e-OneRoom Schoolhouse:
Adapting to the *New Kids*

Eli Fishman

Box 4720
Chicago, IL 60680
eli@lightningsmart.com

ABSTRACT

K-12 education in the U.S. is costing one-half trillion dollars annually. In constant dollars, the amount spent per student has increased 600% in the last sixty years. Test scores, however, have remained flat. Political leaders are constantly clamoring for more education dollars, yet there is no clear direction on how the funds will be used effectively. The problem, which no one is willing to clearly identify, is classroom discipline. Children are forced to attend schools and experience a curriculum developed for a mechanical era they do not comprehend. Consequently, they do not and will not behave. The solution is to invent a curriculum based on currently available technology used video games. This technology will engage rather than repel students. It will also create an opportunity to for students to acquire sorely needed social capital.

The Problem

Presently, only 6.5% of Chicago Public School students complete college by their mid-20's. For black and Latino male ninth-graders, only 3% graduate college within six years although about 80% of CPS high school seniors say they want at least a bachelor's degree.[1] Education spending in the U.S. exceeds one-half trillion dollars a year. Over the last 25 years, education spending has increased seven percent annually, or double the rate of inflation.[2] At the end of World War II, according to the U.S. Department of Education, spending per pupil (in constant 2001-2002 dollars) for public elementary and secondary schools was $1,214 per student annually. That amount doubled by the middle of the 1950's to $2,345 per student, doubled again to $4,479 by the early 1970's and doubled again in 2001-2002 to $8,745 per student. The total spending increase was 600%.[3]

Beginning in the early 1970's the National Assessment of Educational Progress began classroom testing. The average reading score for 12th grade students in 1971 was 285. The average reading score in 1999 was 288. During the same period math scores for 12th graders went from 304 to 308. The average improvement was slightly over 1% during a thirty-year period after school funding increased 100%. In this same time span, high school graduation rates for all seventeen years olds actually dropped from 75.6% to 72.5% according to U.S. Department of Education statistics.[4]

The Cause

Old Order vs. New Kids

The top three concerns expressed by teachers with respect to improving student performance are, a) the need for more parental involvement; b) the need for smaller class sizes and, c) the need for better classroom discipline. Identifying parental involvement and smaller classes as compelling issues is an attempt to obscure teachers' singular concern—discipline. Why do they require more parents or fewer students? It is because of discipline concerns. Remonstrating about parent involvement and class size is subterfuge invoked by teachers who are usually held responsible for discipline problems. However, teachers are not culpable.

In these times, there have been vital structural changes in our culture and economy. Our education system has failed to adapt. Schools cannot be effective until they become responsive to the *New Kids* produced by the societal changes.

Childhood is a social construction that reached a more advanced stage of conceptualization in the eighteenth century. During this period, recognition of childhood as a phase with its own distinctive requirements had developed. Nurturing became an important responsibility of both parents and the government. Children, under the control of adults, had to be taught logical thought, self-control and deferred gratification. Still, the innate capacities and curiosities of children were to be given important consideration. There was a process of socialization where children were slowly inducted into adulthood based on the revelation of privileged information that adults could offer. In the twenty-first century information age, the need for socialization by adults disappeared as children were exposed to the same media and electronic resources as adults. They were able to acquire the same information.[5] The result is an enhanced level of independence.

A consequence of living in the most consumer-oriented society in the world is that Americans must work longer and save less than any other industrialized country. The consumer orientation begins in childhood. Materialistic and exclusionary messages appear in ads exploiting the anxieties of young people. Anxiety advertising has fashioned children who are autonomous and empowered consumers. They have substantial influence over, not only their own purchases, but also those of their parents. It has been estimated that the size of the 'influence market' where children influence parent purchases exceeds $1 trillion annually. Much of this influence is seen as 'guilt money.' Parents compensate for the lack of time spent with their children by spending more money on them. For example, with 4½% of the world population, Americans purchase 45% of all toys produced worldwide.[6]

The viewpoint of the child has become the basis of authority and action. The process of de-centering the adult view and centering the child's perspective has been referred to as 'pediocularity.' This is a profound change

that transcends parent permissiveness. It privileges the preferences of the child, while obscuring parent choice.[7] Parents, the traditional countervailing influence in controlling inappropriate child behavior, have been neutralized. Broken homes, financial distractions (often caused by over-consumption) and a pervading permissiveness resulting from statutory encumbrances have both undermined and relieved parents of their parental commitments.

A decline in manners and etiquette, cheating, and a healthy disrespect for teachers and authority are the result of students' sense of entitlement.[8] The notion of self-esteem, a dominant theme, keeps the focus on each child's desires. A narcissistic society gives increasing prominence and encouragement to narcissistic traits without encumbrances from the past. Cultural devaluation of the past and hostility toward past experience allows others to define needs for us. With no sense of historical continuity, it is possible to cultivate transcendental self-absorption.[9] *New Kids* are qualitatively different than the children from the past several generations.

Discipline

Disciplinary problems result in diminished time-on-task. The significance of time-on-task in classrooms has been studied extensively. It was found that low perceived cognitive competence (self-efficacy), perceived low relevance of schoolwork and the belief that norm-breaking behavior elicits peer approval all contributed to the incidence of off-task behavior and opposition towards teachers.[10] Self-efficacy is an individual's belief in their capacities. A high level of self-efficacy is critical to a student's success. They must have a belief in their ability to succeed. Without that belief, failure is the more likely result. Students with low perceived cognitive competence, or low self-efficacy, tend to compensate for their limitations by minimizing the value of schoolwork and the significance of teachers.[11] Substituting unearned praise for recognition of actual achievement is not likely to improve a child's self-efficacy. *New Kids* are cognizant of the charade.

Perceived low relevance of schoolwork is a burgeoning fear. One of the primary functions of K-12 education is to provide students who choose to attend college with the appropriate tools needed to complete their schooling. It is presumed that once they obtain a college diploma, they will be rewarded with copious career opportunities. However, due to increasing college education costs and declining employment prospects, the guarantees inferred by a college degree have become suspect. Two-thirds of students presently graduating college have accumulated debt from school loans and credit card companies. Some of this debt reaches into the six figures. At the same time, the upshot of outsourcing many professional U.S. jobs is that previous entry-level low paying jobs in food service, department stores and grocery stores offer the only available work. Having only low-wage options and the obligation to service tremendous debt is discouraging, to say the least.[12] *New Kids* are not oblivious to this prospect.

A 2005 Kaiser Family Foundation Study revealed that eight to eighteen year-olds spend nearly four (4) hours daily watching television, including videos and pre-recorded shows. In addition, time spent on computers and video games outside homework is two (2) hours per day. More than six (6) hours each day are spent with media. By contrast, children do 1½ hours of physical activity and spend less than one hour doing homework daily. Total reading time is 43 minutes per day. A typical 8-18 year-old lives in a home with an average of 3.5 TVs, 2.1 video game consoles and 1.5 computers.[13]

A culture of individualism cultivates disciplinary problems. Individualism is reinforced by means of electronic gadgetry like TV's, iPods, Gameboys, PlayStations, Xboxes, cellphones and other devices controlled by a single user. In addition to advancing individual exploits over team participation, these appliances may deliver content rife with violence and sordid sexuality deluding impressionable young minds. These images serve to corrupt student values and priorities.

Equality

The definition of educational equality had been measured in inputs only. The Coleman Report issued in 1966 was the first to survey outputs. Outputs were determined by student performance in achievement and standardized testing. This change made possible the discovery that student performance is improved in environments where fellow students come from backgrounds strong in educational motivation and resources. Often, there are relatively small differences in the physical and economic resources of schools in black and in white communities. However, there are substantial differences in educational resources provided by

classmates. It is also important to note that teachers cannot teach beyond the level of the most advanced students in the class. This further limits instruction given to 'at-risk' students. Two of the problems in the existing school structure are local control and the manner in which schools exercise authority over children or *in loco parentis*. The notion of *in loco parentis* means that, where parents are exercising limited authority over children's behavior, schools are bound to similar limitations.[14]

Despite evidence of significant structural problems in educational inequality, popular literature cites disparate funding as the root cause of achievement differences between predominantly white and largely black schools. Kozol's 1991 work offers an account of schools in poor urban areas and affluent suburbs.[15] His descriptions suggest that the vast differences in academic performance between schoolchildren in more prosperous neighborhoods and those in low income areas are almost entirely the result of differential funding levels at the respective schools. In 1989 in the Chicago area, for example, the City of Chicago spent $5,500 for each student in the secondary schools. By contrast, in the highest-spending suburbs there was an investment of between $8,500 and $9,000 in each high school student. In Illinois the amount paid per student in the poorest neighborhood school was $2,000. The amount paid per student in the most affluent Illinois neighborhood was $10,000—a difference of 400%.[16]

In an updated book, Kozol revisits the same schools and the same issues. He suggests that the problems he described fourteen years earlier persist or have worsened. The differences in academic performances between the wealthier school districts and the poorer districts have actually widened. The data he cites in support of this claim appears reliable. However, he continues to maintain that the problem can only be resolved through increased funding of minority neighborhood schools—closing the funding gap between schools in wealthier neighborhoods and those in less affluent areas.[17]

Kozol also cites updated information on school funding. One table he presents indicates the amount spent for each student in an affluent North Shore suburb, Glencoe, IL, is about $10,000. The amount the Chicago Public Schools, which are overwhelmingly poor and minority, spends per student is over $8,000. This is a difference of only 12% compared with the 400% difference revealed in the earlier book. The Chicago Public School system serves about 100 times more students than Glencoe. If the benefits of scale are considered, wherein Chicago can realize substantially reduced costs from making purchases in large quantities, it may be that there are actually more resources available to Chicago students than to Glencoe students. Yet there is a significant difference in academic performance between the students in the two schools that has continued to widen.[18]

Futile Efforts

Many simple solutions have been proffered. Proposals include new buildings, vouchers, charter schools, religious schools, school uniforms, single sex schools, No Child Left Behind, teacher merit pay, diversity education, after-school programs, tutoring, vocational programs, boot camps, etc. These peripheral cures address symptoms without acknowledging the core impediments to student achievement. Additionally, these options fail to focus on the critical assets *New Kids* possess.

The solution to low occurrence of classroom time-on-task attributable to disciplinary challenges has largely taken two distinct paths. They are operant conditioning and deflection. Operant conditioning is associated with basic behavioral modification techniques. Since the days of Pavlov's dog experiments in 1890's Russia, conditioned responses based on rewards and punishments have been developed to control classroom behavior. Conditioned responses have been elicited both through individualized teacher/student interaction and through broader campaigns, such as boot camp for those guilty of chronic misbehavior and various types of token programs where students are offered coupons or similar that can be exchanged for rewards.

Across cultures, disciplinary techniques vary. A study comparing methods used in China, Israel and Australia, found that Chinese teachers were the most inclusive and supportive of students.[19] Chinese teachers are also less aggressive and punitive than Israeli and Australian teachers. Classroom discipline follows two forms. The first is coercive, consisting of yelling, sarcasm and group punishment. The second is relationship based, involving discussion, hints and recognition. Prudent classroom behavior is crucial since it prepares students to be responsible citizens and it enables teachers to complete their lesson plans without distraction. Researchers have

suggested that relationship based discipline appears to be the more effective of the two approaches.

School policy in post-World War II Japan was driven by a national mission to accelerate renewal. Rapid attainment was accomplished through standardized curriculum, rote learning and fierce competition for grades. Though the pressure was intense, diligence and high achievement assured financial success.[20] By the 1980's, the post-college job market had constricted and students began to show signs of stress. There was a discernible increase in violent incidents and suicides in the elementary and middle schools. With the collapse of the Japanese economy in the 1990's, which further compromised children's future, student motivations and test scores dropped dramatically. In 2002 educational officials sought to enhance student autonomy by reducing the content of the core curriculum and offering most classes as electives. The result of students' newfound independence has been the complete collapse of classroom discipline.

Given the need to hurdle an extensive array of forces inducing troublesome behavior, customary techniques have not proven effective. As a result, deflection or diversionary activity has become a favored strategy. Deflection refers to a preoccupation with the issues involving diversity and tolerance. This sleight of hand strictly panders to political considerations rather than addressing real instructional needs. Diversity and tolerance are important topics that have a place in a school curriculum. Yet, they do not represent a curriculum that would substitute for the presentation of subject matter necessary to augment student performance in basic reading and math skills.

In the early part of the twentieth century, John Dewey provided foundational work that reflected the tenets of the Progressive political movement. Dewey was instrumental in conceiving a student-based approach for educational purposes. Prior to his work, instruction was accomplished by rote memory. In the classroom, teacher commands prevailed. Dewey suggested that a more effective teaching method would include the experiences and preferences of the student. Thus, a curriculum continuum or dialectic was established between teacher-based and student-based prerogatives. A conservatively conceived curriculum would tend toward teacher demands and a more progressive agenda would emphasize student predilections.[21]

As a consequence of transcendent concerns with student discipline, curriculum design has moved decidedly toward the student-centered extreme. This movement is bolstered through concepts like multiple intelligence theory.[22] Rather than concentrating on exacting academic performance standards, multiple intelligence theory suggests schools should confer merit on students for distinctive motor skills or interpersonal aptitude.

Another prominent diversion from intellectual achievement is critical pedagogy. Critical pedagogy is centered on the political economy of schooling -- the construction of student subjectivity.[23] Critical pedagogists perceive schools as ideological arenas where sorting mechanisms empower certain groups, based on race, class and gender, over other groups.[24] This perspective serves to restrain the impact of the actual instructional process by diverting attention from academic performance. It is through academic performance that social biases can be confidently overcome. Well-educated students and adults are less likely to encounter the cost of societal prejudice.

Character education, an additional diversion, articulates the importance of moral values, ethics and citizenship. It ties academic curriculum and evaluation to the development of good character. Character issues are addressed in schools. However, they are unrelated to academics. Rather, moral edification was imbedded in activities like gym, art, home economics and through many extra-curricular classes and organizations, besides in the home and through religious affiliations.

The issue of a hidden curriculum was addressed by the de-schooling movement, which was a product of the 1960's social fervor. The need to disestablish schools was consistent with the rebellion against a technological and social structure that was responsible for propagating ethnic and gender inequities. The schools' subliminal agenda served to reinforce values inconsistent with those promoting a more Progressive social order. The mere existence of an institution that all children were required by law to attend suggests an undue imposition on individual freedom. Schools inculcate children with the notion of age discrimination since adults are not required to attend a school. Schools introduce teachers as moralists who indoctrinate children with societal norms. Schools instill in children that organizations directed by scientific knowledge are efficient and benevolent, and that increased production and consumption will lead to a better life.[25]

Education professionals have expressed concern over the self-esteem movement is U.S. schools. An over-emphasis on self-esteem is disrupting all our notions of intellect, character and community. In order to protect student psyches from the damaging affects of failure, school curricula have been dumbed-down. This dumbing-down, however, deprives children of the opportunity to develop their full potential and, in the process, real self-esteem. The relentless concern with students' feelings is resulting in students who are so inwardly focused that they lack empathy and respect for others. Thus, schools are producing children who are only capable of making decisions based on their own emotions, rather than on logic.[26]

The endorsement of multiple intelligences, critical pedagogy and character education in the school curriculum has been viewed by sundry political personages as counter-productive. A reaction to this multitude of diversions and the persistently deficient student skill attainment levels is the No Child Left Behind Act of 2001 (NCLB) which required schools to initiate a rigorous testing schedule. The objective of NCLB is to strengthen accountability systems covering all public schools and students. NCLB requires annual testing for all students in grades 3-8. School districts and school must make adequate yearly progress toward statewide proficiency goals. Failure to meet those standards will result in corrective action and restructuring measures.

NCLB represents an anticipated reversal in the teacher-centered/student-centered continuum. Just as the student-centered extreme was beginning to dominate classrooms, there was a vigorous pull in the opposite direction. The terms of NCLB, more or less prescribed a return to the 'tell and test' teacher-centered classroom. In a May, 2006 Congressional Committee report it was suggested that NCLB would require significant change in order to be effective.[27]

In addition to NCLB, vocational education has been expanded. With concerns about global competitiveness and widening income disparity, workforce preparation has become a vital theme. Community colleges are the traditional source for vocational education in areas like hairdressing, auto/motorcycle mechanics, cooking, truck driving and healthcare. However, with more students opting out of learning conventional school subjects, vocational training is being pushed down to the high school level. Acquiring technical knowledge and skills is crucial to eluding membership in the ranks of the working poor. However, schools offering occupational training must be responsive to ever-changing workforce needs. The most useful set of skills will always be in basic math and writing. These competencies will enable an individual to adapt to evolving labor market demands. Also, in starting children in vocational training at a younger age, they are being precluded from advancement to college programs as they mature.

RESOLUTION:

The e-OneRoom Schoolhouse

The e-OneRoom Schoolhouse is designed to facilitate individual learning in a classroom environment that is persistently sullied by distraction. Dogged disciplinary obstacles substantially reduce critical hours of instruction and impede the progress of otherwise engaged students. The present educational institution archetype has ceased to be effective. The egg-crate model replaced the one-room schoolhouse more than a century ago. The concept of one classroom/one teacher/one lesson plan and multiple students had its purpose in the modernist order. Modernism's division of labor reinforced structure and conformity. However, Postmodern imperatives demand significant changes to reflect the exigencies of the new landscape. Postmodernism highlights individual choices and initiatives. Relativity has replaced universally accepted behaviors and attitudes. The egg-crate scheme fails to acknowledge this elemental transformation.

While teachers struggle to attain basic skills in the new media, the Net Generation (N-Gen) children are perfectly comfortable with digital technology. N-Gen kids, or the 81 million children born between 1977 and 1997, which some call the Baby Boom Echo, are the first cohort to grow up surrounded by computers, the Internet, cell phones, Nintendos, iPods, etc. These *New Kids* are more confident with technological innovation than their parents. They are able to use digital media to impose culture on the older generation. The new media is interactive. Users of the older broadcast media were viewers – there was no interaction. Learners develop quicker when they control media rather than being merely passive observers. Students interacting with media create non-hierarchical work habits. These translate into important workforce skills since the work of the future will not be characterized by the bureaucratic-hierarchical paradigm of the industrial era.[28]

Any solution to boost the educational progress made by U.S. students must include enhancements in both individual academic performance and the augmentation of useful and necessary social skills. The importance of the social aspect is described as a need for social capital. Physical capital is identified as tangible wealth, such as cash, real property or personal property. The accumulation of physical capital is the objective on which most individuals focus. A second type of capital is human capital. Human capital refers to property of individuals, such as education or specific training. Social capital is the connection among individuals—social networks and the norms of reciprocity.

The decline of social capital is revealed in diminished civic engagement. This is evidenced in activities like voter participation, which is down by 25% in the last forty years. Membership in community organizations has decreased substantially. Groups like the Elks, Kiwanis, Lions and Moose have seen membership decline by 45% to 70% from their highs. These organizations contributed significantly to the welfare of all members of their respective communities. The loss of membership in these societies has been the result of a re-orientation from group to individual preferences. Individual preferences are fulfilled through expanded utilization of cable television and iPods, not social involvement.[29]

A new approach to education must include a curriculum to foster the growth of social competencies, as well as academic performance. The e-OneRoom Schoolhouse paradigm, as a replacement for the egg-crate school design now in place, can serve both purposes—effective individualized instruction and social development. The egg crate school set-up has led to failures in both student academic performance and in students' ability to attain social capital.

The traditional one-room schoolhouse included students from the entire K-12 range. Naturally, it was required for them to work on an individual basis since they were at varying ages and levels of competence. Each student had a text and workbook matched to his or her capabilities, not necessarily their age. In this set-up both the teacher and other students who had a more proficient knowledge of particular subject matter assisted in the instructional process. Teachers made certain each learner was making suitable progress.

The fundamental nature of this student interaction, with older helping younger and more competent assisting less competent, provided important training in social skills. In addition, specific exercises requiring participation by all students contributed to the development of social capital.

Teachers

There are several reasons people are attracted to a career in teaching. These include the Interpersonal Theme, which calls for steady contact with young people. The Service Theme relates to the special status of teachers given for their performance of a unique mission in society. The Continuation Theme for those who become so attached to school, they do not want to leave. The Material Benefits which include an appropriate salary, especially based on working fewer days per year, and usually health and pension benefits. The Theme of Time Compatibility correlates to the special schedules teachers work. These schedules feature numerous holidays, which include summer vacation time, as well as the ability to finish work in mid-afternoons. Two other important benefits are social mobility and employment security. The special mission of teachers give their occupation a level of prestige that exceeds that which would be ascribed to their income levels. In addition, the teaching profession offers a significant measure of job security. Job security is based on benefits secured by union affiliations like tenure and seniority, and by a degree of insulation from market vagaries, such as layoffs during weakened production cycles.[30]

Despite these inducements, teacher burnout as measured by the Maslach Burnout Inventory (MBI), is an enduring issue. The three dimensions of MBI are exhaustion, cynicism and inefficacy. Exhaustion is the first reaction to job stress. It is the feeling of being physically and emotionally overextended. This leads to cynicism where an individual assumes a detached attitude to insulate themselves from exhaustion and disappointment. Finally, inefficacy, or the feeling of being inadequate makes projects seem overwhelming. Teacher burnout, based on daily classroom anxiety, is a problem compelling growing attention.[31]

Though teaching has both rewarding and undesirable aspects for teachers, their effectiveness is crucial with respect to the ability of students to learn. Research on the impact of teacher credentials and pre-

service training on the quality of instruction has yielded inconsistent results. However, it has been determined that instructional practices in the classroom do influence student performance. Specific teaching strategies and methods have been associated with learning gains. Thus, issues involving curriculum and instructional devices are the most important elements in the educational process. The ability to implement specific curricular and instructional approaches is predicated on classroom discipline.[32]

The obstacles to the implementation of these reforms include lack of sufficient teacher knowledge or guidance, beliefs or values held by teachers that differ from those of the reformers, the attitude or disposition of teachers that interferes with their ability to implement reforms and the teaching circumstances, wherein teachers are constrained from changing their practices.

Though teachers can prepare specific lesson plans for each class, everyday classroom situations require teachers to both establish a tranquil learning environment and deal with unexpected questions or comments. Other distractions include students arriving late, colleagues entering the classroom seeking information, telephone calls and public announcements. The teaching process is not simply a matter of information delivery.

Each classroom has both an official and a hidden curriculum that are advanced by the teacher. The purpose of the official curriculum is the dissemination of academic content. The hidden curriculum, which demands a considerable amount of time, involves *crowds*, *praise* and *power*. The *crowds* element relates to the general classroom setting. The classroom is a busy area. In elementary school classrooms teachers engage in more than 1,000 interpersonal interchanges daily. In addition to managing classroom dialogue, teachers must grant privileges, hand-out classroom supplies, run audio-video equipment, manage foot traffic, and deal with interruptions from students, administrators and other teachers. The crowded classroom conditions cause delay, denial, interruption and social distraction. These circumstances must be met with exceptional patience.[33]

Praise is related to the pervasive spirit of evaluation that will dominate a student's school experience. Tests, quizzes, homework assignments, and subjective teacher evaluations provide constant judgments of the students' performance. The results are communicated both publicly and privately. These evaluations are supposed to measure student performance, but they also affect performance by shaping student attitudes and motivation—for better or for worse.

The unequal power relationship between teacher and student trains students early about the importance of acting to please those in authority. Students must learn to take orders from adults. Concepts of obedience and independence seem antithetical. However, preparing for adult challenges requires the integration of these two notions. Thus, training under the hidden curriculum is vital to the student development.

Despite efforts to institute explicit behavioral initiatives designed to maintain classroom discipline, it is not possible of overcome the effects of the media. The primary function of the media is to sell things. Twenty-first century students are accomplished consumers. Exposure since birth to the brazen ubiquity of advertising and promotional gimmicks, children are shamelessly coddled by purveyors of all imaginable products and services. The intended result is a child as consumer king or queen. These mini-divas fully expect the same royal treatment when they enter a classroom. Their unique preferences are sovereign. Bad behavior abounds.

Regardless of the educational potential evident by expanding the use of information and communication technology (ICT) in the classroom, the pedagogy of ICT cannot be implemented without increased levels of professional development for teaching staff.[34] Many teachers are disenchanted with a new emphasis on classroom e-learning. This reflects a generational digital divide. Only one-third of teachers reported being prepared to use ICT in the classroom. It is insufficient to simply offer teacher workshops to improve ICT expertise.

There are several barriers to technology adoption. They include time, support, faculty models, infrastructure and culture. These barriers can be overcome using methods, such as tying incentives to desired outcomes, involving faculty in decision-making to improve buy-in, use of faculty models, providing supplemental technical support with peer support, providing well-trained student assistants and offering administrative support.[35] In addition, it has been discovered that in-service teacher self-efficacy on integrating the Internet into science and math curriculum can be improved over the long term with

intensive summer workshop and supplemental online courses.[36]

Curriculum

The purpose of a transmission in an automobile is to match the engine speed with road speed. Similarly, e-learning serves to mediate the rate of learning with student abilities. e-Learning offers the potential for epistemological pluralism. The child has a right to intellectual self-determination. Further, children have the ability to create knowledge rather than just consume it. They are able to achieve this outcome through the use of electronic games.

The computer should not be used solely as a deluxe flashcard. The current "skill and drill" application largely underutilizes the opportunities afforded by computers.[37] Using a computer, students are able to create virtual worlds and environments wherein math and reading skills would have to be applied in order to achieve some specific objective, such as winning a race, erecting some type of structure or solving a puzzle. The video experience is fast-paced, compelling and rewarding. Schoolwork is perceived as slow, boring and out-of-touch.

Thus, the computer cannot be effectively injected into a curriculum as it is presently conceived. The very nature of pedagogy must be modified to present knowledge as more interconnected. Knowledge is not simply the acquisition of facts from a series of disjointed disciplines. Unfortunately, there are many impediments to making a revolutionary change in education. These include, cost, politics, the power of vested interests in school bureaucracy and the lack of scientific research on new forms of learning.

In addition, children are resistant to educational video games, which they automatically consider not fun. Teachers and administrators intuitively disapprove of video games, which they associate with violent and sexual content.

An electronic media-based school curriculum will look substantially different than the curriculum in today's classrooms. Electronic media-based studies provide a sophisticated learning environment. Students participating in a curriculum based on ICT tend to adopt flexible strategies, such as creating new ideas, risk-taking, improvisation, using trial and error methods for problem solving and rapid transition from one design to another.

ICT projects also tend to foster the transfer of knowledge between students and cooperative development of ideas. By contrast, students working in a non-electronic environment progress along a more linear path: planning, construction and troubleshooting.[38]

An unintended consequence of ICT utilization in the teaching of math is increased time-on-task. An instructional medium using an interactive system in math offers multiple pathways to the representation of mathematical concepts. By using audio, visual-graphics and visual-text, problems are no longer static, as they would seem using a black and white text. Using electronic media to heighten student-control in a subject will result in more intense engagement by the student.[39]

Thus, effective educational programming would include stimulating content that supports learner-centered, on-demand exploration and problem-solving. Learning by doing must be fully implemented. Programs that induce question generation should play a central role. These programs promote active and reflective learning and construction of knowledge. Learners can create simulated environments, manipulate the learning experience and visualize results. There is a vast array of media and communication technologies, including pen-based interface, to produce a captivating learner experience.[40]

Reformers in America have largely failed to take into consideration the dynamics of the classroom. The ideals promoted by reformers are more rigorous and important content, more intellectual engagement and universal access to knowledge. The rigorous and important content includes a focus on meanings. For example, the causes and effects of the Civil War must be discussed along with significant names and dates. Mathematical concepts should be developed based on their usefulness in areas outside the discipline. Intellectual engagement relates to the manner in which students interact with the academic subject matter. Presenting content so that it is made to be meaningful to the student will precipitate discovery learning. In discovery learning, the student's curiosity and imagination are utilized in the learning process. Providing universal access to knowledge is a reform ideal based on having academic knowledge available to all students who are attending school. Access to knowledge must not be limited to gifted students or those from a more economically privileged household.[41]

New Kids possess a level of media sophistication and real-world knowledge that far exceed the competencies of previous generations of students. Subjecting these students to learning models produced more than one hundred years ago will assure behavioral problems. Electronic media, teachers and curriculum must be developed to integrate school design with twenty-first century student priorities. The e-OneRoom Schoolhouse will address the need to adapt to current realities by offering inquiry-based programming using the most up-to-date graphic and computing capabilities. More importantly, the e-OneRoom Schoolhouse will provide an educational paradigm that will align student preferences with academic prerequisites.

An appropriate learning environment will lead to a student's comprehension of the interconnectedness of components from all disciplines. The exploratory process follows the interconnected web of causality. This contrasts with linear or hierarchical programming that forces the learner into artificial linearized exploration which encourages compartmentalized or rote knowledge. Cross-disciplinary insights are necessary for deep understanding.[42]

Any barriers are a function of the broader perspective taken by the education establishment— politicians (since education is largely a publicly funded enterprise), administrators and teachers. The dominant viewpoint is based on an obsolete model. The fundamentals of that model, the 100+ year old egg-crate school, are entirely inconsistent with the prerogatives of contemporary students. Thus, the strategy has been to adapt the students to the model. This has and will continue to fail despite incessant tweaking.

Video Games

There is a substantial gap between the exhilaration of video games that engage kids and the boring pace of formal learning.[43] The video game industry began with the introduction of Pong in 1972. Pong was originally created in an electronics lab in 1958, but popularized by engineers who later produced the Atari console.

In 2006, the video game industry generated $12.5 billion in U.S. software, hardware and accessory sales.[44] This represents an increase of 19% over 2005. By contrast, Hollywood movie ticket sales dropped by 7.9% in 2005 to $9 billion annually.

Games consist of two elements, eye candy (graphics) and game play. A basic component of game play is uncertainty. Uncertainty introduces the player to inquiry learning which requires experimentation and adaptivity. Games captivate because of their ability to appeal to natural reward responses.[45] Success at one level immediately enables the player to move to a higher level.

Games are puzzles. This makes learning fun. The two game-play paradigms are, 1) get to the other side, or 2) visit every location.[46] Time limits add a third dimension. These aspects together with stimulating graphics allow games to offer fun (ability to master problem), aesthetics (which add to the enjoyment), the visceral reaction from successfully completing a task, and the positive self-image one attains from mastery.

Video game technology can and should be used in schools. With games' broad availability, learning does not have to be confined to a school classroom with one teacher delivering a single lesson plan. Games are personalized for each user. They are interactive and engaging, and represent a constant challenge requiring new learning.[47] Games are based on skill, not following orders.[48]

A primary obstacle in promoting the widespread use of video games in education is the adult public's negative perception of them. Many of the more well-known games are based on violent premises. Violent video games came of age in the 1990's with titles like Mortal Kombat, Street Fighter and Wolfenstein 3D. They contain aggressive and misogynistic images. The object of these games is to maim, wound or kill opponents. Research indicates that playing violent video games increases aggressive behavior and decreases pro-social behavior.[49] Due to the popularity and the media attention given these games, many associate the violence with all video game play.

Needless to say, this assumption is incorrect. There are many types of video games. These include action, adventure, sports, strategy, puzzle, simulations and role-playing.[50] The two most popular games in 2006 were "Madden NFL 07" for the PS2 with 2.8 million units sold, and "New Super Mario Brothers" for the Nintendo. There are also many games designed specifically for young girls. They include more character-centered plots, issues of friendship and social relationships.[51]

Many of the role-playing games (RPG's) involve elaborate story worlds where characters are created and

stories are developed around them. RPG's are often played on computers through the internet. Individuals involved in massively, multi-player online role-playing games (MMORPG's or MMO's for short) typically spend 20-30 hours per week inside the fantasy world. In fact, 20% of those individuals claim the fantasy world is their real place of residence and the real world was where you went to eat and sleep.[52] There are more than 10 million users. RPG's or synthetic worlds foster the development of social capital through competition and cooperation. They encourage participants to become team players.

The current crop of *New Kids* learners have been infused with invaluable resources. Their level of sophistication with respect to all manner of electronic media and real-world savvy gleaned from television and the internet should be exploited, not stultified. There is an overriding concern with dysfunctional classroom behavior. The behavior is treated as deviant rather than a function of an intrinsic mismatch between learners and their environment.

Substituting a one-room schoolhouse paradigm for the current egg-crate model will address the immutable discipline problems that prevent academic progress at all levels and support both an individualized learning curriculum and social development initiatives. The e-OneRoom Schoolhouse paradigm will accomplish these objectives by:

- Offering advanced academic software that maintains a learner's interest using inquiry and exploratory programming.

- Providing both single user and multi-user software to enhance the development of social capital.

- Enable teachers to be responsible for a larger number of students since their functions will be primarily limited to assistance and assessment.

A small number of teachers who are better trained in IT will allow for significantly improved teacher salaries. A simplified school format will enable a transfer of cost from building infrastructure to programming research and development.

The educational establishment cannot continue to be oblivious to the developing social breakdown that significantly exceeds in import traditional diversity and tolerance issues. In order to perpetuate an American social agenda that benefits all citizens, it is necessary to adapt young people to perform with an eye toward their neighbor. There are severe negative consequences to an individual acting only based on his or her immediate self-interest. This information must be taught and learned.

Learning fundamentals such as, math science, reading and the humanities, by using a combination of single-user and multi-user video games will address both the disciplinary and social capital expansion agenda. The substantial investment needed to create new educational games and to prepare teachers with extensive IT training will be more than offset with savings in current programs and administrative people, who are sadly functioning to perpetuate a thoroughly inept system.

From a broader perspective, it is necessary to produce a student population imbued with considerable human capital based on knowledge acquisition and social capital developed in an active group learning environment. This training will enable future generations to resolve the difficult societal and personal problems they will be forced to confront. Failure to make the revolutionary changes in our current educational system will assure growing economic inequality and social dysfunction.

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