what research might be by embracing the approaches used by practitioners, all aspects of knowledge construction and creation are open to question. Sometimes we build from the known to the unknown and add missing bits to the jigsaw of accumulated knowledge. At other times creative 're-search' will inhabit unknown spaces that will only make sense when it is seen in relation to a community of critical interpreters. Many of the phenomena studied using scholarly and creative practices can't be captured in an ordered universe. The world is much more complex and interesting.

Cezanne's insight was not that nature was composed of a stable Euclidean structure of cylinders, spheres and cones — his visual intuition was to understand that time, motion and light couldn't be isolated and rendered motionless. His still life paintings are his evidence and they are most certainly not still. Nor is research, nor is education. Nor is an individual. And this is why an N of 1 is real and makes good sense.

References

Paley, W. (1838). *Paley's moral and political philosophy* (A. J. Valpy, American Ed.). Philadelphia: Uriah Hunt.

Paley, William (1809), *Natural theology, or evidences of the existence and attributes of the deity, collected from the appearances of nature*. (12th ed.), London: J. Faulder.

Rose, G. (2001) *Visual methodologies: An introduction to the interpretation of visual materials.* London: SAGE Publications.

Sullivan, G. (2010). *Art practice as research: Inquiry in visual arts (2nd Ed).* Thousand Oaks, CA: Sage.

About the Author

Graeme Sullivan has been messing with art for quite a while in his many roles as teacher, artist, researcher, artwriter, and administrator, and uses creativity, information, persuasion and streetsmarts to 'excite others about art.' He is currently the Director of the School of Visual Arts, Pennsylvania State University. Graeme has been researching studio-based practices since the early 1990s, and authored the seminal text, *Art Practice as Research* (2005/10). He continues to publish widely on studio-based research. He has taken on many professional roles he is the present Chair of the NAEA Research Commission. Graeme maintains an active art practice and creates Streetworks from any available material and these are installed in cities and urban spaces. He says, "I'm not sure what happens to most pieces. Even if the life of the artwork is short, or the encounter brief, one never really knows the outcome, nor where the experience of art happens. I like that."

International Journal of Education & the Arts