Lowering Higher Learning Early

Dr. Joseph Martin Stevenson
Visiting Scholar of Higher Education Residence
Miles College in Alabama

Abstract

The purpose of the commentary is frame the reasoning, premises and rationale for teaching liberal arts in elementary schools to not only empower younger students for higher education earlier, but to also prepare these empowered students for potentially becoming professors in American higher learning or other "thought leaders" in American society and the world. This below image, identified as "higher learning" of the elementary schooler in an academic setting, metaphorically depicts where this commentary is going. Among the areas will be the introduction of the backward design theory and the Socratic teaching method in elementary education through secondary school. The author will later introduce a backward designed, K-12 systematic framework for teaching elements of the liberal arts from Socratic teaching methods.

Keyword: Social Policy, Elementary School, Liberal Arts, and the Brain

Figure One

This "precollegiate<post secondary" framework could be a both responsive and responsible *trend-setting* impetus for social policy. Social policy is defined as "various areas of policy, usually within a government or political setting. It can refer to guidelines, principles, legislation or activities that affect the living conditions, conducive to human welfare, such as a person's quality of life" (Wikipedia).Considering the title of this journal, what would be an appropriate, powerful and impactful *social policy* for the American educational pipeline? In the below reference studied for this commentary, the authors suggest, "the term social policy seems simplistic at first. Could it be defined as the parameters within which society works for the benefit of its people? That definition is absolutely correct, but it opens a complete subset of other queries. For one thing, what benefits people? For another, do the parameters change from one society to another? When the idea is examined at close range, it becomes a complex and multi-faceted issue".

https://www.socialworkdegreeguide.com/faq/what-is-social-policy/

So, as our country increasingly needs and intensively demands more college graduates to save our troubled world, what could be a multi-faceted social policy for exposing, engaging, enlightening, empowering and, most importantly, benefiting our children for the magnificent marvels of higher education earlier in elementary school? Who will replace the retiring professors in higher education for the next decades?

Why shouldn't children and youth be exposed to the quadrivium and trivium of the liberal arts earlier in their lives so that the terms and their meaning are not foreign to them and not taught to them until they are adults? Would not an early foundation of liberal arts-thinking be prudent for future social policy? Is this not "*socially relevant*"? A close examination of the mathematics and writing taught in many elementary schools would reveal that much of the teaching curriculum at these grade level does, indeed, include the basic early elements of the quadrivium and trivium of liberal arts. But these curricula typically don't reference the liberal arts as the genesis for early learning for future higher learning. Particularly school systems that plan (grade-by-grade) curriculum manifestation using backward design theory (from 12th grade backward to kindergarten)and the method Socratic teaching could revolutionize the preparation of children and adolescents for higher learning and perhaps become one of the best school systems in the U.S.

Figure Two

The art and science of early mnemonics could be impactful in this regard. Mnemonics is defined as "*the study and development of systems for improving and assisting the memory*" (Google).Here is a description of examples from a public charter school in New Jersey. This curriculum includes all standards of the grade-level content organized into units of study, each with targeted student learning outcomes (SLOS), as required by the State's Department of Education. The school suggests "the math curriculum helps students to develop procedural fluency and conceptual understanding. Students will gain confidence as they master New Jersey learning standards. The "why" of mathematics is introduced at early grades as well as fluency in key skills. All lessons are engaging and fun. Students also use *Ready Math* and *iReady*, an interactive online learning program to provide individualized instruction based on each child's unique needs". Also, "it is our goal for all students to become proficient readers, writers, and communicators. The school offers a rich array of support to help students achieve this goal and to love and appreciate the written word in **Figure One.** Under no circumstance should integration, infusion and emersion of the liberal arts at the elementary levels there be the compromising, breaching, of jeopardizing of compliance with State standards. In fact, the complete emersion K-6, should be taught in such a way as to enhance adherence to the State standards. This require the elementary teachers to apply "generative learning', defined as "*value-driven learning that seeks what is alive, compelling and energizing and that expresses a willingness to see radical possibilities beyond the boundaries of current thinking*" (Allee).

Figure One: The Written Word (*Trivium*)

- Phonemic Awareness – The smallest units of spoken language.
- Phonics – Relationships between the letters written.
- Vocabulary – Building a word bank.
- Fluency – Reading with appropriate speed.
- Comprehension – Helping students understand what they read.

Although this curriculum is designed to be "college preparatory" it could benefit from (a) a curriculum introduced in the liberal arts, ***quadrivium*** and ***trivium*** context; (b) a context framed from teaching the liberal arts curriculum with student learning outcomes driven with backward design.
Backward design is defined as "*also called backward planning or backward mapping, is a process that educators use to design learning experiences and instructional techniques to achieve specific learning goals*" (Google).

We need more elementary schools empowering higher education lower for K through six grades with a backward designed curriculum and the sixth grade having the same significance as becoming a senior in college.The following subjects should be considered in **Figure Two**:

Figure Two: Academic Subjects

- English Language Arts
- Mathematics
- Social Studies
- Science
- Visual Performing Arts
- World Languages
- Physical Education/Health
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The process of backward design involves teaching backwards -- from sixth grade – from the beginning – the first grade of the faculty-led teaching objectives and student learning outcome to determine a sequence for K-6 for optimal elementary education of liberal arts. The **quadrivium** is defined as "a group of studies consisting of arithmetic, music, geometry, and astronomy and forming the upper division of the seven liberal arts in medieval universities" (Merriam-Webster). The **Trivium** is defined as "a group of studies consisting of grammar, rhetoric, and logic and forming the lower division of the seven liberal arts in medieval universities" (Merriam-Webster). Although these academically titled studies may appear to be too advanced for K-6, creative elementary teachers with the energy and enthusiasm can craft these areas in age-and-grade appropriate taxonomical concepts. Grades K-3 might be considered for the lower division Trivium and grades 3-6 might be considered for the upper division Quadrivium but the entire K-6 curriculum should incorporate the creatively generated intersections of crisscrossing related between the two division so that students can untap, unlock, and leverage the neurons from the right side and left side of the brain. Every classroom should have an exhibit or display of the human brain (**Figures Three** and **Four**) so that teachers can make graphic, visual, and optical references to the students. In this case the young brain is the genesis and early elementary education is the grounding for future growth. In the concluding section of this commentary, the author makes the case in **Figure Twelve** for framing a foundation for the leveraging the right side and left side of the brain to foster the fundamentals of qualitative and quantitative research skill development – two areas needed and demanded in the America's workplaces and graduate schools following undergraduate studies.

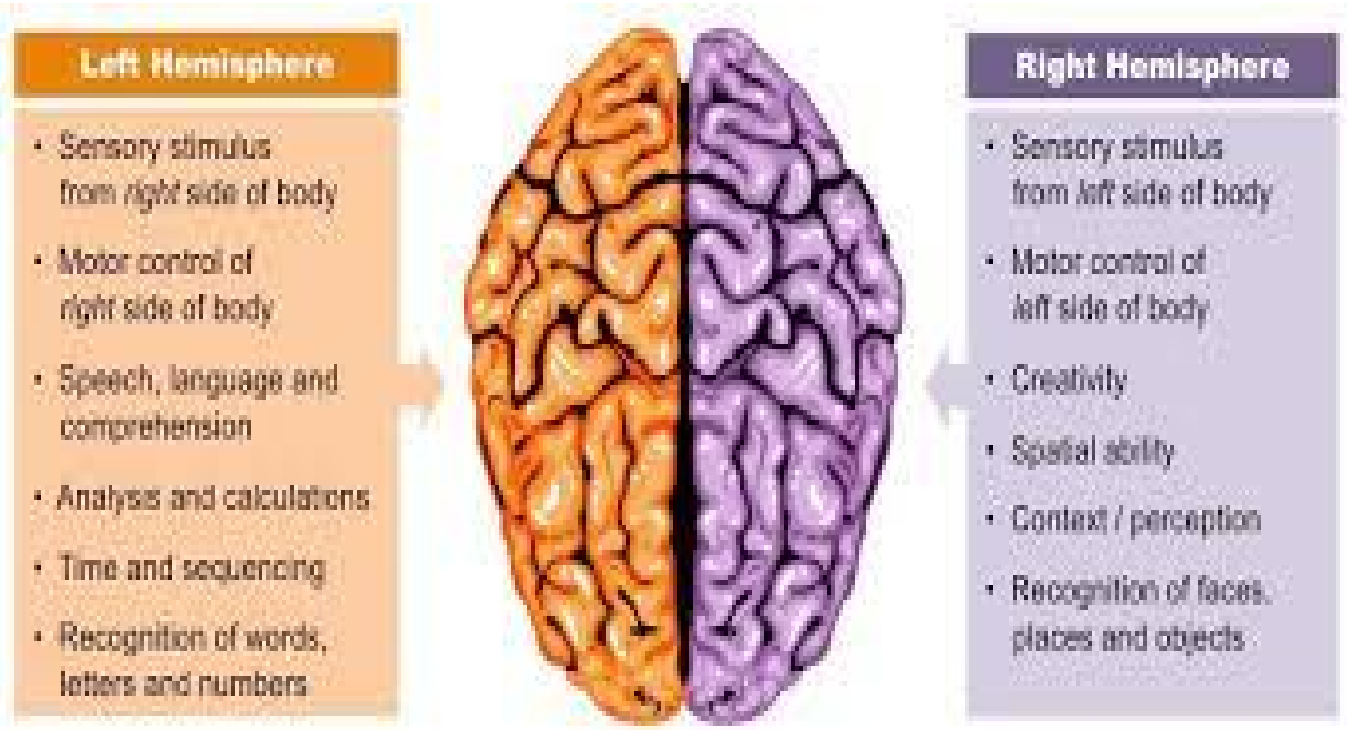


Figure Three: The Human Brain

Many, many instructional pints can be from the relationships, for instance, from arithmetic, music, geometry, astronomy and the conceptual understanding of the "why" of mathematics is introduced at early grades as well as fluency in key skills.

Teaching the wonderments of astronomy early can ignite early "awe" among the students Moreover, many teachings at the K-6 levels can be conceptualized from grammar, rhetoric, logic, and the smallest units of spoken language; the relationships between the letters written; building a word bank; reading with appropriate speed; and helping students understand what they read. Certainly, all of these areas are related to either speech and language and creativity and analyses; calculations and context and perception; or recognition of words and recognition of faces and places. Again, an incentivized creative teacher can craft and transform these relationships into taxonomies. The lobes of the brain in **Figure Four** can also be explained to elementary students in ways that deepen awareness, appreciation, and understanding of the cerebral sources of speech, language, reading, hearing, concentration, and other areas within the brain. This make teaching and learning a *mindful* experience – through the lens of literacy, numeracy, creativity and communication skills.

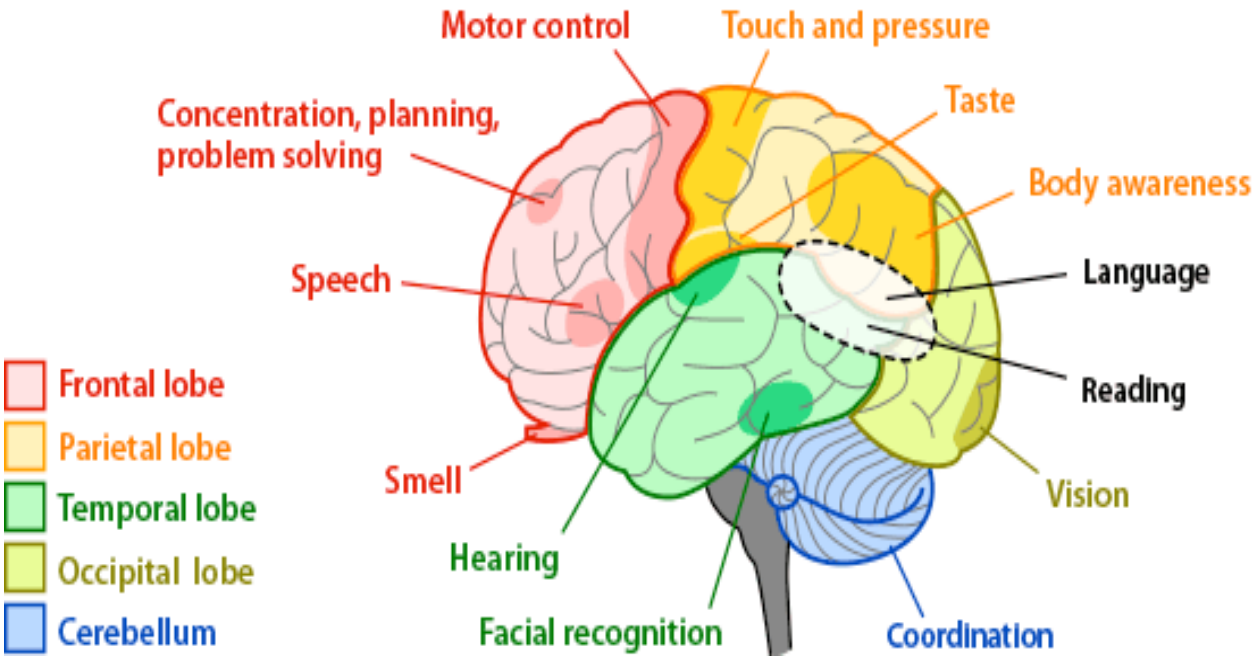


Figure Four: The Lobes of the Human Brain

Higher Education and Demography

As research universities plan to prepare for long-term sustainability status, targeting the intellectual capital in elementary schools should be considered as a national educational partnership between the K-12 sector and higher education. This would be real social policy. This partnership initiative is suggested at a time when many members of the professorate are retiring over the coming decade.

Two compelling demographic shifts in pre-collegiate and post-secondary education provide the genesis for this commentary. First, most of the enrollment growth in American schools in the next several decades will manifest at the elementary and elementary school levels. Second, nearly half of the American professorate is projected to retire at a time when "fewer and fewer persons, especially highly talented young students are opting for academic careers," according to Bowen and Schuster (1986), American Professors. This ***social*** and ***educational*** phenomenon presents a timely and vigilant opportunity for both the K-12 and higher education sectors to develop systemic synergism and strategically plan for producing tomorrow's scholarly researchers in today's elementary schools. This critical coaction has future implications for the early foundation-building of intellectual capital for the nation's future research capacity and scholarly capability at time of intense global competitiveness. Braskamp and Wergin (1998) in ***The Responsive University*** wrote “higher education today has an opportunity unique in its history to contribute to our society. Institutions of post-secondary education and their faculties are expected to become part of these partnerships and off earthier creativity, knowledge, and analytical problem-solving skills. To some this is a new development. But in truth, the work of faculties has never existed in a vacuum. Their current research emphasis, for example, is due in part to past national priorities on defense and engineering.
The problem is that today's priorities are different. External audiences are asking for a different kind of social relevance for higher education: They are as king it to enhance K-12 education and to better prepare the young for work among other demands. The academy will benefit by recognizing the depth of this concern ... (p. 63). In ***Scholarship Reconsidered: Priorities of the Professoriate***, Ernest Boyer (1990) earlier warned, "Linkages between the campus and contemporary problems must be strengthened" (p. 76). Boyer’s conceptualization of the challenge implicitly focuses on two paradoxical core elements for systemic evolution, strategic planning and educational development in the pre-collegiate and post-secondary sectors. Most recently, Christensen and Eyring, citing Henry Rosovsky in ***The Innovative University*** that “*our finest universities are the cutting edge of our national life of the mind. They determine the intellectual agenda of higher education They set the trends*” (p197)

Models for Future Thinking About

Lowering Higher Learning Earlier

The challenge is: who will supersede those who are now charged with fostering creativity and analysis in basic, applied, and action research at our premier research institutions, especially this private research universities for public good? The core elements of "partnership" and "research" are at the center of discussion in commentary for **IJSPE** and collaterally serve as the driving points for "precocious precognition" among the nation's elementary schools and research universities. In between early elementary education and later higher education is the middle school and high school. Given the middle school comes to the younger students right after elementary school, some discussion should be made about middle schools. Note, the references in this commentary may appear dated, but this author strongly believes they provide anchor and access to future thinking about '*lowering higher education earlier*". The first middle elementary school was developed in 1950 in Bay City, Michigan; however, the growth of the movement began in the 1960s, at a time when most of the nation's current aging faculty were entering the professoriate as young academicians. The middle school is a pivotal level for the early identification of future research skills and this level of learning should be the primary provenance for the future recruitment of students to the academic enterprise. In addition to the use of interdisciplinary themes in math, science, language arts and social studies, and the developmental characteristics of youth, this school-level promotes an "exploratory" curriculum, and "discovery" through a "common wheel" of intellectual experiences. Typical adolescent characteristics are highlighted in Table A by the National Middle School Association in the work of Allen and Stevens (1998) in ***Middle Grades Social Studies***. Earlier introduction to liberal arts teaching in elementary school can enhance these traits prior to high school and, subsequently, higher learning.

Figure Five: Intellectual Adolescent Traits

* Early adolescents are able to initiate new and higher cognitive processing due to brain growth.
* Early adolescents are intensely curious.
* Early adolescents enjoy both manipulative and intellectually stimulating learning experiences, including active involvement rather than passive.
* Early adolescents are generally intellectually inhabited and find learning most interesting when it is related to immediate goals and interests
* Early adolescents express a heightened egocentrism. They argue to clarify personal thinking as much as to convince others.
* Early adolescents exhibit strong desires for self-expression and preferences for creative activity.
* Early adolescence exhibits a growing interest in transporting self and others into other situations.
* Early adolescence displays wide ranges of skills, interest, and abilities. Interests, attention spans, and concentrations alter during this period of growth and results generally in shorter rather than longer periods of focus
* In their search for identity, early adolescents seek to understand the meaning and enigmas of life form many perspectives.
* Early adolescents are concerned with intellectual, philosophical, biological, sociological, moral, and ethical issues. They seek casual and correlative relationships. (p. 51)

Both rhetoric and research have addressed the issue of work-force readiness for the modern academy in the new millennium. However, the connection does appear to be made, rigorously, between the targeting of elementary school youth as the fundamental derivation for replacing future faculty in specific disciplines of higher education, perhaps especially in the liberal arts. There are other variables that effect this phenomenon as well. This shift is further compounded by a widening digital divide in an era of accelerated technological expansion; an increasing call for developing higher order "critical thinking skills" in both the classroom and the workplace among those who also supposedly need remedial development and are considered high risk; and a growing dialogue among educators to teach in K-12 sector as a microcosm of the collegiate environment with strategies like cooperative learning and cross-disciplinary, interdependent pedagogy. The elementary school, as it is currently conceptualized, is where the pipeline begins for inquiring and discovery—the cornerstone of applied and basic research in American higher learning. Early wonderment, curiosity and creativity in the liberal; arts could be the foundation for this pipeline beginning.

The scope of scientific research is divided into two categories by Bowen and Schuster. They are, "basic research which is intended to discover the laws of nature regardless of practical applicability, and applied research which is intended to discover ways of putting knowledge into practical use" (p. 16). In the study and development of both types of research in higher education, there are several characteristics that parallel the pedagogical rudiments of inquiry and inquisition of adolescents. In the work of ***Practical Research: Planning and Design*** by Paul Leady (1974), those "discrete" characteristics encompass several notions. They are research begins with a question in the mind of the researcher; research requires a plan; research demands a clear statement of the problem; research deals with the problem through sub problems; research seeks direction through appropriate hypotheses; research deals with facts and their meaning; and research is circular. Arguably, these tenets apply to academic investigation and cognitive exploration across all disciplines in the natural and social sciences. In the modern elementary and middle school, younger adolescents are encouraged to develop exploratory skills among the myriad of multiple intelligences. In elementary education young learners have with opportunities to acquire literacy, numeracy, creativity and communication skills; enjoy learning; and develop desire to continue learning for college preparation. Although not all are necessarily tapped in elementary school, Howard Gardner (1993) in ***Frames of Mind*** articulate these intellectual amateurs. They include linguistic, spatial, logical abilities, kinesthetic, musical, intrapersonal, interpersonal and naturalist. These areas could be further examined for developing early research skills among youth in elementary schools. As more recently cited by Gardner (2000) in Creative Classrooms, "the purpose of education is to help us understand our various worlds -- the physical, biological, social personal." Callahan, Clark and Kellough (1995) in ***Teaching in the Elementary and Secondary Schools*** suggest that "adolescents normally are self-motivated, active and interested in novelty." Thus, the second irrefutable question is: wouldn't this level of educational development be most appropriate for nurturing research skills at an early age? The authors suggest that adolescents are constantly interpreting their environment; tenacious, naturally curious, love to explore and are energetic. In Caught in the Elementary: Educational Reform for Young Adolescents, the California State Department of Education (1987) suggest that these students tend to exhibit independent and critical thought; be intensively curious; reason with a hypothesis; experience the phenomenon of met cognition; use skills to real-life problems and prefer active versus passive learning experiences among the levels of intellectual development. Callahan and his colleagues, in **Figure Six**, suggest that "skillful use of discovery, inquiry, and problem-solving approaches allows teachers to teach students to learn and practice thinking skills," which notably parallel a core consistency with those more advanced areas in higher education research identified by Leady.

Figure Six: Thinking Skills

* Recognizing, identifying, and defining problems
* Finding evidence
* Observing accurately and without prejudice
* Interpreting and reporting correctly
* Detecting faculty arguments, polemics, bias, prejudice, poor logic, and other evidence of faculty reasoning
* Detecting relationships, seeing parts in relationship to the whole, typing elements together, and recognizing similarities and differences
* Choosing between alternatives
* Making inferences and drawing conclusions
*Analyzing
* Separating fact from fiction
* Using knowledge as a departure for building new knowledge, ideas, and thought (p. 267).

In ***Teaching Strategies: A Better Guide for Better Instructions***, Olrich and his colleagues (1985) in **Figure Seven** similarly suggest some cross disciplinary and multi-subject topics that are appropriate for inquiry and discovery in lower-level education.

Figure Seven: Topics Appropriate to Inquiry by Discipline

Discipline Topics

Art Color wheels
Drawing: what happens to movement
English symbols in a masterpiece
Mapping for writing
History bias in recording history
Life in the Great Depression
Family living properties of different textiles
Family interactions
Industrial arts commonalities of period design
Hardware choices
Languages
Cultural differences in prefixes
comparing similar objects, e.g., tickets,
maps, advertisements
Music Infer style moods
Establish patterns from different composers
Physical education disease control
Athletic injuries
Science animal communication
Chemical reactions
Social studies Demographic trends
Cultural geographical similarities and
differences
Theater arts social impact of playwright
Symbolism in a set design (p.278)

In ***Teaching for Thinking*** (1986), Raths and his colleagues likewise recommend projects and investigations for elementary school adolescents. They find that this type of work is more appropriate for junior and senior high school students, but it is also given in the upper grades of elementary school (hence, elementary school age).

There is a myriad of teaching modalities and instructional models that could be prescribed for cultivating these types of research enhancement skills. Joyce and Weil (1972) in ***Models of Teaching*** chronicled many years ago, several conventional teaching prototypes, based on major theorists, that remain applicable to today's educational setting. **Figure Eight** highlights some selected excerpts from their work:

Figure Eight: Selected Models of Teaching for Developing Research

Model Major Theorist Family or
Orientation

Inductive Teaching, Hilda Taba

Information Model Processing Inquiry Training Model, Richard Suchman
Science Inquiry Model, Joseph J. Schwab
The Process of Education, Jerome Burner
Advance Organizer, David Ausubel
Social Inquiry Model, Byron Massialas
Social Interaction, Benjamin Cox
Synectics Model, William Gordon Person

Figure Nine: Model Mission or Goals for Which Applicable

Inductive Teaching Primarily for development of
model inductive mental processes and

academic reasoning or theory-

Inquiry Training Model building, but these capacities are
useful for personal and social
goals as well.

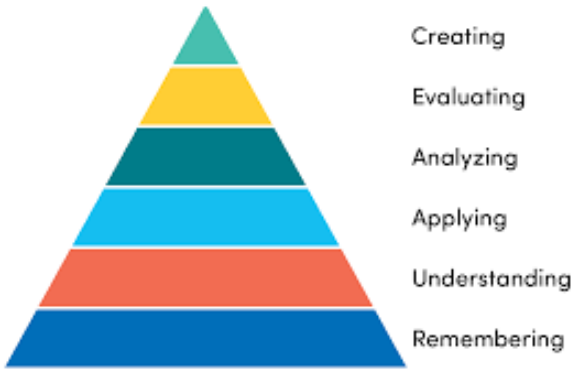
Science Inquiry Model Designed to teach the research
system of the discipline but also
expected to have effects in other
domains (i.e., sociological
methods may be taught in order
to increase social understanding
and social problem solving).
Advance Organizer Designed to increase the
Model efficiency of information-
processing capacities to
meaningfully absorb and relate
bodies of knowledge.

Social Inquiry Model Social problem-solving primarily
through academic inquiry and
logical reasoning.

Synectics Model Personal development of
creativity and creative problem-
solving (p. 11-13)

Employing the widely used "educational objectives" taxonomy classified by Benjamin Bloom, commonly and routinely applied in American elementary schools, these models could be considered for the elementary school delivery system--particularly the higher-level classifications of analysis and synthesis in sixth gradeperhaps as capstone activity before going farther to middle school, then high school. The fourth level, "analysis," emphasizes the breakdown of the material into its constituents parts and detection of the relationships of the parts and of the way they are organized. "Evaluation and creation," the fifth and sixth levels, is defined as the "putting together of elements and parts so as to form a whole." **Figure Ten** describes Bloom's Taxonomy:

Figures Ten: Bloom's Taxonomy



Lesson plans could be implemented based on the above traits, skills and topics. Thomas Armstrong (1998) in the ***Awakening Genius in the Classroom***, describes the qualities that build on the intrinsic genius of young people, and they are most appropriate to reiterate in this precis. These qualities include curiosity, imagination, creativity, wonder, and inventiveness. There are others, but these particular individual cognitive properties relate to the future advancement of adolescent minds and the early development of research skills in elementary schools.

These skills lay the common groundwork in the future systemic learning between elementary schools and universities. Research institutions have been charged to develop research-based charters, as well as, at the undergraduate level, research initiatives to improve learning. Toward this end, elementary school youth can re-apply their early developed skills, abilities and later competencies in college. An excellent resource here for elementary teachers is ***Teaching Middle School Students*** to be Active Researchers by Judith M. Zorfass with Harriet Copel, and ***Practical Action Research for Positive Change***, by Richard A. Schmuck. Among the areas that have been recommended by the Carnegie Foundation for reinventing undergraduate education at research universities are making research-based learning the standard; constricting an inquiry-based freshman year; removing barriers to interdisciplinary education; and using information technology creatively. As the academy's faculty resources continue to downsize and exit, both K-12 and higher education are challenged to plant the seeds for the future intellectual capital at our research institutions. The academic marketplace will experience an unprecedented transformational exodus, among the faculty ranks, that will not necessarily manifest as the result of retirement. The academy is also projected to experience voluntary departures, involuntary separations, work force, transitions, professional transfer and life expiration. Both pre-collegiate and post-secondary sectors should follow a systemic-based articulation framework for fostering alliances of this scope and nature. The Carnegie Foundation's ***School and College*** by Gene Macroff describes five basic principles for alliance-building collaborative projects to succeed. First, educators at both levels must agree that they have common problems. Second, traditional academic territories must be overcome. Third, collaboration must be sharply focused. Fourth, recognition should be given to those who participate in the collaboration. And, fifth, for the collaboration to work, there must be focus on action. Turning a systemic vision into practice requires that a strategic plan be implemented with measurable goals and a reasonable timeframe with resources to achieve them. The demands for the new technological, global academy will require educational planners to implement early intervention and recruitment in the elementary school, where the embryonic skills of research inquiry and discovery can be developed. To this end, the following framework is suggested, as originally conceptualized by Rigden (1990) in ***Restructuring Schools***. It has been re-conceptualized for this commentary, relative to relationship-building between pre-collegiate and post-secondary levels of education.

Figure Eleven: Research Inquiry Framework

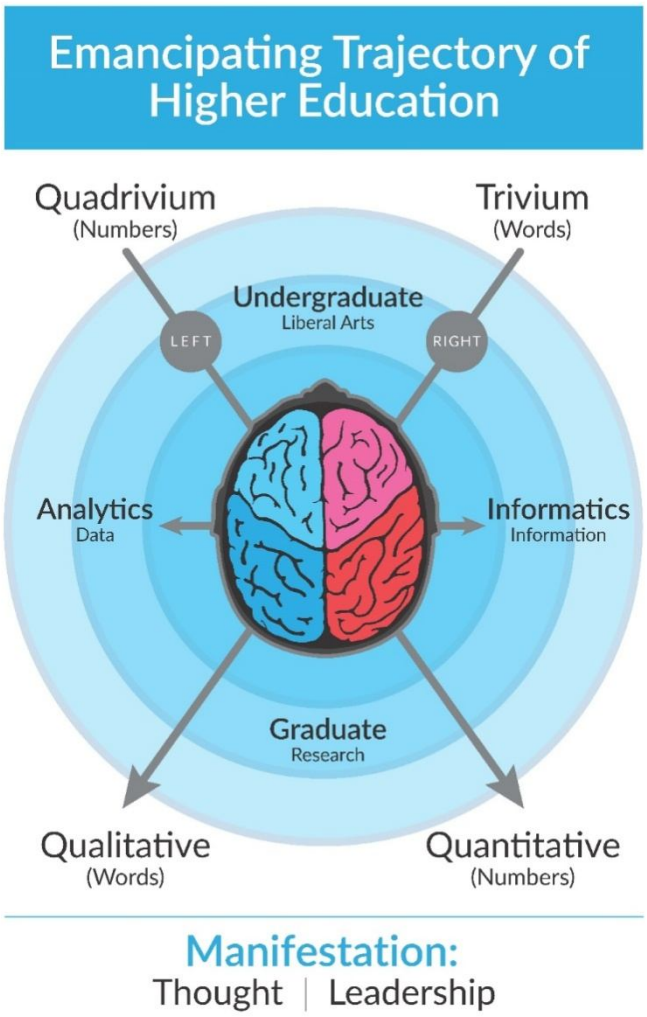
* In the spirit of the increasingly widespread movement of "school-college" partnerships and collaboratives, school districts must develop research integration initiatives with neighboring colleges and universities (perhaps on-line and onsite).
* Examine the methods and means to integrate research-enhancement technology across the entire curriculum; teach in the classroom as a "microcosm" of the college classroom.
* Formulate these methods and means into a step-by-step plan with measurable and achievable lesson plan objectives for its implementation on a school-wide or college-wide basis.
* Develop, as part of the strategic plan, a "cadre" of energetic, enthusiastic, and committed professionals on the campus whose responsibility will be to innovate, intervene, initiate, and implement ways to bridge inquiry and discovery for research skill development.

* Establish a reward system for faculty and students who teach research and developmental skills with objectives and outcome plans.
* Institute a school-wide or college-wide-training and development effort for one-or more of the models in the Figures above.
* Actively identify and encumber financial, technological and human resources.
* Constantly review with all faculty, the educational and economic forces affecting the systemic educational process.
* Monitor external as well as internal systems procedures and policies which dictate the educational culture.
* Deliberately and decisively remedy conflicts, impediments, barriers or other challenges to success and progress upward; build a intersections and a consensus when necessary.
* Monitor and evaluate the plan on an ongoing basis -- particularly as related to the designation and distribution of fiscal, human and facility resources.
* Actively build alliances or engage in related partnerships with business and government to meet the challenges of the future academy.

* Include this systemic alliance as part of the campus outreach planning effort and comprehensive infrastructure for early recruitment.

These outreach initiatives might include sponsored scholarships for exceptional elementary school teachers and giving higher education faculty institutional recognition for meeting two of the dimensions in the professorial scope--service and scholarship. Likewise, graduate and professional students could serve as preceptors to students in local elementary schools with close proximity to the college campus. In sum, preparing future faculty from our present human resources in elementary schools is key to the economic vitality and heuristic veracity in our growing academy. This could be real foundation-laying and trendsetting for social policy. Indeed, lowering higher education earlier in elementary school is precocious precognition. In all comes together in **Figure Twelve**–the liberal arts, the right side of the, the left side of the brain, analytics and informatics, and qualitative research and quantitative research from elementary education where young learners have hierarchical and sequential grade-by-grade opportunities to acquire literacy, numeracy, creativity and communication skills; enjoy learning; and develop desire to continue learning to manifest thought leadership later in college life.

Figure Twelve: Brain as Generating Genesis; Elementary Education as Early Grounding



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