

The Open Questions: Central to Natural Science ¹

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Abstract: A short introduction to Prueitt's philosophical work is given. In particular, this introduction gives views on a means to separate pure public and pure private (economic) sector transaction services using specific open source digital innovation. Most of the mentioned innovation is original work, or modifications in five technical papers available from ReverseTwitter.com™. The technical work then grounds the philosophical work. Of course, we cannot imagine separating all current public sector function from all private sector function. However, with our educationWorlds™ computing backplate technology, we do propose to create a structurally managed set of policies and procedures. This set will template other sets, also commonly generated from a "substructural framework". A second set of policies and procedures will be on the biophysics and chemistry of algae to oil (A2O) production ponds and mini refiners². The Open Questions develop the theoretical underpinnings of Prueitt's stratified theory. This theory is then grounded in physics, chemistry and biology as well as in design elements for the computing backplate.

¹ From Prueitt's (2010, published only on the web) *The American Education Bridge*, www.secondSchool.net/bridge.pdf Please check this 450 page mono graph for scholarly citations.

² The first set of polices and procedures create an economic private sector based on coffee, tea and baked goods; as well as a public sector based on our trademarked informationally secure measurement of life long learning. Our work is designed to proto-type, in each of fifty states, two or more statewide "Education Bridges" using secondSchools.net™ and the supporting Second School Community Centers™ as part of our branding language. We currently use focus topic based video clips, such as seen at KhanAcademy.com™, focus topic assessment frameworks, and hand written testing tools. The handwriting is part of our information certification policies. We will provide, free of cost to the student, the ability to demonstrate, on demand, the knowledge base of an individual making a transition between high school and college. Our quandary is in how to use philosophically demanding views on the separation of transaction spaces so as to give support, without payment, to young adults as they face transition between high school and college. The dedicated private sector, Second School Community Centers™, will cover all costs beyond the initial one hundred million dollars of requested federal support. The one hundred SSC centers will each develop business franchises packaged to compete with coffee shops around the nation. We will also have commercial grade teleconference centers in each SSC center. From a growing economic base, we then hope to decentralize the nation's total energy production and consumption in a significant way.

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Three Questions Central to Natural Science

We start with a view of natural science. Whatever the function and operation of the human perceptual system, that function and operation must arise from plain everyday physics. The physical means available to human cognition is seen to involve three great open questions. These are questions about the physical natures of induction, non-locality and emergence. Philosophically challenging, they represent a threshold for current inquiries into natural laws.

Scientists explore these natures. From our work we learn about cognitive mechanism as well as about physics, chemistry and biology. Is it so surprising to see a connection between real science and a proposed end to the crisis in American education? This is what we make available. *The Education Bridge* is grounded in a connection between three open questions of science, and the causes of the crisis in American education.

Everyone is aware of an increasing world population as well as accelerating advancement in technology and commerce. Our judgment is that humanity is on the verge of certain transformations. War and over consumption are not sustainable in the face of recent growth of the human population. Individuals everywhere are looking for a type of democratic governance that will make life comfortable and meaningful. Part of this transformation is seen in the recent social and political use of social media. So as to assist in making a positive transformation, we require a common understanding of these

natures, particular as applied to governance and education.

The first suggestion is that a type of community intelligence has always been a part of human civilizations. Digital social media, acting at near the speed of light, is acting in the role of the individual human brain. There are differences, of course. Underlying intelligence is the physics that intelligence manifests through. With the single human brain system we see molecular and anatomical functions involved in supporting human perception, including the support of cognition. The underlying physics may allow the actual physics of non-locality to play a role in individual human cognition, particularly in how the mind produces what has been called an induction or inference. So also, the digital communication in real time between many individuals may develop mechanisms that express community intelligence in ways that are far more focused than in the past.

This increasing clarity of community intelligence is a well-recognized social and political phenomenon. What we are suggesting is that certain of the crisis that we face will be addressed and resolved using community intelligence. This should, one would hope, be accompanied by an evolution of democratic practices. As such, the value to society may be significant and lead to further reinforcement of mechanisms now only barely in place.

The manifestation of community intelligence is changing and this change may change how we view the nature of crisis. The capacity to perceive and react to various types of crisis is deepening in a way that is historical, reflecting an evolutionary change in what humanity is. The resistance to this notion is mechanical, serving only to

stabilize the state of what is like a deterministic machine. Part of the set of mechanisms is being re-wired as a result of digital real time communication using social media.

Let us look at this concept of perception a bit deeper. The causative phenomena involved in the education crisis are real, but an understanding as to why there be a crisis is missing. Perhaps we might agree that our society is gripped in a self-imposed limitation. Perhaps we are the cause of each crisis. Perception about social self-limitation and causes might help many individuals to act together in a positive way. The past provides us with specific social mechanism with which we induce social behavior such as crime and poverty. It is us that do this. Mere laws cannot easily manipulate deeply engrained social behavior. The school failure rates, and incarceration rates, in the Deep South attest to the resilience of cultural history. The perception of these facts might allow us to change the nature of education.

An admission of social self-limitation is the first step towards a solution. Because positive action cannot be merely a question of philosophical opinion, my colleagues and I have looked to science for guidance. Several new, but deep, principles are in the scientific air. We now look at the questions surrounding the nature of living systems. The first, new, principle is that organizational stratification is a part of how social processes are expressed. What is surprising is that this is not a principle found in the mainstream science literatures. In fact physical processes stratify also; e.g., atoms are not the same kind of things as are molecules. So we somehow miss something

that is, or should be, quite obvious.

In particular, cognitive mechanisms are known to be central to our understanding of the natures of individual learning. These mechanisms act across more than one time scale. This cross scale phenomenon acts in unusual ways. In general they are known to not be Newtonian in behavior. The world of living things does not appear to be 100% predicable. In fact the cross scale phenomenon involve the three open questions, those about the natures of non-locality, induction and emergence.

We are hopeful. Science may deeply inform our social awareness. Awareness of cross-organizational-scale mechanisms lends understanding about all aspects of human memory, awareness and anticipatory functions. These mechanisms support the emergence of cognition, as well as social production of meaning attributed to various human perceptions. More that this, the new principles open up a real understanding about nature accessible to the average citizen.

One reason why natural science is not accessible may be due to the ownership over science that is imposed by corporations, with the assistance of the federal government. This is clearly deemed essential to business and economics, and perhaps this has been true. However, a new understanding about this is needed. A second reason is because so much of science is actually not founded in principles found in nature, but rather on cultural mysticism. Our science is incomplete and without its completion some parts of science will be both complicated and incorrect.

We believe that our science about cognition should inform our classroom practices. It is suggested, strongly, that current educational practice is based not on natural science but on philosophical positions such as those expressed by John Dewey. Dewey's philosophy, in a way similar to Charles Darwin's philosophy, may be criticized as a type of reductionism not explaining keen observations found in the science literatures regarding non-locality, emergence, or induction. The old natural science based solely on Newton's view, as well as the theory of evolution proposed by Darwin, seem unable to explain observations of the type we are interested in.

Mathematics education, as a discipline does not and will not agree with either the relevance of natural science or to our specific criticism. This discipline creates almost content free PhDs and then become bogged down in issues related to teacher certifications. A great distortion has taken place. One needs only read some of the PhD dissertations. This fact is one that we must live with.

The weakness in the academic education disciplines is commonly understood, and yet the system is stuck with what it has produced. It has become about professional ethics. Social forces shape the mission of the system, not the individual's desire to be well educated. How this came about is no mystery. Power means job stability and service to ego, elitism, and fundamentalisms of various sorts.

The power this community is in their ability to resist change. In fact, the authority to manage the crisis is vested only in professional education. Real mathematicians are off doing something else, creating new mathematics for example. So no one, or very few

having PhDs, is actually working on a solution to a crisis centered on basic mathematics education. The entire liberal arts education system is weighted down by the growing inability to add positive fractions.

There are several steps involved in communicating how we could use science to elevate educational practice. First we must realize that science itself is impacted by social mythology. So for example, it is easy to look at literatures in science where the professional mythology is preserved, or inducted from our cultural mythology. AI is the best example, as I have pointed out several times, but there are other examples if mainstream government funded science as being simply incorrect. The state of science is linked to the intractability of common social misperceptions.

For example, the difficulties we find in even stating the open questions are perhaps because we are judged to have formulated some aspect of currently accepted science in a way that is not correct. As the reader might suspect, this discussion could evolve to one about whether Newtonian physics or Darwin's theory of evolution are final science, as we do in *Chapter Two: Shifting Paradigms and New Resources, The American Education Bridge*. Perhaps also, we may come to see why there is some confusion.

We advance new social perceptions that are part of a more complete set of formative causes of the confusion. The causes are not only more than a few, they have paradox. Paradoxically some principles have both independence and dependency one cause to another cause. The nature of these paradoxes have long been discussed,

and often set aside as meaningless. However, the paradox arises because of the nature of coherence, as we argue in the first chapters of the *Bridge*.

It is exceedingly difficult to build a theory when the common perception, the mainstream, has built a different viewpoint. The professionals get all up tight and religious with the absolute and non review-able, statements of things that are platitudes, at best. The concerns we all should have is about real causes to the crisis. These causes are amplified by this mainstream perception. We give several examples, one being the mythology of Artificial Intelligence. Others are commonly held views about the natures of public and private sectors. For example, that all essential services should be outsourced from the public sector to the private sector. Why? Part of the reason is that outsourcing helps the private sector. But why is this a first cause, having priority over advancing civilization? The answer given is in equating consumption with advancement.

In the case of information media, the new social media, private sector interests will always over whelm the legitimate concerns and needs of the public. There is tension between law based on our Constitution and common law as practiced by an elite group of owners of great wealth. The practices of a healthy private sector will always undercut the interests of the public. The reason is that the purpose of private interest is to advance private interests. Is this so difficult to factor in?

It is a matter of being who we are. There is a connection between not being well educated and being behaviorally subjected by layers of private interests in our consumer society. The private sector system

does not want ALL people to be well educated. The issue of interest and private ownership is vital if democratic practice is to continue into this century.

The issue is perhaps most visible in the nature of software and process patents. The confusion about the nature of abstraction might be, and often is, a means to exploit the individual. At core there is a deception. The deception is that concepts may be owned. Concepts should not be owned. Patents on concepts must not be allowed to control an IT sector where increasing wealth is concentrated, and from which the public sector often sorely suffers. A new operating system, why not pay us for the mess that the old ones make of our work and our life?

Why are these points important? For example, why might social self-limitations on how natural science is seen impact the very nature of K-12 education? The answer does seem obvious when these questions are laid out in this way. There are immediate consequences to designing learning or governance processes based on incorrect perceptions about how thought arises.

We are hopeful. It is not merely the mechanisms of individual thought that we may examine. Social communication produces constructions that are maintained in various complex ways. When these constructions are built up from incorrect perceptions, the constructions themselves may be the source of further ignorance. When the constructions are built correctly these are not ownable and operate in ways that are far more helpful to the individual. Let us look at an example.

Supply Side or Demand Side

Information is so very often conveyed hierarchically in school from teachers to students. This is a pure supply-side process, mimicking the practices of news media, textbook and software industries. In some cases, particularly in under served communities, the process becomes extreme as well as dysfunctional. The individual is trained to get along and go along. The demand side is missing, ignored, or reshaped to fit what is supplied. There is also pretense. Through this pretense, at being something that it is not, real damage is made to society.

Two examples:

- 1) AI pretends to be natural intelligence when it is not; or
- 2) An particular on-line college, or brick and mortar college, may pretend to be high quality when it is not anything other than a profit center.

These examples exist along with other phenomena in a world that is often very difficult to advance personally. In under served communities, the inner needs of the student are all-to-often hidden by the shear difficulty in these young adults' lives. The classroom experience is all-too-often one of adapting to the rules of the school, so that the citizen is better mannered. Schools often do not allow the individual a role in internalizing and re-creating knowledge. Thus education is seen as unnatural. It feels wrong to the child. This feeling of being wronged is then propagated in social networks, and the social tension continues. School is seen as a punishment.

The current commercialization of education plays on this feeling. Some TV commercials actually reinforce the notion that learning math is a sign of being an egghead or worse. Advertising has been too strong in its support of for-profit purposes and the culture of consumption. Consequences have accumulated over time. One consequence is that students acquire deficits in learning, one that we see in the developmental courses offered by colleges. The inability to add negative fractions is a common deficit that we see in developmental mathematics courses at the college level. The statement of our thesis is over simplified, but stated in this simplest form we are suggesting that commercialism is undermining learning in schools.

It is not merely a commercialization of education; but all that goes with it. Ignorance about the consequences of over consumption is part of why the public consumes at a maximum rate. Of course, ignorance about this type of consequence is only part of the story. Many of the negative cultural tendencies, such as nationalism and racism see an expression as top down hierarchical control. Personality flaws such as egotism, self centered-ness and arrogance play into the mix. Hierarchical control in education disallows individual teachers and professors the means to reform where reform is needed. Even when the leadership is enlightened, the faculty members all too often resist.

Many colleges feel that a chain of command is essential and absolute. The concept is distorted to the point that individual and collective faculty initiatives are subverted. The purpose of a college

becomes to protect the integrity of the institutions of learning, often through standardization of the weakest practices. Again in the under served communities the extreme is often the norm and is often coupled with dysfunctional decision making by college administrations. The tenured professor gets comfortable and shuts down. Decisions such as which foreign-born PhD to hire are left to a type of random chance, with insider intentions generally making the call. The system de-evolves year after year, in a downward spiral.

Strict hierarchical control is accepted even when it is clear that academic programs are failing badly. In the usual case, the tenured professor advances pure but esoteric academic disciplines, and disengages from teaching service courses. Textbooks and software technology are substituted for genuine engagement in the classroom. In many cases, the professor has little choice but to do the minimal work required to keep a job.

Real teaching is just too difficult in these circumstances. The system supplies the thinking about what is to be done and the tenured faculty goes along with this. Non-tenured faculty members and adjunct instructors work only at the pleasure of the administration and human resources departments. Being in the system, it is hard not to conclude that the system is designed to fail.

Science Grounding for Educational Practice

We take the position that the crisis stems from social ignorance and feeds back into a dumbing down of America. However, we are not stuck on describing the natures and causes of the crisis. *The Preface*

to *The Education Bridge* and its *Chapter One*, describes a theory of education that takes into account current science regarding non-locality, emergence or induction. This “demand” theory is advanced as the means to end the crisis.

There are open questions within demand theory, as has been stated, but the role of the individual is accounted for formally. The demand of the individual takes center stage. We see the learning process as involving three elements; the formation of memory, awareness and anticipation. Let us see how this theory supports practice in the classroom.

Our pedagogy supports individual learners as they learn parts and then creatively aggregate these parts into meaningful wholes. This is the essence of educational constructivism. The parts are indexed using a focus topic framework. We have a means to link smart technologies to individual self-mapping of knowledge about a curriculum. Creative composition is then involved in student self-assessment. Knowledge is easily shown to be internalized by this assembly and disassembly activity. The student constructs knowledge based on creative engagement with the benefits to him or herself well understood.

Please note that there is are two architectures being discussed. A computing architecture has common elements with the conjectured natural architecture supporting human cognition. A stratified theory is necessary to describe either of the architectures. Computing architecture develops a repertoire of service parts. Service repertoire and the set of focus topics play the same role. These both serve as

the memory of the technical “system”. This technical system then is the means to encode the individual record of things known deeply, and thus may be used on demand to prove that that individual has mastered specific curriculum such as Calculus II, or a two semester course in organic chemistry. We consider technical system as a means supporting individually held knowledge management.

Service oriented computing uses methods and means to create a sufficiently high quality repertoire so that any service is a simple composition of available parts. Human memory follows a similar decomposition process. Mainstream research indicates that human experience is decomposed into *partial universals*³, and made available for composition in real time as awareness. By partial universal, we mean that this set of universals, like the atoms of the periodic table, are the parts that are composed into a categorically different type of universal, the chemical compound. The distinction made by linguists between a “universal” and a “partial universal” is that partial universals are in part dependant on the particular natural language and also the person and the instance of usage. This is a complicated discussion and yet quite interesting.

The partial universal is also seen in the notion of a focus topic as being part of a specific curriculum. A Four Step Method™ is designed to separate focus topics into problem types, and to then allow freedom and creativity as the student composes expressions about the subject being learned. The, necessarily subjective,

³ William E. Rutherford (Editor) 1984: Language Universals and Second Language Acquisition: Containing the Contributions to a Conference on Language Universals and Second Language Acquisi (Typological Studies in Language,)

measurement of compositional quality is supported using a focus topic framework and an assortment of knowledge management tools. Currently, this type of teaching is not often found except in small groups and in the most excellent of colleges.

Regarding Control by Private Interests

We must take on a difficult concern. Social confusions are, we conjecture, re-enforced by a social/economic system shaped too strongly by selected control; e.g., by one individual or small group. This is easy to see when viewed from an economic perspective. One group of individuals, we the masses, is controlled by a second group of individuals; e.g., we the wealthy. The controlling group acts as an “agency” for gains of some type. We are over simplifying, of course. It is natural to see economic gain, as a measure of what is good. One may also see the problem when there is excess or abuse. There are other utilities that our system ends up supporting, and some of these are related to egotism or self-centeredness. However, the entire system has sought and is stable around the selected control based on economic wealth.

The consequences of these utilities are must difficult to model. In general we talk about the existence of a fairly large number of “utility functions” in the models, and conjecture that in physical reality we have an analog of these abstract functions defined within our models. The natural analog may act as a type of expressive design constraint resisting change. The system has become stable with “those” specific utilities being maximized, and thus resists change of any type.

Of course, there is a place for competitive processes. However, the pure pursuit of profit has all too often been found to be harmful to society. So what might be done? We provide a tentative answer to this deeply troubling question. A new balance may be sought in which the public takes a more active role in self-governance while putting at a distance some of the observed consequences of extreme capitalism.

So this is an answer, but how would social action be supported? Our answer is that a new technology, social media, and newly understood natural science, will be made available un-encumbered by “private” ownership. Each human person may use knowledge management tools to assist in social self-governance, and in the co-expression of small or large group community intelligence. Pure public sectors, without any internal control from external private ownership, might be allowed to develop and express intelligence.

We are in favor of a moderate form of capitalism. In fact, our model is contemplating the development of a private sector with responsibilities to provide all necessary economic support required from a specific and well-defined public sector. This frees a specific pure public sector from ownership issues, as well as from the undue influence now exercised through advertising and entertainment media.

The counterpoint is clear and vital. The improvement of public sector function using the *Bridge* communication technology will benefit our national private sector, and give us a competitive advantage in world markets. A specific private sector may be created for the purpose of

supporting the state and federal *Education Bridges*. This is the proposal advanced in *The Education Bridge*.

So why is there a problem with extreme capitalism? Why do we have a problem with capitalism as now practiced? The answer is immediate and evident. Capitalism practiced as an extreme gives power to the few. It comes into conflict with democratic governance. In the United States we see the consequences of several decades of *consumption capitalism*⁴. Consumption capitalism has reduced the size of the middle class and controls the public media with commercial advertising. It may be a primary cause of wars between nations.

The problem is that controlling individuals are not so very often perfect people. Agency may also not be an entity having the neural hardware that individual people have. It may be a loosely organized group, like the community of oil speculators. As mentioned in some cases, single mindedness ignores consequences not related to profits. It is the mixture of these roots causes that expresses as a composition.

Collective intelligence may have agency as strong as that of an individual, or even stronger in terms of the affects on other people or the environment. Racism, nationalism, sexism and other-isms may be induced from the individual to the social fabric. Collective intention may manifest in intentional agency. Some individuals or groups

⁴ Definition of consumption capitalism as given by wiki:
http://en.wikipedia.org/wiki/Consumer_capitalism

capture power and then exercise “agency” power simply as a means to control others. For example, speculators may act collectively to maximize the money to be extracted from the worldwide oil markets. This can occur without directly collusion.

Some national or racial groups have dominating expressive agency, while others, such as the Native Americans, have far less that they might have. Women are disadvantaged. Men still dominate political and business agencies. Consequences interact with the agency even while the agency ignores or battles consequences. Lastly, the extreme can become the normal when the balances of nature are ignored. We mere individual humans might accept how the powerful behave as a given condition that may not be changed.

A simple bottom line arises. Singleness of purpose causes unexpected consequences. This bottom line may be the objective of ontological or mathematical modeling and thus of natural science. For example, how agency mechanisms work may be discussed within a stratified model of causation, using Hilbert mathematics; e.g., classical mathematics, and ontological formulations. The nature of single mindedness is then seen as deterministic in nature. The individual loses capacity to freely choose because he or she becomes caught up in something larger than self. We as a society suffer because of this.

From models about single mindedness one may predict the emergence of social structure that resists change. Schools and colleges are one of the primary examples that we identify. An aggregated affect from consequences arises as many individuals

work together to ignore what would be revealing outcome metrics from schools, if these were taken. The school copes with failure by discarding these metrics or by not taking them; sometimes only pretending to take them. These consequences might be accounted for by a self-defining and self-controlling public agency. The agency, on the other hand, might reflect high principles and offer transparency to people in communities. Agency may manifest in a positive way, in a negative way or in a way that is mixed in with other things.

An ideal is being described in the paragraphs above. As many of us have seen, this ideal could not easily be obtained merely through good will. Existing agency has and will continue to resist change. The work that we advance is perhaps able to change the situation in which we see crisis layered upon crisis. So as to inform and measure change mechanics, we might design a system that aggregates community intelligence from individual intelligence.

The theory is challenging, but in essence the notion is that the creative combination of parts is left to the individual and thus brings the individual into a different view of what was before imposed. Curriculum becomes alive. Several deep innovations are synthesized. Using several technical innovations the individual's intention is contextualized and knowledge management tools become available to the common man.

The means to self-control a collective intelligence, expressed as a pure public or a pure private sector agency, is now seen as an essential element of demand pedagogy. We ground this explanation of methods to be used in the classroom. The use of ontological,

inferential and mathematical models is made available as correlates to human neural function. We will now summarize.

The known architecture for human memory requires a deconstruction and reconstruction involving three organizational levels,

- (1) the parts of experience; e.g., the invariance of substance found across many instances,
- (2) an aggregation process involving contextualization and anticipation produces inference via actual induction and the emergence of awareness
- (3) a constraint function that brings a sense of single coherence from local and non-localized causative factors.

Anticipatory function from human agency is allowed to operate in the construction of machine ontology, and thus to control computing processes. Of course, this ideal will take a number of steps to get close to.

The Promise of Hope

We raise the promise of hope. If we as a people understand the predictable effects of the pure notion of “private” sector control over all social process; then we may wish to form many pure public sectors. We might seek to protect this public sector from exploitation by powerful private sectors. A private sector will co-exist with a pure public sector and yet the two systems might have separate means to establish transparency. Of course, the sense of pureness is to be established and negotiated. But how might this be done?

We have proposed a set of technical means to achieve a separation, not of present day systems but of new systems that we intend to evolve. We envision a digital infrastructure for a fully monitored American public sector communication infrastructure. This public sector infrastructure might be established using a Public Trust corporate instrument specifying that the Trust could not outsource any service. This possibility is real because of the analysis and synthesis regarding advanced intelligence technologies known to Prueitt, and for which he is able to supply original innovation or detailed information on patented computing theory. Prueitt proposed to place all of a specific computing theory into the public domain. He makes moral and legal arguments as to why the creation of the open source intellectual property is both necessary and sufficient.

The theory suggests two to three orders of magnitude more efficient data processing within a provably secure social network software system⁵. With this new level of efficiency we expect that all current information technology to be re-factored over a short period of time, perhaps a decade or less. The public and open source nature of proposed infrastructure would create entirely unexpected private and public sectors. The new technology has been fully developed as theory, but has not sought capital formation given the risks associated with private control.

The creation of a public sector having very little private sector influence is not without some political difficulties. Part of the current

⁵ Prueitt, Paul S (2009) Articulating SOA in the cloud, <http://www.soamag.com/I34/1109-4.php>

dysfunction has to do with the individuals who serve the public, and their own private interests. This might be regulated with full transparency over public sector function. Of course, there will always be private nature occurring within a public sector. The commercialization of education, and all aspects of public sector function, might be completely eliminated.

It is recommended that all *Bridge* employees belong to one of the public trusts, associated with the American *Bridge* Project, in each federal state. All work that is to be done is required to be addressed and completed by the agencies of the *Bridge*. For example, no external software is to be used. How one is allowed and supported to become an employee of the *Bridge* must be spelled out and must guard against bureaucratic entrenchment.

However; as a foundational principle, the separation of a pure public sector trust from all aspects of private sector functioning is considered necessary to ending the crisis in American education. Otherwise, the camel's head is under the edge of the tent. We would continue to make education subservant to commercialism. Private interests will serve purposes other than those required by the public sector. These will include the negative traits we have discussed before. The difficulties noted here are just small indications of the complete task. Separation of public and private interests is; however, aided by the technical solutions proposed in *The Bridge*.

Self-governance using E-governance Tools

We are hopeful that the stratification of information processes in the

Bridge will create new capacities. Humans will be able to use computer-mediated processes to express our intentions within a system that is directly involved in both individual education and individual self-governance⁶.

Private interests will be removed from this part of the educational service provided in common to all American citizens. This enhanced capacity to express private intention is balanced with an enhanced capacity to define and serve the community interests. The result is a new level playing field, and a competitive advantage for American citizens. Remarkably, a pure private sector is also defined using coffee, tea and baked goods as a means to remove educational sectors from any local, state or federal control. The individual human person controls education. However, the public sectors that will arise due to *The Education Bridge* technology will become an active repository of human knowledge representations.

Self-governance starts with the individual. A representation of the intention of individuals may be aggregated up into community representations, eventually informing us about how we may wish to vote or to expend money. The individual, acting as an individual, is given capacity through group action. However, without an understanding of the relevant questions of science, and also of cultural histories, we are not properly educated. We may not understand consequences of individual actions, and thus we may

⁶ Prueitt, Paul S (2011) *Stratification Theory as Applied to Neural Architecture enabling a Brain-like function for Social Networks* . Presented to Winter Chaos Conference of the Blueberry Brain Institute, Southern Connecticut State University, March 18-20 2011.

instinctually or even unintentionally do harm to others.

The emergence of consequences depends on both local and non-local interactions between humans, or any living system, and the environment. Individual educational agency might help the individual understand the nature of his or her self by aiding the individual in the formation of memory of and awareness of consequences. So, again, we see the three open questions are being at the core of our analysis and planning.

In *The Education Bridge*, we are driving deep into the heart of why there was a crisis in educational practice, in the first place. We see this crisis as arising from a failure in governance. We also see that a technical solution might support a purer form of democracy. We also realize that new private sector agency will arise in ways that accelerate an efficient transformation to a resilient and sustainable economic system, worldwide.

The Trouble with Our Supreme Court

Consistent with this view, we may make the following observation. The United States Supreme Court may have failed to protect the individual. The Court's understanding seems limited in the same fashion that Newtonian science is limited. The open questions are ignored and not accounted for.

The strengthening of the rights of the corporation, and the weakening of the rights of the individual human citizen, has been a slippery slope. On the other hand, the direction of the court anticipates the separation of public and private sectors. So in this sense, The

Education Bridge is a powerful response to the Court's recent decisions equating political power with financial power.

If the Court will not anticipate the danger from money as a political expression, the Community of Scholars must take up a new responsibility. In the late 1960s, natural science stood on the doorstep to a full understanding of the three phenomena: non-locality, induction and emergence. However; as educators, we have failed to perceive that content and pedagogy may be grounded in the emerging language in natural science. We have failed to see science in learning theory. We are beginning to comprehend the profound errors made in educational psychology, and in educational practice. We are developing an ability to respond.

We offer a prediction. The American society will continue doing what we have been doing; up to a point, and then a sea change will begin. The crisis will come to an end. As with all endings, this process will occur over a very short period of time. Meanwhile, we must recognize and preserve what is good about educational processes.

On the Best Part of American Education

Education in the United States gives us a profound sense of being American. Our educational system binds us all together as a national community. For those who feel "American" this profound sense is a great comfort in life. Our nationality is celebrated.

The federal government is in place, but also state and local governments. Some have recognized tribal regime. These shared histories build up a mature relationship between the individual, local

governance, the state, and the federal government. So the value of our educational system is best seen as separate from its obvious failings. We preserve and celebrate these positive outcomes.

On the Issue of the Intention of Private Selves

The issue of the expression of intention is before humanity. Unlike employment by a private sector, those who are employed by a pure public sector must limit the exercise of direct intentions. But how might a human community regulate a pure public sector? Are these agencies to be controlled by private interests, producing the consequences that we know have shaped the educational crisis?

Might the individual measure when those employed by the public sector are harming society? The answer is yes, we may. The individual student might measure and make responsible a school or college that is pretending to teach, when failure rates are over 80%. Such high failure rates are common in all colleges and university learning support programs.

Making the current institutions legally responsible for systemic failure is not the only outcome imagined. Stratified theory allows one to address an intentional space using machine ontology; e.g., models of roles of individuals employed within a public sector. A semantic extraction technology is used to aid in the measurement of human intention⁷. This capacity is then to be found arising in private sectors

⁷ Prueitt, Paul S. (1996b). Semiotic Design for Document Understanding, in the proceedings of the Workshop on Control Mechanisms for Complex Systems: Issues of Measurement and Semiotic Analysis: 8-12 Dec. 1996

as new innovations are created. A new resilient plus sustainable use of natural resources is capitalized.

We agree that the number of public employees should be minimal. However, public employees must have the best communication tools. We argue from direct data regarding poor quality of current information science, that these tools must not be created for ownership purposes. The code base must be open source.

A pure *private sector* is as an economic system whose transactions are designed to increase productivity and the use of innovation by members of society. The private sector refers to this as the marketplace. However, there is criticism of current private sector management of governance functions. Some functions of governance should not be controlled by private sector agency. The social activity of voting; for example, should not be overtly controlled by the private sector.

The Bridge proposals assert that the public sector is not the same as the private sector, and should exist separately. It is true, that the public sector must employ individuals. Thus a pure public sector must; somehow, carefully define how individual humans are to become employed by a pure public sector. This function may not, we argue, be turned over to an artificial intelligence, and must be governed by community intelligence as expressed in regular and transparent voting procedures.

The fulfillment of these roles must be carefully managed by pre-constructed functions of the self-governance aggregated in some tri-

level process architecture. This pre-construction may be done using machine ontology, and yet the means to make construction may be replaced everywhere instantly using the computing backplate. This has never been possible before, not while being mediated by a computing backplate.

Community Intelligence and Computing Backplates

Books support various forms of CI. Natural language use and architecture are two forms of collective intelligence. But the electronic media has so far resisted pure use by society. The problem has been about ownership over rights to use the public space. Collective Intelligence has always been part of how we live in the world. However, the digital mediation of CI is new⁸.

The capacity to extend one's will in a private sector has always been associated with a free marketplace, and the operation of such a place. Transactions are optimized with respect to a specific "utility" function. Of course, this language does not address the use of economic gains to maximize control over other human beings. However, a pure public sector must use the formal definition of "service role" within the stratified architecture, fully specified by colleagues of Prueitt, and himself. The technical means include a computing backplate, one that delivers super distribution of economic value instantly⁹.

⁸ Prueitt, Paul S. (1996a). Is Computation Something New?, published in the Proceedings of NIST Conference on Intelligent Systems: A Semiotic Perspective. Session: Memory, Complexity and Control in Biological and Artificial Systems. October 20-23.

⁹ Prueitt, Paul (2009) - "The Service Engine: Structured Communication using Modern Service Technologies" SOA Magazine, <http://www.soamag.com/I30/0709-1.asp>

In Conclusion

So inclusion we create an objective. A voting electorate must specify the role of individual employees of a pure public sector. This task must be considered equal in importance as voting in political processes.

The simplest form of a computer aid to voting is the voting procedure, published in Russia by Prueitt in 1997¹⁰. Peircian logic¹¹ was used in the development of the linguistic elements of machine intelligence formalism, developed from 1952 through 1991 as cybernetics¹² and applied semiotics¹³. The propagation of consequences of democratic voting may be achieved using Mill's logic¹⁴, quasi-axiomatic theory¹⁵, and a formal voting procedure derived from the 1997 formalism.

¹⁰ Prueitt, P. (1997). Quasi Axiomatic Theory, represented in the simplest form as a Voting Procedure. Presented in Moscow at a conference held at VINTI, and published in All Russian Workshop in Applied Semiotics, Moscow, Russia. (Translated into Russian and published in VINITI Conference Proceedings.)

¹¹ Peirce, C. S. (1955). Philosophical Writings, (Editor, Buchler, J). Dover Publ. Co. New York

¹² Prueitt, P. (1997b). Grounding Applied Semiotics in Neuropsychology and Open Logic, in IEEE Systems Man and Cybernetics Oct. 1997

¹³ Pospelov, D. (1986). Situational Control: Theory and Practice. Published in Russian by Nauka, Moscow.

¹⁴ Prueitt, P. (1998). An Interpretation of the Logic of J. S. Mill, in IEEE Joint Conference on the Science and Technology of Intelligent Systems, Sept. 1998

¹⁵ Finn, Victor (1991). Plausible Inferences and Reliable Reasoning. Journal of Soviet Mathematics, Plenum Publ. Cor. Vol. 56, N1 pp. 2201-2248