

SecondSchool™ Analytic Methods

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SecondSchool TM's Previous Work

Almost forty years of data shows college math courses taught as an academic requirement, often by individuals who do not know what mathematics is. This interpretation of our extensive data is an observation about how math is taught in schools, K -13. More important is student awareness that something different is expected from non-forcing pedagogy. Students are encouraged to make decisions.

Second School Digital Network TM (SSDN TM) has developed digitally-based linguistic investigations regarding student viewpoints about college algebra. We identify various groups (or representation sets) of opinions and delineated commonalities between individual viewpoints. Profile delineation helps us mentor college level individuals without knowing who the individual is or letting it be known who the mentor is, or mentors are¹. Mentors work as a team.

Small businesses are locally owned Mentor Circle (MC) TM local chapter houses. These houses are proper businesses. Businesses make a profit and are publicly owned via public stock issues, in with each state. ²Each state has a public corporation in control of franchise agreements to local chapter houses.

De-individualization

De-individualization of any type of data is important and is discussed in *Deep Learning Manual, the Series*. ³ In our Associate of Science two year degree plan, SSDN TM offers instruction on deindividualization methods. Real time model of language use is being constructed and up-dated. These methods are introduced from ground up. RDF repositories are used to encode data in such a fashion that individual identity is hidden.

¹ We use simplified AI and Large Language Models (LLMs).

² or American Indian community.

³ <http://www.secondschool.net/Pathways.pdf>

Acquired Learning Disability

The conjecture is that an acquired learning disability will be clinically verified using tools that he discussed with Karl Pribram (1991-1998). The conjecture was not debatable during the decades that Prueitt worked to understand better how to present this hypothesis⁴. It is conjectured that many categories of learned helplessness are due to how math class is conducted. In our schools, math class is ‘taught’ by poorly trained teachers and staff. This is how America is educating the children.

As various text snippet collections have shown, resistance arises from students who are solely focused on the grade to be earned. Few believe that he or she will suddenly open higher mathematics for him or herself. We also see remarkable successes. These individuals are not college ready. Many of our school children plan to do not go to college. Most of this decision is based on inability to understand what the purpose of math class is.

Using linguistic tools, SSDN™ team members model memetic structure signatures of social mythologies, such as false-AI and false notions about the learnability of college algebra. We have extensive data going back to 1988. Deindividualization of assessment data is accomplished using VisualText IDE, additional S/G algorithms and voting procedures.

While the tutoring and mentoring is occurring, student data is controlled by the individual student. Certificates are generated and provided to the student when requested. When the student decides to not continue all data about that individual is excluded from secure RDF type data repository. Avatar faces are selected during ALEKS Inc/ SSDN™ enrollment and then used to express sentiment without exposing personal identity.

⁴ Prueitt, P.S. (1995) A Theory of Process Compartments in Biological and Ecological Systems. In the Proceedings of IEEE Workshop on Architectures for Semiotic Modeling and Situation Analysis in Large Complex Systems; August 27-29, Monterey, Ca, USA; Organizers: J. Albus, A. Meystel, D. Pospelov, T. Reader

Past Studies

Our answer starts with observation. One situation with one student will not be completely unique. Observation suggests that behavior develops from response categories. There should be common “locations” and a reasoned selection of next topic to study. Sentiment analysis takes a big step towards individual control over one’s own academic learning. We apply AI tools to the exchanges between MC TM local chapter houses and SSDN TM enrolled individuals.

Several collections of Student Concept Narratives (SCNs) exist going back to 1988 while Prueitt was assistant professor at Hampton University. With these data sources, under machine analytics, several important questions arise. Answers are provided.

Non-acceptance

Human Deep Learning (HDL) methodology can be rejected. What if no matter what we do we find that a student is not successful in math classes? What then? Imagine what school and college math class would be like if students were motivated and had easy access to self-directed study in science and mathematics. We open doors to challenging discussions about several generations of students’ perceptions regarding school learning and math class. First, we address a common situation where a student has stated a refusal to learn when given specific guidance.

“I do not want to learn, and you cannot make me”,

it is said.

It may be that by looking away from an avoided task a person moves to a better position to see the whole picture, to take a look at what a new task represents. Taking pressure off may have positive results.

Looking Away

A *looking-away* concept is the second part of *focus-on* then *focus-off* human deep learning methods. An important version of

focus-on and then focus-off methods

is when some underlying prerequisite concepts are mentally blocked or there is a gap in recalled knowledge.

Focus-off and then focus-back-on methods

are the other side of a two sided coin. This produces a behavioral cycle in which figure and ground exchange information⁵. Something else from the cerebellum-controlled ground becomes the figure one is focused on.

Focus on something, then shift awareness and focus on something else.

Have names for what you place into your focus. Learn how to focus on topics in the college algebra curriculum, and in computing.

MC™ Staff

Working in the role of visiting or adjunct professors, highly qualified PhDs run three-week academic courses for the local chapter house. A MC™ house works with area community colleges and schools. Students learn how to shift perception away from the study of concepts one has listed as being in college algebra. Then students develop study habits by repeatedly focusing-on a named topic and then focusing-off.

Cohort sizes might be capped at 100 virtual chairs. This gives an income to the local chapter of MC™ of 12,000 dollars per month, 120 dollars per three week course. The three week courses lead to additional curriculum depending on student performance. . Eventually, professor level wages are paid from tuitions. We look for capital investment for the first two years of twelve-year plan⁶.

⁵ [https://en.wikipedia.org/wiki/Figure-ground_\(perception\)](https://en.wikipedia.org/wiki/Figure-ground_(perception))

⁶

Digital Science⁷

When a student has already learned a lot about higher mathematics, we introduce digital science. In our degree plan, a balance is to be kept with individual-student's communities' cultural traditions. In this case, we focus off the target concepts and work to correct prerequisite concept(s). It is a powerful technique that is not often available to schools. Each collection shows evidence that HDL students work hard, learn more than they thought they would, and come to appreciate the novelty of deep human learning (HDL) methods, as presented in these courses.

The degree program has a calculus series of three four-hour courses, taught at university level. We use both Knewton-alta and ALEKS, and include computing with Python and C. We include numerical analysis. Statistics is supported by a ALEKS pre-statistics course and introduction to university level statistics. An additional probability course helps students understand what statistics is. We have a Linux administration course.

Tribal Studies

A separate degree in tribal studies make sense, as well as a degree in literature and humanities, with a data science core. A degree in business economics maps into data science when analytics is applied to supply chain analytics. Science, computing and mathematics would be in a data science degree. Perhaps two and four degree-programs are needed: data science, business and economics together, cultural studies and literature and humanities together.

We envision that AKS Inc will make MOUs with Tribal Colleges and University (TCU member institutions, and with high schools and colleges. Part of these agreements will detail how a college hires adjunct mathematics and computer science PhDs to serve each local MCTM Chapter, virtually; and to teach one or two of the degree course sections.

⁷ Appendix A provides foundations necessary to be employed as a data scientist.

Complexity Education

Research questions are developed for students to work on. Adjunct faculty interact with students virtually. When MOUs are in place, well qualified faculty are paid competitive rates for teaching online courses. These individuals are aware that cultural deep structure for the tribal community will have hidden knowledge.

MC TM houses function well, with PhD level scholars teaching course sections for a partnered college. Course sections are described in the college catalogue associated with a college. College credits are earned and transferred.

Graduating individuals will know how to code in ANSI C and in Python, and what SQL stands for. They will be comfortable within Ubuntu Linux. Our students will study interesting questions.

Complex Systems

Is the emergence of individual thought like, in some ways, gene expression or cell signal pathway expression ^{8 9}? This outcome is far different from what colleges currently offer in data science degrees. .

Something new was said about differential and difference equations, as discussed in Prueitt's 1988 dissertation, *Mathematical Models of Learning in Biological Systems*. An n-dimensional manifold is a continuum in theory, but discrete when modeled on a digital device. These manifolds are surfaces in which attractor and repeller sources exists. Things evolve.

⁸ Kowalski, J., Ansari, A., Prueitt, P.S., Dawes, R., and Gross, G. (1988) On Synchronization and Phase Locking in Strongly Coupled Systems of Planar Rotators. *Complex Systems* 2, 441-462.

⁹ Prueitt, Paul .S. (1991) Inter-component Languages, presentation First International Conference on Behavioral Computational Neuroscience, at Georgetown University's Neural Network Research Facility, funded by grant from National Science Foundation

Simplified AI

Because of Prueitt's background his efforts in higher education have been as an outsider. For him there has always been a struggle, even while in high school. He graduated in 1969 in lower 25% of a Dallas Texas high school class while studying particle physics and foundational theory using books from the Dallas public library. He took calculus his senior year. He remembers getting school detentions due to his reading of physics books in study hall. The school was not allowing independent study

Everyone has an opinion about American education, some highly laudatory and many quite critical. The fact remains that as a society we have what we have, even as AI is changing the nature of academic learning. Our program simplifies AI and demystifies AI.

Certification

The very notion of certifications and college degrees has come under increasing inspection. American youth often look away from college training in favor of alternative pathways into adult life.

Our *Pathways* proposals offer several advancements. A first innovation is an empowerment of individual control, at low cost. Individuals gain control over how one's self is placed into college level mathematics.

Certification and advancement towards college ready is available to each person by registering at www.secondSchool.net. Advancement is continued into college courses, even if the instructor is not aware of outside tutorial and mentoring assistance. Individuals may choose to be self-educated.

Individual assessment using AI provides a foundation to course level, instructor level, and program level assessment linked to specific student learning objective. Assessment is institutionalized either as part of a college's service to the community or entirely separated from the college. Educational services are provided via AI and the MC TM local organizations comes from work on Human Deep Learning (HDL) theory and practices.

Stratification Theory

A long over-due simplification in computing science is advanced and taught as part of a liberal arts education. SSDN™ degree plans have all core general education courses, plus pathways into computing, statistics and calculus. Colleges will benefit.

Our basic research is theoretical and centered around conjectures about cultural deep structure. However, this research is also applied to economic processes, biological processes, and geological processes. We look at economics where supply chains, manufacturing processes and distribution processes have waste. The curriculum is designed to increase individual ownership over new businesses that reduce waste in our economic and production processes. Student generated process models show where waste is occurring. Once identified, the cause of waste may be reduced using knowledge management (KM) tools¹⁰.

Linguistics

Linguistic analytics is used to explain processes that assemble molecules from subsets of a small set of basic elements, atoms available to analysis. With generative AI, models are produced by humans in the moment. These models are used to understand any natural process. This is unexpected. Post-2025 we see evidence of stratification everywhere.

Process analytics use techniques found in linguistics. These techniques involve stratification of information into atoms and molecules type referential data sources, as discussed in *Design Principles*. Junior level mathematics courses, numerical analysis and algorithms, plus two courses on database management, were proposed. The degree plan prepares individuals to understand how to use simpler and more powerful digital interactions¹¹.

¹⁰ Prueitt, P.S. (2009) Service Engine: Structured Communication using Modern Service Technologies, SOA Magazine

¹¹ <https://www.panmacmillan.com/blogs/general/tim-berners-lee-on-ai>

Summary

Using our tools, we see how proper resolution procedures impact presently demonstrated ability to learn in a college mathematics classroom. In particular we have looked at how freshman students perceive college algebra. We develop various folk taxonomies from linguistic analytics. These are Small Language Models (SLMs) about cultural grounding.

We use simplified hypergraph based algorithmic technology designed as a Semantic Web app. AI on one side and humans on the other, humans supply necessary real time judgments.

Generalized case studies are derived from forty years of individual case studies, using machine based text transformations in n - dimension Hilbert spaces and folk taxonomy modified n -gram analytics.

College algebra can be learned from outside all of the schools, colleges and universities. Individual can learn this on their own, as well as opening explore other university level curriculums.

Our use of Human Deep Learning TM methods and Simplified AI TM are central to efforts to transform American education. The current system is focus on the few when the national interests is that America has an educated voter base.

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