Quality of Education

So terribly in our education does the ornamental override the useful!
Herbert Spencer, 1860

Bill Murrin
2017[1]

Applied Education Foundation
Promoting Education in the Useful Arts & Sciences

[1] In this and all my other essays, I will periodically add applicable supplemental information as new information becomes available. Therefore, this published year refers to its first release to the public.

Table of Contents

Introduction

This essay could certainly have been connected with the essay "How Much Education Is Really Necessary" since quality and quantity are coupled; yet quantity alone does not correlate with quality. Quality is the priority with quantity being ancillary. However, the current state of education has become the inverse of this where *quantity* that serves the bureaucracy is the primary measure and *quality* needed by individuals is subordinate.

Perhaps a good place to start this paper is to cover a few inherent flaws in our public education system. These flaws dramatically affect the quality of education.

First, when the bureaucratic system was being organized in the late 19th and early 20th centuries, when curricular decisions were being formulated, educators in the various subjects or disciplines demanded their fair share of instructional time to further their own interests without taking into consideration what and how much knowledge is useful to the average citizen. Therefore, semesters had to be filled with data for every subject in order to appease each special interest in the academic community. The Carnegie unit, the credit hour, became the arbitrary measuring device that has no use to individuals, since it has nothing to do with competence/quality and everything to do with quantity, but serves the educational establishment beautifully because its goal is to push as many individuals through its "hallowed halls" as possible and keep them there for as long as possible. After all, every institution wants to maximize its rewards in whatever form they may be had – e.g. money, popularity, respect, prestige, etc.

Second, given the overwhelming expansion of subjects being taught in schools (compared to the pre-bureaucratic days), with the ensuing increase in years required to cover this information-overload, our system typically prepares students to be specialists in each discipline rather than learning general principles that will prove useful to them later in life. Math is taught as though every student is destined to become a mathematician; English is taught as though one will specialize in literature or journalism; science is taught as though each person dreams of being a Newton or Einstein for the sake of fame; and the raw data of history must be memorized in preparation to become a teacher of history in the education system, or to impress people at cocktail parties with superfluous knowledge. History certainly is not taught for the lessons it has to offer since this would require the abandonment of relativistic perspectives of post-modernists who

dominate academia and it would require judgments of mankind's behavior and actions, which is considered a dangerous no-mans-land, unless it is a negative judgment against "Eurocentric" history.[2] Few if any of the subjects are taught for useful purposes since this is viewed as "mere vocationalism." The majority of academics do not perform well in the real economic world of competition, so they erect protective barriers around their turf and force everyone through their illusory world of data memorization and test taking. Students then come out ill prepared for the competitive world they are destined to face. Academics justify their efforts as "educating people" (as compared to preparing people for life) which is something none of them have defined in terms that are rooted in reality and that have meaning to citizens, hence the vote of no confidence in education discovered by a Gallup survey.[3]

It appears as though the more time individuals spend in the education system, the less capable they become in reasoning abilities, except, perhaps, in their narrow field of specialty, but even here many at the Ph.D. level demonstrate inflexible views of their field. Certainly, this is not to say that knowledge is useless, but the way it is taught and the amount of superfluous information forced upon students is contrary to what contributes to the development of the mind in preparation for the real world (this was demonstrated by the psychologist Edward Thorndike[4]). The system has been optimized for those within the educational culture; i.e., it prepares students for an academic career rather than life in society and a career in the economy.

Third, there are those in the academic community, especially those in the math and science fields, who are not interested in helping all students learn their subjects, but rather see their job as the screeners to *weed out the inept*. This is not so much the case in the primary grades as it is in the secondary and post-secondary levels where individuals' fates are being decided. Humans tend to be a greedy lot in all walks of life, not just in capitalistic environments as many academics would have us believe. Academics are no different from anyone else, so they erect barriers around their domain in order to protect it and keep it elevated from the "vulgar masses." The masses are allowed to enter the lower levels, which feed the academics, but the higher levels are jealously guarded with all sorts of landmines, pitfalls and snares. Rather than eliminating these traps to provide equality of opportunity, academics say let's throw more money at the problem. This provides more capital for their benefit, but kicks the can down the road for society. At

---

[2] It is wise to analyze one's culture and criticize what is wrong with it and support what is good (John Stuart Mill covered this point well in his work *On Liberty*), but not to the exclusion of all other cultures. It is through the identification of good and bad, right and wrong of various cultures that social progress can be made – Natural Law philosophers of the Enlightenment understood this thoroughly. Silence implies consent, therefore when a people criticize only their own culture at the exclusion of others, they are accepting of the bad behavior of other cultures. This reveals a mindset that is not entirely sane since it is irrational.

[3] http://www.gallup.com/opinion/gallup/182867/america-no-confidence-vote-college-grads-work-readiness.aspx

[4] Edward Thorndike and R. S. Woodworth published "The Influence of Improvement in One Mental Function Upon the Efficiency of Other Functions" (1901). Regarding the transfer of learning based on educational practices, their conclusion was: "Improvement in any single mental function need not improve the ability in functions commonly called by the same name. It may injure it" (p. 250).

least they can claim they are trying to remedy the problem, as deceitful and wasteful of public resources as that might be.

To expand upon this third point, Stinson (2015) exposes how academics can be callous to the needs of students. Rather than work collaboratively for the good of students, they compete with one another to stand out from the rest. At Joliet Junior College, "faculty members … [resisted] sharing developmental [math course] curricula they created with their high school counterparts…" which could improve students' numeracy abilities. This is really quite astounding and disturbing to consider. Those who had developed useful curricula for students resisted sharing their successes with others. This demonstrates how a percentage of educators are in it for themselves rather than for students.

All three of these points show public education is not a system geared to the needs of the citizenry, but rather is a special interest having optimized the system for its own self-interests. Therefore the quality of public education can't possibly achieve high levels under the current culture; consequently, disruptive innovation[5] is needed but the monopolistic educational forces inhibit this.

Hart Research (July 2018) "conducted an online survey on behalf of the Association of American Colleges and Universities among employers at companies that have at least 25 employees…." Two important take-aways from their findings are as follows:

> [E]xecutives and hiring managers see recent college graduates as underprepared in the skills and knowledge areas that they deem most important…. 1) Among the college learning outcomes tested, both executives and hiring managers place the highest importance on the ability to communicate orally, but only 40% of executives and 47% of hiring managers rate recent college graduates as well prepared in this area. 2) Both audiences value applied experiences and real-world skills, but only 33% of executives and 39% of hiring managers think that recent graduates are very well prepared to apply knowledge and skills to real-world settings.

Of course applying knowledge and skills to the real world is what the transfer of learning is all about but our educational institutions do little to nothing in this realm. This is one of the most fundamental purposes of the Applied Education Foundation.

Another perspective on the failure of our postsecondary education establishment is provided by Amselem of The Heritage Foundation (2019). In her article addressing the admissions bribery scandal in early 2019, she addresses the quality of education and contemporary policy discussions pushing for "free" college:

> These policies fuel the troublesome trend of degree inflation. It is true that higher levels of education indicate higher levels of earnings, and some may argue that this is because a college degree equips students with the skills necessary to succeed in the workplace. But it appears increasingly apparent that the simple

[5] http://www.claytonchristensen.com/key-concepts/

attainment of a degree carries far more weight than the actual attainment of knowledge or marketable skills.

The signaling that occurs when a student obtains a degree tells employers that they have followed through on their education, but says little about their human capital development. While most would not put it in so many words, this is a phenomenon that most Americans, including the wealthy parents wrapped up in this scandal, are well aware of.

As George Mason University's Bryan Caplan has noted, if average students were presented with this scenario: You can either receive a bachelor's degree from Georgetown University without going to a single class, or you can take classes at Georgetown but you walk away without the degree, most Americans would pick the former option, rather than the latter. This is because most Americans with a small amount of motivation and an internet connection can seek out alternative means for obtaining career knowledge outside of the classroom. However, getting your foot in the door without a college degree is another story.

This admissions scandal should cause all Americans to rethink the system they are paying into. … [H]igher education in America today embodies a system that shackles American students and taxpayers alike with high student loan debt, and fails to create a proper education-to-workforce pipeline that enables graduates to pay down their loans.

American taxpayers should not have to spend roughly $75 billion per year on a broken system. Furthermore, students and taxpayers should not suffer under $1.5 trillion in student loan debt for degrees of questionable value.

A final point to be made was expressed by Montaigne in 1580 when he quoted Cicero: "'*The authority of those who teach, is very often an impediment to those who desire to learn.'—Cicero, De Natura Deor., i. 5.*"

Outcomes of Well-Prepared High School Graduates in Labor Market

Hull's work (2015) sheds light on the potential of what the high school years can offer our youth. He states, "Much is known about the tools high school graduates need to do well in college. We know much less about the impact of high school on career readiness, however." This is due to the bias in the academic community. Most in this community simply place their head in the sand when it comes to this subject, yet here lay the largest untapped resource at our disposal – which is currently in hibernation – to provide superior education to a broad range of teenagers. Hull continues:

In this series of studies, we look exclusively at the credentials and high school experiences of non-college going graduates in an attempt to identify those factors that relate to success after school in both work and life. …

> We … found that non-college enrollees are distinctly different from their college-going classmates. In high school, for example, they typically earned lower grades, took fewer academic courses, and did less homework than the college goers.

Yet economic outcomes are similar, as Hull explains, when high school graduates are educated properly. Many in the academic community would find this a surprise and probably would be displeased by it. They might ask the question: *Why would anyone not want to prepare to go to college? It must be for reasons out of their control; some intellectual inferiority or socioeconomic challenge perhaps.* But the real question is: *Why would students expend so much energy on something that is unlikely to provide them with any benefits if, what college offers, doesn't suit them?* No return or a negative return on an investment is an unwise path to pursue; therefore, we must respect the superior decision-making abilities of those who did not go to college, yet whose social involvement and economic performance is equal to or better than college-goers. They were smart enough to recognize the alluring temptations of college, in many cases, as being a status goal – with all the snares that accompany such vain pursuits – rather than a sound economic decision.

In many cases, an investment in high school for those not college bound leads to low incomes. Change the curriculum and the way disciplines are taught, geared toward the interests and needs of non-college goers, and we would certainly see many more students receive higher grades, take more rigorous classes – as long as they are applied in nature – and do more homework. Since an applied education would provide a good return, many, if not most, non-college bound students would embrace such an alternative with gusto. I would even wager that a significant percentage of college goers would prefer the applied program to the current college prep program since it would provide superior preparation for life and college simultaneously; but most of all, it makes far more sense since it is not entrenched in abstract disconnected data.

Hull provides:

> In this second study of the series, we explore various job-related and social outcomes of the non-college goers by age 26, and relate these to the preparation they had in school in order to gain insights into what defines "career readiness" for high school graduates.
>
> At age 26, college goers, **on average**, are more likely than non-college goers to have a good job and engage in society. But a more rigorous high school preparation that includes high-level math and vocational courses in an occupational concentration improves those chances considerably for non-college goers. **Add professional certification to the mix, and non-college goers are more likely to be employed and earn good wages than the average college goer**, and they are as likely to vote. (Emphasis added)
>
> Non-college goers with "high credentials" – that is, a strong high school preparation plus professional certification – were more likely to be employed and have health insurance than college goers….

This reveals how the majority of high schools are ineffectual in providing a quality education for a large majority of the school age population. Little effort and few resources are expended on non-college goers so the majority is made to suffer. Public school administrators want bragging rights as it relates to how many of their students go to college. Non-college goers are an embarrassment, hence the reason, in most cases, little effort is expended on them. This is a good example of why many bureaucrats and government officials cannot be trusted to look out for the public good. Their self-interests come first. However, as in many things, this is not an absolute. There are many fine schools, officials, and administrators that know the system isn't working and who truly care, but are shackled by an educational leviathan that inhibits them from doing the right things. I have the deepest sympathy and respect for them given their overwhelming challenges. Their odds for success are close to nil. This exemplifies the principles Jefferson was referencing when he stated, "The tree of liberty must be refreshed from time to time with the blood of patriots and tyrants." As it applies to education, the current monopolistic bureaucratic leviathan needs to be dismantled before the interests of citizens can be realized. This, of course, will require a revolution of sorts since the educational establishment, generally speaking, will resist it with everything they have.

Hull shows that college is not the only path and not necessarily the best path. He points to the need for proper credentials. Education has little significance – other than perhaps personal meaning – if the right credentials are not obtained.[6] This becomes apparent when a comparison is made between average high school graduates and college graduates who did not obtain "the right credentials." The economic results are no different.

Hull continues:

> What students do in high school is as important for non-college goers as it is for college goers. For on-time graduates who did not go to college, we found that they did much better in the labor market if they had completed high-level math and science courses;[7] earned higher grades; completed multiple vocational courses focusing on a specific labor market area (occupational concentration); and obtained a professional certification or license. While each of these factors had a positive effect most of the time, they were especially powerful in combination. Compared to their peers who lacked any of these characteristics, the "high credentialed" non-college goers were:
>
> - More likely to have a full-time job.

[6] However, "personal meaning" the liberal arts are supposed to engender, is a luxury for those who are economically secure, and yet we treat all students as though they fit this socioeconomic mold in order to *give them the chance to rise socioeconomically to the upper classes*, when in reality it condemns most people to the economic margins. The injustice is reprehensible, especially given the fact that public money is used to benefit a minority at the expense of the majority, which is antithetical to our system of government.

[7] Probably revealing motivation and discipline but no real achievement transferable to work since these high school courses typically focus on abstract academic content; so the correlation does not necessarily reflect causation.

- Less likely to be unemployed. Less likely to be unemployed for more than six months.
- More likely to work for an employer that offers medical insurance.
- More likely to have a retirement fund.
- More likely to supervise other employees.
- Less likely to receive public assistance.

High-credentialed non-college goers also performed better than the average college goer on several indicators, as shown in the table on page 4. [See below]

26-year-olds who reported they …	No college Low credentials	No college High credentials	College goers
Had a full-time job (≥ 35 hrs/wk)	46%	80%	70%
Had been unemployed at any time 2009-12			
Ever unemployed	55%	43%	37%
Unemployed more than 6 mos	36%	13%	16%
Hourly wage most recent job	$10.28	$19.71	$16.71
Current employer offers medical insurance	43%	90%	75%
Had a retirement plan in 2012	8%	39%	46%
Supervised other employees at most recent job	29%	47%	40%
Are fairly satisfied with their job	61%	62%	64%
Had ever received public assistance	35%	24%	14%

All of this demonstrates that college is not the answer to economic and social success, but rather, a proper education is the means to resolve many of our challenges. Quality versus quantity is the answer, which is sorely lacking today.

As it relates to minority interests, Hull points out “high-credentialed black non-college enrollees were just as likely to get a good job as the average college enrollee. This indicates that stronger high school preparation can help mitigate the impact of race on employment.” Demonstrating that the contemporary fixation on subpopulation issues is not the best approach. Quality education for a broad base of interests and talents negates the focus on special interests. After all, we’re all human with fundamental needs.

This finding also reflects that race is not the barrier to success, but, rather, the proper education is wanting in minority communities due to the fixation on “college for all” that

blinds the Left to all other interests. It is a community issue based on cultural challenges. Provide educational choices and racial challenges dissolve.[8]

Hull states, "… we found that how well non-college goers are prepared in high school was related to the degree they were socially engaged as 26-year-olds." Showing how finding one's place in the community is the key to success; but it doesn't need to be exclusively through an abstract academic oriented type of educational program.

Hull explains:

> Completing more rigorous math and science courses in high school was the single factor with the most effect.[9] But a combination of credentials had an even greater impact. Non-college goers who took high-level math and science courses, earned higher grades, completed an occupational concentration, and obtained a professional certification or license were:
>
> - More likely to register to vote.
> - More likely to vote in a local, state, or national election.
> - More likely to volunteer within their communities.
>
> Our analysis revealed seven indicators that had a strong relationship to future economic and social success for non-college goers. These are highest science course, highest math course, high school grades, professional license/certification, high school vocational preparation in a specific labor market area, student race/ethnicity, and student's socioeconomic status. …
>
> Absent among the positive indicators are courses in English Language Arts (ELA), social studies, the arts, and general vocational. … Almost universally, the number of credits earned in any of these courses did not significantly impact the quality of jobs non-college enrollees had after high school or their engagement in society."[10] …
>
> Recent research is clear that it takes more than a high school diploma to obtain a good job.[11] But this doesn't have to mean earning a four-year degree. In fact, it doesn't necessarily mean tomorrow's jobs will require a two-year degree. As this study has shown, training that leads to a professional license along with a strong

[8] I subscribe to Thomas Sowell's approach to such issues. An excellent synopsis of his brilliance can be discovered in Jason L. Riley's analysis of Sowell: *The Continuing Importance of Thomas Sowell*, Hillsdale College, Vol. 51, Issue 3, Mar. 2022.

[9] This raises the question of correlation versus causation: Do the math and science courses contribute to success or do those who take these courses simply perform better due to individual distinctive abilities and motivations, or some other factor(s)?

[10] This shows that courses such as ELA need to be tied to technical writing and speaking instruction in order to provide a positive return on the time and effort spent studying such subjects.

[11] But primarily because high schools typically do little for career preparation.

> academic high school program can translate into positive economic and social outcomes for young adults.[12]
>
> Our analysis points to professional licenses or certification as the credential with the most value for a non-college goer in terms of employment, wages, and social engagement. …
>
> Finally, it's important for schools to provide all students with knowledgeable college and career counseling, even beginning as early as middle school, in order to help students make informed decisions about their personal career and educational goals and help them develop plans that will get them there.[13]

An important mechanism that needs to be implemented to determine what's required in building curricula for foundational numeracy and literacy skills would be to communicate with various trade and professional associations that can provide surveys to their membership which would determine what their field requires from employees. In addition, these associations should be the ones deciding what determines competency in their respective fields and to provide various levels of credentials to those who meet the requirements.

Whereas Herrnstein and Murray look to IQ to explain income discrepancies, and others attempt to show that college is the only way to succeed, Hull's paper explains that alternative paths exist; are in many cases superior; and suit a majority of the population. His paper shows that secondary school years can be the primary vehicle for career education. We needn't wait for postsecondary years since in some cases it is too late (think of those who had enough of a system that offers them nothing and therefore leave high school) and in most cases additional years in school is inefficient and ineffective.

Mahnken (2020) cites a study, *The Effects of Career and Technical Education: Evidence from the Connecticut Technical High School System*, that further supports the benefits of CTE training on economic outcomes as well as academic performance. Mahnken states:

> Enrolling in Connecticut's technical high school system increases male students' earnings by roughly one-third in the years immediately following high school, a study has found.
>
> Not only do the schools boost young men's professional prospects, the authors conclude, they have a substantial impact on their academic performance as well, suggesting that their early success could persist well into their careers.

---

[12] All of this can be accomplished during the high school years. This would make the educational system **far** more efficient regarding individual's time as well as public resources. The social benefits would be astronomical!

[13] Switzerland and Germany provide excellent examples where students are guided on paths suited to their personal needs in the middle school years. This provides far more time for individuals to develop themselves for their futures.

> The impressive returns to technical education may help explain the sustained demand for trade and vocational schools…. According to polling, most of the public agrees that apprenticeships and other workforce training programs provide students with the skills to attain a good standard of living, and some evidence indicates that both revenue and enrollment at postsecondary trade schools has risen significantly since the beginning of the Great Recession.
>
> The study … is a comparatively rare analysis of a statewide career and technical program; much of the existing literature on the subject has focused on individual technical schools or programs.
>
> Comparing students who narrowly made it into one of the high schools versus those who were narrowly turned away, the researchers found significant academic and economic impacts from CTE. Male students who were accepted to one of the schools scored much higher on 10th-grade standardized tests than those who did not. They were also 10 percentage points more likely to graduate high school…. Over a two-and-a-half-year period after their graduation from high school, their earnings were 31% higher compared with a baseline quarterly income of roughly $6000.
>
> In an interview … study co-author Stephen Ross, a professor of economics … called all the effects "really striking," but focused particularly on the boost to test scores. "That improvement means you can take a kid who has a certain set of interests and get them into a school that's going to fulfill those interests," he said. "And the increased academic engagement that's created because of those interests means that they're not just going to do better at becoming a plumber or becoming an HVAC specialist, but they're also going to accumulate the general skills that people need to succeed in the labor market in the long run. That's really, really important, and not something that's captured in many CTE studies."
>
> … The bottom line is that this population has higher cognitive skills, has higher graduation rates, and at least in the medium term – looking at these people in their mid-20s – it's starting to look like there's no college deficit whatsoever in comparing them with the people who didn't get into the system. So that suggests pretty strongly that a lot of these earnings effects might persist over time.

Many educators have a twisted view on timing for educating individuals for careers. It is seen by many of them that high school career education is "mere vocationalism" while career education in the postsecondary years is perfectly acceptable, as though something magical occurs during the transition from age 18 to 19.

Throughout recorded history, the teenage years were the primary period to prepare individuals for life. It was only in the 20th century the educational establishment demanded more of citizens' time. In large part, it was argued by Progressives, more time is needed to "socialize" individuals, which was shorthand for indoctrination in statist ways. Here lies the fundamental reason education has progressively been extended over the decades. This has become obvious when we look at the indoctrination efforts that

have been laid bare in the postsecondary years. We have seen the marginalization of professors who do not tow the Progressive line, and where students must comply with speech restrictions or face repercussions from the school, a professor, or from fellow radical students. In addition, speakers invited to universities, who do not drink the Progressive Kool Aid, are heckled so no one may hear their words. Freedom of speech is under siege since it allows for critical analysis and for truth to be revealed.

The educational establishment has, in large part, become a political machine that is used with devastating consequences. It is time the machine be redesigned, dismantled, and rebuilt to serve citizens rather than a political faction that wishes to reengineer society.

* * *

Another important missing piece of the puzzle in preparing students during the secondary years is covered by Massey (2023). She explains what is required, beyond technical skills of various careers, to what is required by all in what are called "soft skills," which I prefer to call human or social skills which transcend career requirements.

I'm not particularly fond of her reference to these social skills as "power skills," since it implies that some skills are superior to others. It's the combination of a variety of skills that determine one's success in a career or in one's community outside a profession. The social skills she addresses, by themselves, will not assure anyone of success, but they are a necessary component of one's set of skills that optimizes a person's chances for success.

> Gone are the days when job skills alone guaranteed success in the workplace. … While technical expertise remains important, professionals must also possess a range of power skills to thrive in their careers.
>
> **Adaptability and resilience:** In a world of constant change and uncertainty, adaptability and resilience have become indispensable traits for professionals. The ability to embrace change, learn new skills and quickly adapt to different situations is crucial. Resilience allows individuals to bounce back from setbacks, maintain focus in challenging times, and navigate ambiguity with confidence. Studies have shown that individuals who possess adaptability and resilience are more likely to cope with change and uncertainty effectively. Research by McKinsey & Company from 2021 highlights the positive relationship between adaptability and job performance, indicating that adaptable individuals are more likely to succeed in dynamic work environments. [Adaptability is a necessary ability and key to all physical and social intercourse. This becomes evident when we consider man's success at adapting to any environment on this Earth.]
>
> **Emotional intelligence and empathy**: The importance of emotional intelligence and empathy cannot be overstated in today's workplace. Numerous studies have demonstrated the impact of emotional intelligence on workplace success. Research found that individuals with higher emotional intelligence tend to be

more effective in leadership roles, display better interpersonal skills and exhibit higher levels of job performance.

Empathy, a crucial component of emotional intelligence, has been linked to enhanced teamwork, improved customer service and increased customer satisfaction (Dutton et al., 2014; Hur et al., 2017). By fostering positive relationships, resolving conflicts, and cultivating a supportive work culture, professionals with high emotional intelligence can drive collaboration, enhance teamwork, and boost overall productivity.

Critical thinking and problem-solving: A meta-analysis by Ku et al. (2017) revealed a positive correlation between critical thinking skills and job performance, indicating individuals who possess strong critical thinking abilities are more likely to excel in their roles. In a world inundated with information, critical thinking and problem-solving skills are highly sought after. Professionals must be able to analyze complex situations, think critically and develop innovative solutions. These skills involve gathering and evaluating evidence, making informed decisions and thinking outside the box. By honing their critical thinking and problem-solving abilities, professionals can identify opportunities, mitigate risks and drive continuous improvement within their organizations.

Digital literacy and AI integration: … Professionals need to be comfortable navigating an ever-growing library of digital tools, platforms and systems.

… By staying abreast of technological advancements and leveraging digital tools effectively, professionals can enhance their productivity, streamline processes, and stay ahead of the curve.

Collaboration and Cross-Cultural Competence: … The ability to work effectively with diverse teams, across different cultures and time zones, is a valuable asset. … Professionals must be adept at building relationships, fostering trust and communicating across cultural boundaries. …

U.S. Department of Education's Summary of Credentials

Work credentials can serve as an alternative or supplement to education credentials. Work credentials include occupational licenses and certificates; education credentials include diplomas, degrees, and educational certificates. Both types of credentials attest that a person has the skills needed to perform a job.

This would only be true with some form of apprenticeship/internship attached to it so what has been learned in the classroom can be digested and applied to whatever career that education was meant to prepare an individual for. Otherwise it does not attest to "skills," but rather simply to memory of bits of information. There is a large gulf between

"skills" and "knowledge": One can have significant applied skills in what one does but have little abstract knowledge of it; while one may have significant abstract knowledge in a discipline yet be utterly incapable of applying or transferring it to real-world scenarios. This point is the weak link of understanding in academic and policymaking communities. They tend not to understand this distinction – as fundamental as it is.

The Department continues:

> New national data show that over one in five adults (22 percent) report having a work credential. …
>
> **Work credential fields vary by education level.**
> The most common fields in which work credentials are obtained (based on the most recent credential) are health care (25% of credentialed adults), education (17%), and the trades (13%). Together, these fields account for over half (55%) of all credentials.

There are so many other areas that need attention, yet they are ignored for the most part because the market's input into education is marginalized. This point is addressed by Caves and Partone (2017):

> Industry leadership is critical for moving apprenticeship forward. It is the focus of the [Trump] Administration's recent Executive Order and its call for creating "industry-certified" apprenticeships. It is also the most oft-cited feature of successful apprenticeship systems in countries like Germany and Switzerland. But what, exactly, do we mean by industry leadership?
>
> Leadership on apprenticeship certainly means that employers should do more to invest in and train their future workforce. That means doing more on-the-job training. But because apprenticeship also includes structured classroom education, it also means playing a larger role to shape experiences in the classroom.
>
> To lead, you need power. And in American education, decision-making power is shared—and hotly contested—across a variety of actors including state, federal and local governments as well as individual schools and colleges. Employers are not generally among the list of stakeholders at the table when it comes to local education policy. In fact, industry's power in American education is more akin to what political scientist Joseph Nye would call "soft power" – or the ability to persuade rather than [lead].
>
> A new body of research brings rigor to that notion, suggesting that "hard" decision-making power in American career and technical education overwhelmingly rests within our education systems, and not with employers. That power sharing dynamic – or lack thereof – stands in stunning contrast to countries like Switzerland, Austria and Germany where there is significant industry participation in designing the career and technical education offered in secondary and postsecondary schools. The **research** posits that it's the lack of employer

> power that makes career and technical education here in the U.S. so different from systems abroad where around half of all upper secondary students participate in apprenticeship programs.
>
> … [W]ho has decision power over curriculum content? Where do apprentices learn practical material? Do they learn it in the workplace? And when technology or labor market demands change, who has the power to initiate a revision in the curricula?
>
> … This research suggests that when education and industry share power, they are forced to compromise. Shared decision-making balances asymmetries in resources and information available to both sides, and helps align incentives in ways [that] can lead to better labor market outcomes for youth.
>
> … The survey makes clear what many of us already know; in the U.S., there is very little power sharing between employers and school leaders. Some might say for good reason. American educators are understandably quite wary of aligning their curricula too closely with the needs of industry out of concern that it would provide an overly narrow learning experience to students.[14]
>
> … So what deliberate steps could American firms take to have more say in career and technical education? First, they can invest in it. Swiss, German and Austrian firms have a greater say over education decisions because they are heavily invested in the quality of the outcomes. That's the only way employers believe they will see a return on that investment so they are engaged in education decisions at all levels. In those countries, from industry associations at the national level, down to the local employers, all have skin in the game. They develop skills standards, curricula, and student assessments, provide on-the-job training, purchase and maintain equipment, and even train teachers in the latest industry practices. They are fully integrated within both the policy and delivery of career and technical education because they share responsibility for its quality.
>
> … Well before students enter a classroom, employers in an industry sector … come together, identify shared skills needs, and communicate those clearly to educators.

This is the missing cornerstone that holds America back. Industry associations must not only participate but actually lead in developing curriculum. Government and educational officials have no idea what market segments require. Therefore it is up to industry associations to provide the leadership in establishing educational requirements so individuals can achieve competencies the market expects of them.

[14] However, this is exactly what they get with a narrowly focused college prep program that is inadequate to the task of educating our youth.

The Bureau of Labor Statistics reports[15] that the demand for certificates and associate's degrees was only 8.3% for 2014. This reflects the lack of input industry has in education. If industry input were fully embraced, this percentage would be around 40%.

A No Confidence Vote of Public Education

An organization called Achieve, conducted a survey of employers and college instructors. The survey is titled *Rising to the Challenge: Views on High School Graduates' Preparedness for College & Careers* (April 2015). Two charts are provided: one representing a survey done for employers who hire individuals possessing only a high school degree, and the other is a survey for the opinions of college instructors. The results are not good. Results demonstrate significant declines in confidence in the preparedness of high school graduates.

The first graph the authors offer, *A majority of employers also think public schools are not doing enough to prepare students for the expectations of the work world*, shows the results of employers response to the survey with the question having been asked: "Based on your experiences with public high school graduates who do not have further education or formal training, do you feel that as a whole, public high schools are adequately preparing graduates to meet the expectations they will face at work?" The choices and results were:

Public high schools are adequately preparing students – in 2004, 49% agreed while in 2015 29% agreed. The rest were unsure.

Public high schools are not doing a good enough job preparing students – in 2004 38% agreed while in 2015 62% agreed. The rest were unsure.

The second graph, *A significant majority of college instructors report that their students arrive at college with at least some gaps in their preparation* shows the results of college instructors response to the survey with the question having been asked: "How would you characterize the level of academic preparation your students bring to college?" The choices and results for instructors at 4-year colleges were:

Extremely well … – in 2015, 0%

Very well … – in 2015, 12%

Somewhat well … – in 2015, 54%

Not too well … – in 2015, 28%

Not at all well … – in 2015, 6%

[15] http://www.bls.gov/emp/ep_table_education_summary.htm

The second graph also included survey data from 2004, but for brevity's sake, I excluded it. It shows a similar trend of a deterioration of confidence. The college instructor survey data shows that a large majority of students are not suited to the academic world and/or have not been adequately trained at the primary and secondary levels – it is certainly a combination of the two. Not everyone is suited for academic pursuits as it is currently designed and maintained and the economy certainly doesn't require it.

These data show a significant decline in confidence in what high school programs are accomplishing with students. The question is, has there really been a decline in the quality of education or have employers and instructors finally realized that a serious problem exists? Has the educational system really changed that much between 2004 and 2015? I am unaware of any significant changes. The system has been broken for a **very** long time. I believe we would have to go back to pre-bureaucratic educational systems of the 19th century to find high quality public high schools (for both manual arts and academics), when some high schools outperformed colleges. This is not to say we should harken back to the day when Latin was the dominant subject of many of them. However, whatever they taught, they taught very well. The pursuit of competence in the ability to transfer what individuals have learned is the key to preparedness that both employers and college instructors are lamenting in this survey.

Gallup and Lumina's fourth annual poll (Busteed, 2015) uncovers a "no confidence" vote regarding college graduates readiness for work. While

> 96% of Americans say it is 'somewhat' or 'very' important for adults in the country to have a degree or certificate beyond high school[16] … only 13% of Americans strongly agree college graduates in this country are well-prepared for success in the workplace. … This is effectively a 'no confidence' vote in college graduates' work-readiness, and if we don't work to fix it, there will be catastrophic effects for the American education system and economy. … The no confidence vote gets worse: Americans *with* college degrees are *much less likely* to strongly agree college grads are ready for the workforce than Americans *without* college degrees – 6% vs. 18%, respectively. … "Unnerving" is the only word that comes to mind regarding this finding. Why? Because no matter whom you ask they all give the same answer to their top reason for valuing or attending college: to get a good job. Their goal is not simply to get a degree, but rather it's to get a good job. The *outcome* is a job, and the degree is just a means to it.

This is very different from many of our academics who see a degree as the means to help individuals "blossom" and as a status symbol. They tend to shun the idea of college being used for "vocationalism." To them, it is demeaning that "their college" is being used in such a manner.

The findings of the poll continues:

[16] This is due to the fact that most high school degrees provide little to no economic value to graduates.

> When we need a relevant and effective higher education system more than ever,[17] it appears to be breaking down on the measure that matters most. … Americans are a pretty perceptive lot. They feel that something is amiss, and they are right. They're not as prepared as they can or should be for success in the workplace. And the 'fixes' are relatively straightforward. … It's no secret what works. Real-world … experience …, projects applied to solving real problems and mentoring and caring from staff and faculty are just a few of the things on the short list.

Gewertz (2017b) reports on a survey that reveals how out of touch the governing boards of colleges and universities are:

> The **AGB 2017 Trustee Index**, conducted by the polling organization Gallup for the Association of Governing Boards of Universities and Colleges, asks trustees [that lead the country's colleges and universities] to reflect on questions about higher education's priorities. … Only 22 percent of the trustees surveyed said that preparing students for careers is the most important role that colleges and universities can play. Preparing graduates to lead meaningful lives and be engaged citizens took the top spots. Making sure they're ready for work came in third. … While preparing students for the workforce was third on the list, 53 percent of trustees said they think higher education is doing a good job getting students ready for jobs. They were tougher on whether colleges and universities are actually responding to the needs of the workforce, though: Just over one-third agreed that they're doing a good job with that. Only 36 percent of the trustees said they think colleges and universities have a good idea of what employers are looking for in job candidates.

The sentence "Preparing graduates to lead meaningful lives and be engaged citizens took the top spots" is so vague that nothing meaningful can be garnered from it. It also masks what the intentions are of those who feel this way. One could most certainly draw the conclusion that a majority of the trustees who expressed this perspective, aspire to the indoctrination of students in the statist/Progressive doctrines (such as the divisive "social justice" doctrine) since this is what most colleges and universities promote.

Gewertz (2017a) reported on the YouthTruth study (see results below) that revealed even high school students have no confidence in what their high schools offer them. She provides:

> A new survey of 55,000 high school students across the country finds that only about half say their schools are doing a good job. … The 2017 report is based on a survey given online to students in 114 schools in 21 states.

---

[17] This is an incorrect assumption. We need a high quality educational system with many more choices "more than ever." "Higher" education is not what's needed, but rather relevant education is what the doctor ordered, and it doesn't matter if this is achieved in secondary or postsecondary education levels. This view the authors reflect is due to the failures of the current system; therefore postsecondary education is expected to rectify these failings. Make corrections for these failings and postsecondary efforts diminish in importance.

If we were to apply the grading system schools use to hold students accountable, such results around the 50% mark prove the educational system is a dismal failure and therefore would receive an F on its report card.

Finally, a study on why public school teachers quit the vocation of teaching provides the knock out punch to the highly centralized autocratic public education system. Iasevoli (2017) references a study at the University of Michigan, titled *I Quit*, that looks at resignation letters by many teachers who could no longer partake in a system that fails students and society. The anger and anguish expressed by many of these teachers says it all. I leave it to the reader to delve further into this subject if they are not yet convinced that the public system as currently controlled is a leviathan in need of "slaying."

* * *

Laitinen (2015) suggests abandoning the credit-hour system that purports to represent knowledge acquired in class and adopting one that measures real competence.

> Employers want the skills that higher education says it provides to students: the ability to critically think, communicate, work in a team, write effectively, and adapt. Yet only about one-quarter of employers say that colleges and universities are doing a good job in preparing students effectively for the challenges of today's global economy. A recent Gallup poll found that only 11% of business leaders strongly agreed that college graduates have the skills necessary to succeed on the job. In addition to money, these graduates have spent hours and hours in classrooms and taking tests, but the time doesn't seem to have translated into learning.
>
> Why is this? Perhaps it's as simple as this: We measure education in terms of time, rather than learning. A four-year degree attests that you have acquired 120 credits. That's an accidental result of the credit hour system, which was created by philanthropist Andrew Carnegie more than 100 years ago, for the purpose of providing struggling professors with pensions. … The Carnegie Foundation warned against using the credit hour as a proxy for student learning, but the temptation of an easy-to-understand and seemingly standardized measure was too great to resist. It just made organizing the whole higher education enterprise much easier.

Laitinen then considers the cost-benefit analysis of college – is college worth the investment of time and money? She points out there is a great deal of evidence that it is not, in many cases. She then cites the terrible results published in *Academically Adrift* (2011) which showed that college students and graduates had made little headway in improving skills and abilities that are critical to real world applications.

In addition to this it is odd to consider how many colleges will not accept credit for courses completed at another institution, but the rest of America is expected to consider college degrees as respectable credentials – this is an obvious contradiction. This reveals their status-bias; that is, another college does not possess the status of "my college" and therefore their credits are inadequate. It's not an issue of achievement or competence as it relates to real-world application; it's all about status for colleges. If they cannot respect one another's products/services, why should we? Unless we too are caught up in the status merry-go-round. Status and prestige are evils of the highest order and should be rejected with extreme prejudice throughout society. The sooner we banish them from the halls of the academy, the sooner greater equity will be achieved throughout society. The gender, race, and class wars can then finally be relegated to the dustbin of history. But then politicians will have lost an extremely powerful manipulative tool to garner the almighty vote.

Postsecondary Remediation

First-Year Undergraduate Remedial Coursetaking (2013) offers a clear analysis of the poor quality our public schools are providing.

> Consistent with earlier National Center for Education Statistics (NCES) publications, this brief defines remedial courses as courses for students lacking skills necessary to perform college-level work at the degree of rigor required by the institution. … Results from previous surveys conducted by the NCES that collected data on the percentage of students enrolled in remedial coursework found that 28%[18] of first-year students who entered 2- or 4-year degree-granting postsecondary institutions were enrolled in remedial courses in both 1995 and 2000.[19]

[18] We must not forget that we have an approximate 75% high school graduation rate and that approximately 60% of graduates enter college, i.e. 45% of college age young adults enroll in college.

[19] Petrilli and Finn (2015) share a study that was conducted by the National Assessment Governing Board seeking a means to determine if secondary school students were adequately prepared for college in both literacy and numeracy. They found that 38% in 12th grade were adequately prepared in literacy and 39% were prepared in numeracy. The authors relate the fact that "ACT shows similar 'readiness' proportions for those who take its high-stakes test." These numbers coincide with the percentage of the population with a college degree (i.e. 40% with associate through doctorate degrees), showing that the education establishment has been thoroughly optimized for the current structure. However, these statistics do not take those into consideration who quit high school by 12th grade. Therefore the approximately 40% who are "prepared" and the 40% who have college degrees needs further qualitative analysis.

Remedial course work is focused on literacy and numeracy. This demonstrates that most courses studied throughout 12 years of education unrelated to literacy and numeracy are secondary[20] to education's goals, for the most part, and contribute to the failures of the public education system due to educators' priorities/expectations and the poor design of curricula. Such courses are of little use to postsecondary education, unless it is a subject the individual intends to pursue as a career; and, in most cases, certainly of little use to employers. However, if secondary school subjects were designed to assist in building literacy and numeracy skills, without any concern for the ***mastery*** of these disciplines, then they could be of tremendous use in this effort, along with a general understanding of other **useful** knowledge that would be acquired in the process. Students would simply get introductory concepts from such courses as information that is useful to know. We must be careful in what we teach and how much since there is no limit to the amount of subjects that "should be taught" and there can be no limit on the amount of information needing to be memorized for every conceivable subject.

Something rarely discussed is the "proper fit" as it relates to the suitability of many students in the academic culture as it is presently optimized for; that is, as I frequently argue throughout my essays, it is optimized for those who are talented at memorizing disconnected data and recalling such data for tests. Many students either do not possess this ability or cannot motivate themselves to memorize data for no reason other than to do well on tests. These individuals are then told they need remedial courses – i.e. more of the same stuff they rejected earlier.

Analysis of Grade Point Average

Academics tend to base their beliefs on rewards emanating from GPAs, awards, and credentials bestowed upon those who follow the herd. They seem to be oblivious to the needs of those who do not find such "wealth" gratifying; e.g. the trailblazer and innovator types.

Tyson (2014) examines grade point averages as they relate to one reason why college students tend to "dropout." However, motivators that lead to individual's educational decisions are not covered in this article. The cohort examined cannot be pigeonholed into any kind of intelligence or ability category. The reasons for GPAs can be as unique as individuals (think of Rose's *Jagged Learning Profile*[21]); therefore, conclusions should not be drawn to judge students given their diversity of circumstances, interests, and abilities. Rather judgments should be made upon the educational system given its narrowly optimized program that does not sufficiently take into account such diversity.

Tyson cites work done by researchers at the Education Advisory Board who analyzed the "dropout" rates of college students within a GPA range. They found there are

[20] Civics coupled closely with history is critical to citizenship and it can be used extensively in developing literacy skills. Subjects such as microeconomics, business management, and financial management are good examples of subjects that can develop both literacy and numeracy skills since they require a command of math and the need to write reports and proposals.

[21] See The Myth of Average: Todd Rose at TEDx – https://www.youtube.com/watch?v=4eBmyttcfU4

some patterns that challenge the common understanding of when and why college students drop out.

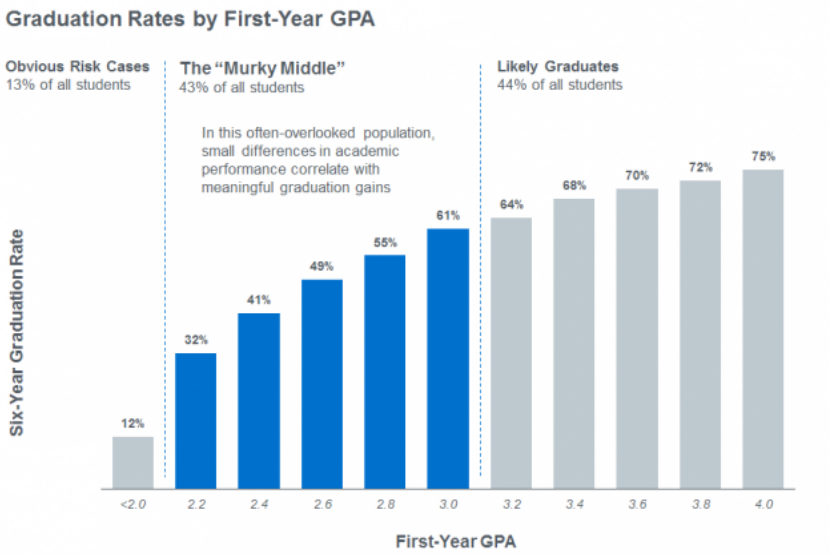
Colleges lose the biggest share of students in their first year…. 'That's where everyone's devoting a lot of attention,' Venit said. 'But we're not moving the dial.'

… Many students complete their first year but leave without a degree. Forty-five percent of total dropouts nationwide finish a year of college and with a grade-point average between 2.0 and 3.0.

First-year G.P.A., the researchers contend, offers a powerful indication of a student's chances of graduation. Students who end their first year with a G.P.A. of 2.0 or lower are unlikely to graduate despite the best efforts of their colleges. Students with a G.P.A. of 3.0 or above, on the other hand, graduate in high numbers.

But there's also a third group: the students who end their first year with a G.P.A. between 2.0 and 3.0, who make up nearly half of total dropouts. Their fates are more uncertain. These students belong to the "murky middle."

It's called the murky middle because in that group of students, a certain number are going to leave and a certain number are going to stay, and they look about identical to each other.



Data compiled by the Education Advisory Board highlights an often-overlooked student population.[22]

[22] See: https://www.eab.com/technology/student-success-collaborative/student-success-insights/2014/04/what-can-we-learn-from-first-year-gpa#lightbox/0/

> "I suspect that we do probably put a lot of resources into students who are just not going to ever make it no matter what," he said. "On the other hand, I'm very cautious about withholding resources from those students because they're the ones with the biggest potential to change the educational and socioeconomic configuration of the country. So every win for the high-risk student is worth a lot for what it does for the country or for a state or an institution."

The high-risk students are probably out of their domain for a **large** variety of reasons. So instead of expending limited resources on this sector in college where there is a high failure rate, we should expend those resources on students prior to postsecondary education where we can really make a difference in helping people steer the correct course for their own lives. These individuals may then have no need to attend college. After all, the economy requires 28% of the population with a college degree, yet 40% of the population possesses such a credential.

The appropriate analogy is to focus on fire prevention in the secondary education levels when the timing is **perfect** rather than firefighting in the postsecondary levels when it is too late for many. It is far less costly to prevent fires than it is to fight them and then deal with the aftermath. With the proper cultural attitude toward alternative education pathways and substantially increased investments into these alternatives, the "murky middle" population will likely shrink substantially – if not outright disappear – since they may not see a bachelor's as a worthwhile credential to pursue once high school is completed. If people were to realize how evil the concept of *status and prestige* really is, a college degree would simply be another credential like any other with no magical aura attached to it. Can you imagine the savings that would accrue with such a cultural shift?

The key to success would be to provide alternative programs for students beginning in middle school – Germany and other countries offer examples to analyze – and carrying them forward into high school. Freshmen in college would then be composed predominately of students optimized for the program (with a 3.0 GPA or above) rather than what we currently have: a befuddled mess of mismatched people doing their best to try to fit into a highly optimized monopolistic type of program.

Words of Wisdom Against Standardization of Education

Since Germany and other countries' educational systems were mentioned as potential templates to analyze, this is a good opportunity to look at what Thomas Jefferson had to say about founding the University of Virginia and his analysis in looking at other nations' systems as templates (Sept. 7, 1814 in a letter to Peter Carr):

> I have long entertained the hope that this, our native State, would take up the subject of education, and make an establishment … where every branch of science, deemed useful at this day, should be taught in its highest degree. With this view, I have lost no occasion of making myself acquainted with the organization of the best seminaries in other countries, and with the opinions of the most enlightened individuals, on the subject of the sciences worthy of a place in

> such an institution. … I have lately revised these several plans with attention; and I am struck with the diversity of arrangement observable in them – no two alike: Yet, I have no doubt that these several arrangements have been the subject of mature reflection, by wise and learned men, who, contemplating local circumstances, have adapted them to the conditions of the section of society for which they have been framed. I am strengthened in this conclusion by an examination of each separately, and a conviction that no one of them, if adopted without change, would be suited to the circumstances and pursuit of our country. The example they set, then, is authority for us to select from their different institutions the materials which are good for us, and, with them, to erect a structure, whose arrangement shall correspond with our own social condition, and shall admit of enlargement in proportion to the encouragement it may merit and receive. (p. 1347)

This provides a perfect answer to those objections that have been raised for over a century against looking at German, as well as other nations', vocational systems to see what might fit "our own social condition." Objections to Germany's strict tracking system – where once students are set on an educational track, there is no changing it – has been used to discredit vocational education since it is used in a nation that condones social classes. It's as if the incorporation of vocational education and a classless society (i.e. where social equality prevails) are mutually exclusive. The flaw in this line of reasoning is rooted in the prejudice against the "laboring classes." Vocational education is seen as tied to this sector of society which is considered a demeaning world. The Germans do not see it like Americans. They respect labor and work and therefore do not see it as demeaning. Here is the root of the American dilemma, and our attitude must change if we hope to make real progress for everyone – and in particular, the lower socioeconomic sectors.

Will the Real Graduation Rate Please Stand Up?

Kamenetz (2015) reported that the official graduation rate is said to be 81%, which is a historic high, but her findings uncover a very different story. She points out that since 2002 the Federal government has pressured States to improve their graduation rates and then she asks the question, how do States go about doing that? National Public Radio's investigations, with reporters from 14 member stations, found "a range of strategies to improve the grad rate: Some are mislabeling students or finding ways of moving them off the books."

They found a variety of forces at work that push students out of school. "A minority, they found, were really unable to cut it academically." This is the sector that probably requires a robust CTE program geared to specific career choices since academia, for all intents and purposes, ignores this sector's real world needs and leaves them to fend for themselves.

"For many, life issues got in the way, such as pregnancy, incarceration or health problems. Some had missed too many days. Some had to work to support their families."

Hence the reason it is important to get students on a more realistic personal track starting in middle school. Life's challenges begin to take shape by mid-teens and if many are not well on their way to pursuing their goals within the school system, they will typically find other paths to choose from, even if they are not good ones.

"Poignantly, a large group of students said that they felt bored, frustrated or disillusioned; this process was dubbed 'fadeout.'" No doubt, this is the largest sector of those who quit a failing system. Academia places the blame on these students rather than accepting blame for poorly serving society, thereby displaying the typical attitude of monopolies and oligopolies.

"Others were made unwelcome at school because of behavior or other issues; they were victims of 'pushout,' as the phenomenon came to be known." This is to be expected when teachers in public schools are made to work within a system that is geared toward the "average" student, which is a mythical being that can never be found.[23] But teachers are held responsible for parameters defined by the mythical model. So what can a teacher do but blame either the system or the student. If the teacher blames the system, chances are, the teacher's career will be short-lived. Therefore all the "good" students are celebrated, which creates a culture of arrogance for the "good" group and a sense of rejection by the "bad." When people are rejected, they tend to react in negative ways, which, not too infrequently, manifests in social maladjustment and deviant behavior.

The author quotes Russell Rumberger, a researcher at University of California, Santa Barbara: "'One of the criticisms I have of the graduation rate as an accountability measure, is it encourages schools and districts to discharge high-risk kids.' He says there's research going back decades showing certain schools being used as 'dumping grounds.'" Rather than change the paradigm to help students, dump the students and the problem seems to disappear. But of course, this is the worst of all possible outcomes – especially for those in lower socio-economic environments – but it is not an uncommon method to a problem when bureaucracies are in control. The natural social forces of checks and balances – though not perfect – are far superior to the unyielding and malevolent forces of bureaucratic power in the vast majority of cases. For bureaucracies to be the answer to most social challenges, they would have to be made up of angels, as James Madison stated in Federalist 51.[24]

The author continues: "Rumberger says that if you widen the doorway too much, you risk 'diluting' the diploma until it becomes meaningless." That ship sailed long ago. In addition, "diluting" is a condescending view based on a belief that academic pursuits are superior to all others. One could say the same of CTE classes if academic types were allowed to pass through such programs, even though they typically have no talent in this domain. The CTE classes would require the "dumbing-down" of curriculum for the academic oriented people, thereby diluting it.

---

[23] See The Myth of Average: Todd Rose at TEDx – https://www.youtube.com/watch?v=4eBmyttcfU4

[24] It is highly recommended that every citizen who loves liberty read this classic work on government: http://www.constitution.org/fed/federa51.htm. Federalist 10 is of equal value and it too should be read by all: http://www.constitution.org/fed/federa10.htm

Perhaps there is truth in this idea in that when you demand individuals pass through a program ill suited to their talents, whether the program is in the useful or "pure" arts and sciences, the program must be diluted in order to accommodate those who are weak in the program's domain. This reveals that "intelligence," as the word is currently used, is a relative thing; that is, it is relative to what is being measured. The foundational meaning of intelligence is the ability to transfer knowledge from one domain or one circumstance to another in order to solve challenges. This includes both close and far transfer, though far transfer reveals the highest level of intelligence. Academic types are good at close transfer while trailblazers – who frequently avoid academia due to its disconnect from real world needs – are good at far transfer.

Here lies one of the greatest hurtles in academia: They see the academic disciplines as the only measure of intelligence – which they believe to be the socially superior talent – and all other pursuits as demeaning and suitable for those who cannot make the grade. This illusion ***must*** be dispelled since it is a falsehood and does great harm to individuals and society, yet it is an age-old problem of every faction attempting to rise above all others for its own purposes. It is similar, in the harm it causes, to the feudal system where lords held peasants in subjugation. However, during the feudal period, the "superior" talent was understood to be the ability to fight in order to conquer new lands or defend one's own. The feudal lords believed academic pursuits to be for inferior people. After all, if one cannot maintain peace in a community, how could academics pursue their talents? In such a chaotic environment, academics, in all likelihood, would be slaughtered or taken as slaves to do menial work. This demonstrates the relativism of what is seen as "superior." Every talent in reality is just as valuable as any other.

Kamenetz uncovers deceit at a level that should concern citizens:

> In Chicago, one of the biggest school districts in the country, a WBEZ and Catalyst investigation found that the district is misclassifying students who enroll in these schools as 'out-of-district transfers.' That designation means that when a Chicago student leaves a traditional high school for an alternative school, the district doesn't have to count that student as a dropout. But if the student manages to earn a diploma, the district still gets credit.

This demonstrates that bureaucracies are untrustworthy, which requires them to be marginalized as a system of last resort. If students cheat like the Chicago school district, they would be suspended or expelled from school. Perhaps it's time to expel most bureaucracies since they are the greater, rather than lesser, of evils.

Ramirez (2008) offers further insight into the deception of educational bureaucrats with many districts providing poor quality data that misleads the country in order to protect reputations:

> The days when a high school dropout could count as a graduate if he promised to return for his diploma sometime in the future may soon come to an end. So may the days when a student was considered a dropout only if he registered as one.

> These are two of the many ways in which some local and state agencies inflate graduation rates and deceive the public and federal authorities. Secretary of Education Margaret Spellings says it's time to "end this dispute about what the right number is" and require all states to count high school graduates the same way.
>
> The secretary's pledge to tackle inflated graduation rates comes on the heels of a new report that suggests the dropout problem has become a crisis in the nation's largest urban school systems.
>
> According to the America's Promise Alliance report, the graduation rate in 17 of the country's 50 largest cities is lower than 50 percent. Nationwide, about 70 percent of students graduate with a regular diploma in four years. Spellings, who spoke yesterday at a news conference organized by the alliance, said, "It strikes me that today, on April Fool's Day, we have been fooling ourselves about the magnitude of the problem." She added with unusual candor, "And we have been fools to let so much human potential go untapped."
>
> Spellings' sweeping proposal calls for all states to use the same formula to calculate graduation rates, specifically how many students graduate on time and how many drop out. …
>
> … According to researchers, the cities with the lowest graduation rates include Detroit (24.9 percent), Indianapolis (30.5 percent), and Cleveland (34.1 percent).

This indeed is a crisis! Given such numbers, the "college for all" movement looks downright stupid! Such rates require a dramatic shift in what is taught in public schools so that students who either quit high school or will go no further than a high school degree, will still be WELL prepared for an economic life and full participation in society. This requires a look at alternative educational systems such as the Finnish, Swiss and German models, but adapted in a way that fits the American culture.

> … Former Secretary of State Collin Powell, a founding chair of the alliance, said during the conference that the dropout crisis is a matter of national and economic security. "When more than 1 million students a year drop out of high school, it's more than a problem—it's a catastrophe," he said, adding, "Whether you agree with the particular numbers or not, that's not relevant. The trend is real, and it's a trend that has to be reversed."

The piece *Below the Surface: Solving the Hidden Graduation Rate Crisis* (2015), provides further analysis of the failure of our school systems.

> … [M]ore than 1200 high schools, serving more than 1.1 million students, still fail to graduate one-third or more of their students each year. These low graduation-rate high schools primarily educate low-income students….

> The United States cannot be a nation of equal opportunity when so many high schools underserve so many students…. These high schools must transform and succeed in preparing all students for jobs that will allow them to earn a family-sustaining wage in today's marketplace.
>
> The 1.1 million students who attend these schools each year deserve a combined local, state, and federal effort that will not end until the nation can report that every child is a graduate.

We don't need every child to be a graduate in a program that imparts little useful knowledge to individuals. Students need to learn what is required to prosper in our society and feel an integral part of it – i.e. they need competence, which credentials don't necessarily represent unless accredited by qualified organizations such as industry associations.

The "graduation" target misses the mark and steers efforts toward false idols – i.e. credentials rather than knowledge. After all, with knowledge, individuals can overcome many hurtles. But with credentials they have a piece of paper that may open some doors into some organizations, but they typically have not been prepared for what they will face once in it and will therefore find many hurtles insurmountable that would otherwise be effortless. However, if high school diplomas fulfilled the real needs of individuals and society – i.e. useful and applicable knowledge – then it would indeed be a worthy goal to see every individual with a high school diploma.

Heckman and LaFontaine (May 2010) reveal a more accurate picture of high school graduation rates than what is commonly reported in the literature.[25] They found that the "true rate is substantially lower than widely used measures [and that] it peaked in the early 1970s…. The real wages of high school dropouts have declined since the early 1970s…." However, instead of trying to improve skill levels at the secondary level, our culture has determined that increasing high school and college graduation rates, without the need to seriously change the system, will solve our problems. The proverbial ostrich's head in the sand is an image that comes to mind.

Literacy and Numeracy Skills Make All the Difference!

In the report *Time for The U.S. to Reskill?* (OECD, 2013) an excellent analysis of the state of education and abilities of the U.S. labor force is considered.

> Not only are skills, including basic literacy and numeracy, critical to the prosperity and well-being of individuals, they are also key drivers of economic growth and societal advancement.
>
> By international standards, despite a relatively high level of educational qualifications, the basic skills of adults in the United States are relatively weak.

[25] In addition, see Dynarski, Mark, *Is The High School Graduation Rate Really Going Up?*, Brookings, May 3, 2018.

> *Key findings on the United States from the OECD Survey of Adult Skills.*
> Low "basic" skills (literacy and numeracy) are more common in the United States than on average across countries. One in six adults have low literacy skills – in Japan the comparable figure is one in 20. … The weaknesses in basic skills occur despite a relatively high level of education. Among comparison countries the U.S. had one of the smallest proportions of adults with less than high school education, and one of the largest with more than high school. (p. 11)

This indicates that seat-time – i.e. the Carnegie unit credit hour – does not provide students with what they need and that most students are wasting precious developmental time in the seat of current classrooms. Time, i.e. quantity, in class is not important, but rather quality is what's required. Nothing reinforces learning more than hands-on application of knowledge, with abstract knowledge providing a secondary and supporting role. Time contributes to this end, but it does not, in and of itself, provide it as this report reveals. This illustrates the old adage *quality over quantity* is the correct approach.

The OECD report continues: "Link efforts to improve basic skills to employability, recognizing that good jobs open up further learning options, while basic skills can often be more readily acquired in practical contexts." (p. 13) This is why an applied studies program has so much to offer.

"At school, weak basic skills are often linked to disengagement from academic forms of learning. But strong career and technical education (CTE) programs, linked to work-based learning, can develop basic skills alongside employment skills. … Linking basic skills to career preparation is a more promising route…." (p. 13) In other words, lay the foundation at an early age so that career preparation is far easier at later stages, regardless of what career one pursues. This includes the "professions" which most people think require all the college prep courses currently in vogue. This is not at all the case, which the 1932 to 1940 Eight Year Study[26] proved. Colleges may demand such superfluous data memorization but such an education is not at all necessary, and wise people take this into serious consideration when contemplating educational options.

Foundational studies are what's needed the most in the primary years, and as individuals progress through the school system and their interests and talents begin to manifest, various tracks of opportunity should be made available to them – with foundational subject matter applicable to the career track they start to focus on – until they finally choose a specific profession. This can occur at any point in secondary or postsecondary levels a student discovers what he wishes to commit to. Foundational understanding of economic sectors will provide adequate knowledge of economic activity across sectors. In this way individuals can cross into various pathways, should they wish to change career directions.

The OECD report continues:

[26] http://epaa.asu.edu/ojs/article/view/92

> **In most countries, those with better basic skills (independently of their education level) are more likely to be economically active, in employment, and receive higher wages**. The relationship between skills and wages is particularly strong in the U.S…. So the wage rewards for basic skills, regardless of education levels, are particularly high in the U.S. This is consistent with research evidence showing that among high school dropouts who tried but failed to obtain a GED, those with higher scores had higher earnings than those with lower scores. (p. 24) (Emphasis added)

This is a very important point! Educational level as it relates to credentials is not as important as basic skills achieved. This goes without saying and should be a maxim. Too many people rely on credentials to justify their existence in an organization. However, it is the skill and resourcefulness of the individuals that the organization is composed of that contributes to its success. Credentials are supposed to provide evidence of these attributes, but this is, all too frequently, not the case and American companies and individuals suffer because of it.

> The basic skills of numeracy and literacy are of profound and increasing importance in working and civic life, playing a vital direct role, and supporting the development of higher-level skills. For the low-skilled, the future is bleak, and **if sub-populations have very weak basic skills, that will create serious challenges both to equity and social cohesion**. While low-skilled jobs will remain in advanced economies, they will not be abundant, and they will often be bad, insecure jobs, with low wages and poor conditions. **Low skills will also limit the capacity of individuals to act as effective citizens and look after their own health**. (p. 44) (Emphasis added)

The continued deterioration of lower socioeconomic sectors' economic opportunities will lead to increasing social maladjustment and crime rates.

> At school, weaknesses in basic skills are often linked to disengagement from academic forms of learning, so additional drilling in math and literacy may not be the most effective response. More practically oriented career and technical education (CTE) programs, linked to work-based learning, can be effective in developing not only vocational but also basic skills.[27] In particular, career preparation and basic skills development can be linked in integrated models. In the U.S. the Math-in-CTE model illustrates the potential of this approach. The model involved CTE lessons with math integrated into the occupational curriculum and extensive teamwork between math and CTE teachers. Students did better on the math test without compromising occupational learning. This integrated approach requires careful planning and teamwork, but the potential

[27] In historical vocational education programs, students learned hands-on skills on machines or in trades for careers in one of those fields. A better approach for foundational skills would be to utilize trades to teach math, technology, and sciences. For instance: machining and sheet metal work require significant comprehension of geometry and trigonometry. Plumbing can be used to teach hydraulics and health challenges civilizations face. And the list goes on!

> benefits are large, and could help raise high school completion rates by engaging students who are less keen on academic forms of learning.
>
> The integration of basic skills and career preparation would benefit both those who pursue postsecondary studies right after high school and those who do not. For those who do not enter postsecondary education immediately upon completing high school, the element of career preparation would give them a better chance of succeeding in the labor market. Many other OECD countries provide high school options which include education and training preparing for specific jobs for those who start work right after high school. (p. 47)

However, this does not mean that the U.S. must adopt another country's system wholesale. Bits and pieces can potentially be adapted and adopted to U.S. cultural nuances. In particular, U.S. citizens have strong feelings about being able to change career direction at any time they feel the desire or need. This would have to be an integral part of any program established on such principles. This is easily remedied through a broad based applied program that does not get too specific into a field too early.

> Although weak basic skills are very much part of the problem, it does not necessarily follow that teaching basic skills, particularly in isolation from other reinforcing interventions, will be [the] only solution or the most effective solution. (p. 50)

It certainly is impressive to observe the positive effects of applied literacy at the secondary level in CTE programs, but we may observe something very different if we implement across the country the phonics method of teaching to read in the elementary levels. The CTE benefits explained above might actually shrink in influence due to the success of an effective method of teaching in preceding years.

To begin, phonics should be the first step in teaching children how to read. Go to Education.com, and then to Search Phonic Educational Resources to access instructional material. Hooked On Phonics can also help children learn to read much faster than the Progressive era's "look-say" teaching method, or as it now known, the "whole language" method, which has been a disaster – hence the reason for so much illiteracy in American society; evidenced by the poor standing in the international educational community.

Accelerated Achievement provides the following analysis of a comparison between phonics and the "whole language" methods:

> It has been said that the alphabet ranks alongside fire and the wheel as a basic tool of civilization, fostering giant leaps beyond picture-writing by expanding the capability to express abstract ideas such as hope and freedom.[28] The alphabet, of course, was invented for only one purpose: to encode the sounds of language. With knowledge of an alphabetic code, a person could be taught to read virtually

[28] *See* "Phoenician alphabet" to understand the roots of our alphabet: https://en.wikipedia.org/wiki/Phoenician_alphabet

any written material. This is not to disparage cultures that use a different writing system, but the advent of the alphabetic system definitely permitted a wider range of written expression and a means other than massive memorization for figuring out unfamiliar words. In the mid-1800s a man by the name of Thomas Gallaudet (for whom a college for the deaf, Gallaudet University in Washington D.C., is named) began experimenting with a sight-memory method of teaching deaf persons to read. Since deaf individuals cannot recognize sounds in the usual way, Gallaudet ignored the sounds of language altogether, in the mistaken belief that the concept of sound was not useful to them. More recent research has shown this assumption to be wrong, and Gallaudet's original reading primer is gone. But the first line of that primer took on a life of its own: "Frank had a dog. His name was Spot."

Renowned educator and author Samuel L. Blumenfeld has traced reading instruction methods since our Colonial period. He and other experts have chronicled how Spot had his ups and downs through the rest of the 1800s, then remained mostly dormant until 1931, when the friendly pooch was suddenly revived and launched into America's so-called progressive schools via the Scott Foresman series by William S. Gray and the MacMillian series by Arthur I. Gates. These were the familiar "Oh! Oh! Look! Look! Dick and Jane see Spot run!" beginning ("basal") readers that discouraged sounding out words in favor of memorizing whole words strictly by their appearance. This was a task of visual memory. It allowed children no supportive connections to spoken language. But it was the new, progressive way, and the phonetic approach to reading was suddenly out.

The absurdity and non-effectiveness of sight-memorization, points out Blumenfeld, is obvious when one examines the escalating repetitiveness in reading pre-primers over the next few years…. This teaching method became known as "look-say".

The books were boring; the task required of children ridiculous. Why did the education establishment stick with it? They stuck with a pedagogic flop because certain unscrupulous members of the publishing and education community had stumbled into a financial gold mine. Charles M. Richardson, a former electrical engineer-turned educator, columnist, and director of a learning clinic in New York, describes how these publishers and professors worked together to turn out a plethora of remedial texts for the new "special education" market; a market founded on an artificially created illiteracy. Not only that, there emerged an even larger market for ever-simpler texts in the basic subjects; texts "dumbed down" for youngsters whose only fault may have been the inability to memorize the appearance of every single word in the English language!

…Ridiculous though the material may have been, the markets for such "dumbed down" texts became so lucrative that those less principled among the education and publishing community saw advantage to controlling what prospective teachers were taught about reading methodology. "Look-say" was touted despite

all the negative evidence against it until it became an article of faith….

The label "look-say," however, was changed frequently to avoid appearing old-fashioned; first, to "meaning-emphasis," then to "comprehension-oriented," "holistic" (meaning "universal" and "comprehensive"), "psycholinguistics" (which means "guessing") and finally to "whole language," which is the buzz-word for it today…"

Attempting to teach reading, without phonics reduces an alphabetic language to a pictorial language. Little wonder that the public schools are failing.

Education researchers have identified hundreds of phonics rules, most are useless, and in the totality, actually counterproductive. There are, however, a couple of dozen phonics rules that are very useful. The use of these phonics rules work for over 85% of the words in the English language, most of the rest were imported from other languages. Accelerated Achievements Phonics instruction concentrates on those rules that are of most value, and

B. K. Eakman, *Cloning of the American Mind*, columnist, and Executive Director of the National Education Consortium.

Controversy or Erroneous Goals

I believe that a comparison of the flawed understanding of the relevance of IQ to that of the quality of education is an important analysis. Since academia is immersed in an illogical understanding of what the word "intelligence" means, it has a profound effect in the way instruction takes place in the public education system. I will use Arthur Jensen's 1969 work, *How Much Can We Boost IQ and Scholastic Achievement?* as the tool for evaluating some of the negative effects the "intelligence" testing culture has had on the system.

Jensen, one of the foremost educational psychologists of his day, was asked by the Harvard Educational Review to write a work on the state of compensatory education[29] for the country. The 117-page paper he wrote started a firestorm of criticism which subsequently ended the discussion of heredity's influence on so-called "intelligence." Jensen went into great depth explaining unbiased scientific research on the subject of the part heredity plays in IQ by analyzing "how much of the variation (i.e., individual differences) in a particular trait or characteristic that we observe or measure (i.e., the *phenotype*) in a given population can we account for in terms of variation in the genetic factors (i.e., the *genotype*) affecting the development of the characteristic?" (p. 17)

This is not a hill I am willing to die on for either the pros or cons of the argument. You see, I don't believe IQ is a measure of intelligence since the tests it is based on are narrowly tailored for particular abilities, yet intelligence encompasses a far larger

[29] https://conservancy.umn.edu/handle/11299/200382

universe than psychometricians have thus far been able to understand. Therefore, whether Jensen's resources were correct or not, regarding the nature-nurture argument, is irrelevant to me since I know the foundation both sides of the argument stand upon (the belief in psychometricians' understanding of what encompasses intelligence) is built on sand. The history of assessment testing, the history of compensatory efforts, the out-of-touch instructional efforts, all prove my point. The needle has not moved in test result performance for all the time (decades) and money invested (trillions) in this wasteful effort. Public education quality is, generally speaking, non-existent, due in large part to poorly designed curricula being tied to flawed assessment methodologies, and with such assessments being tied to "intelligence" tests. It is truly like a dog chasing its tail.

A serious flaw in Jensen's perspective, along with most in academia, can be found when he attempts to provide some explanation of what "intelligence" is. He states, "Any one verbal definition of [the general] factor [common to standard tests of intelligence] is really inadequate, but, if we must define it in so many words, it is probably best thought of as a capacity for abstract reasoning and problem solving." (p. 19) In fact, this is far from what intelligence tests measure. Stanovich (2010) argues that "intelligence" tests and public education do not teach for rational thinking. Yale's webpage for his book states,

> Stanovich shows that IQ tests (or their proxies, such as the SAT) are radically incomplete as measures of cognitive functioning. They fail to assess traits that most people associate with "good thinking," skills such as judgment and decision making. Such cognitive skills are crucial to real-world behavior, affecting the way we plan, evaluate critical evidence, judge risks and probabilities, and make effective decisions. IQ tests fail to assess these skills of rational thought, even though they are measurable cognitive processes.[30]

However, Jensen redeems himself when he provides the following:

> What I want to emphasize most, however, is that *intelligence* should not be regarded as completely synonymous with what I shall call *mental ability*, a term which refers to the totality of a person's mental capabilities. Psychologists know full well that what they mean by intelligence in the technical sense is only a part of the whole spectrum of human abilities. … As I have already indicated, the particular constellation of abilities we now call "intelligence," and which we can measure by means of "intelligence" tests, has been singled out from the total galaxy of mental abilities as being especially important in our society mainly because of the nature of our traditional system of formal education and the occupational structure with which it is coordinated. Thus, the predominant importance of intelligence is derived, not from any absolute criteria or God-given desiderata, but from societal demands.

Something that needs to be emphasized is the fact that IQ tests measure for the academic realm, which has a monopoly on lucrative credentials which is equated with a small

[30] https://yalebooks.yale.edu/book/9780300164626/what-intelligence-tests-miss

percentage of jobs. However, the wealthiest people are entrepreneurs who typically do not come through the academic system. One might argue that these are the most intelligent people, yet there is little to no relationship between academia and entrepreneurs. The highly credentialed people work for the nonacademic entrepreneurs. Andrew Carnegie's book addresses these points: *The Empire of Business* (1902, pp. 109-14).

In addressing the problems with compensatory education, Jensen's paper sums up the problem fairly well:

> In other fields, when bridges do not stand, when aircraft do not fly, when machines do not work, when treatments do not cure, despite all conscientious efforts on the part of many persons to make them do so, one begins to question the basic assumptions, principles, theories, and hypotheses that guide one's efforts. Is it time to follow suit in education? (p. 3)

Let's look at what Jensen provided to better understand the educational stubbornness that has infected our society on both sides of the argument regarding nature versus nurture's influence on outcomes. I will argue that the very premise upon which the stage of the debate takes place is rooted in flawed reasoning.

Jensen begins with the opening line, "Compensatory education has been tried and it apparently has failed." He points out that the compensatory education movement was steeped in the theory of

> "deprivation hypothesis," according to which academic lag is mainly the result of social, economic, and educational deprivation and discrimination – a hypothesis that has met with wide, uncritical acceptance in the atmosphere of society's growing concern about the plight of minority groups and the economically disadvantaged. (p. 2)

He references the movement's failure on page 3 as concluded by the U.S. Commission on Civil Rights.

He then points to another flaw in the education community's understanding:

> The "average children" concept is essentially the belief that all children … are basically very much alike in their mental development and capabilities, and that their apparent differences in these characteristics as manifested in school are due to rather superficial differences in children's upbringing at home, their preschool and out-of-school experiences, motivations and interests, and the educational influences of their family background. All children are viewed as basically more or less homogeneous, but are seen to differ in school performance because when they are out of school they learn or fail to learn certain things that may either help them or hinder them in their school work. If all children could be treated more alike early enough, long before they come to school, then they could all learn from the teacher's instruction at about the same pace and would all achieve at

> much the same level, presumably at the "average" or above on the usual grade norms. (p. 4)

This is a model that is rooted in the idea of clones, and one the Nazis would have supported, and was invented by the social efficiency Progressives around the turn of the last century. It is in direct opposition to different learning styles and to Gardner's hypothesis of multiple intelligences. It helps explain one part of the failure of our educational system. Of course, the academic community is unwilling to accept any blame for the failure of their efforts. It has to be some external evil force that is the source of their failure. Let's blame social, economic and educational deprivation, and discrimination for the failure. This way, we don't have to change our ways … society must change!

Another fundamental flaw in academia is the community's lack of understanding of what mental abilities encompass. The culture has relied on the word *intelligence* as if they understand the meaning of the word. If it means what psychologist Edwin G. Boring[31] defined it as – intelligence, by definition, is what intelligence tests measure – then I guess they understand the meaning of the word: Make up a test, call it an intelligence test, define intelligence as answering most test questions "appropriately," market it so people buy the idea, and then you have cornered the market on the "meaning" of the word. It simply takes a mastery of sophistry, and *voila*, you have the meaning of intelligence.

Jensen uses English psychologist Spearman's[32] explanation of intelligence:

> … Spearman devoted most of his distinguished career to studying the important finding that almost any and every test involving any kind of complex mental activity correlates positively and substantially with any and every other test involving complex mental activity, regardless of the specific content or sensory modality of the test.[33] Spearman noted that if the tests called for the operation of "higher mental processes," as opposed to sheer sensory acuity, reflex behavior, or the execution of established habits, they showed positive intercorrelations, although the tests bore no superficial resemblance to one another. <u>They might consist of abstract figures involving various spatial relationships, or numerical problems, or vocabulary, or verbal analogies</u>. … To account for the intercorrelations of "mental" tests, he hypothesized the existence of a single factor common to all tests involving complex mental processes. All such tests measure

---

[31] https://en.wikipedia.org/wiki/Edwin_Boring

[32] https://en.wikipedia.org/wiki/Charles_Spearman

[33] So, what's being measured first and foremost is testing abilities, otherwise correlations would not likely be so close. Such testing does not directly imitate abilities required in the real world – since we do not take tests for a living – and is therefore on the periphery of real-world needs. The ability to memorize as well as manipulate symbols in one's mind (which are two abilities IQ tests measure) do offer benefits, depending on one's occupation, but they are not of primary importance – in particular, in the way they are measured in tests. The ability to reason (i.e. medium and far transfer) is of far greater worth when we speak of intelligence than that which IQ tests measure for. However, when the Progressive movement was first getting underway, they were looking for efficient ways of measuring people, which IQ testing provided a quick an easy answer for.

this common factor to some degree, which accounts for the intercorrelations among all the tests. Spearman called the common factor "general intelligence" or simply *g*. And he invented the method known as factor analysis to determine the amount of *g* in any particular test. … We should not reify *g* as an entity, of course, since it is only a hypothetical construct intended to explain covariation among tests. It is a hypothetical source of variance (individual differences) in test scores. It can be regarded as the nuclear operational definition of intelligence, and when the term intelligence is used it should refer to *g*, the factor common to all tests of complex problem solving.

In examining those tests most heavily loaded with *g*, Spearman characterized the mental processes which they seemed to involve as "the ability to educe relations and correlates" – that is, to be able to see the general from the particular and the particular as an instance of the general. A similar definition of intelligence was expressed by Aquinas, as "the ability to combine and separate" – to see the difference between things which seem similar and to see the similarities between things which seem different. These are essentially the processes of abstraction and conceptualization. Tasks which call for problem solving requiring these processes are usually the measures of *g*.[34]

Standard intelligence scales … are composed of a dozen or so subtests which differ obviously in their superficial appearance: vocabulary, general information, memory span for digits, block designs, figure copying, mazes, form boards, and so on. When the intercorrelations among a dozen or more such tests are subjected to a factor analysis or principal components analysis, some 50% or more of the total individual differences variance in all the tests is usually found to be attributable to a general factor common to all the tests. Thus, when we speak of intelligence it is this general factor, rather than any single test, that we should keep in mind. (pp. 8-10) [The underscoring is provided to show the limited abilities IQ tests measure.]

This explains how the idea of "intelligence" was invented. Tests that had been designed to identify those who were likely to fail in school so as to give them special attention (as devised by Binet), evolved into the means to be selective of certain abilities in order to elevate certain individuals to a privileged status through the academic network. The selectivity has to do with test taking of the social efficiency sort – that is, social efficiency is designed to educate everyone with the same methodology and to test everyone with the same testing methodology. It has been optimized for memory, recall, and close transfer abilities related to linguistic and logical-mathematical talents. Instruction and testing are melded as one and are in large part indistinguishable.

[34] But questions or challenges of these sort are frequently perceived as being stupid, nonsensical, or worthless. Therefore, intelligent and confident people simply dismiss them by avoiding the tests in the first place, or checking off answers randomly since the test has debased itself and is not seen as worthy of effort. When this happens to intelligent and confident people, they see the testing industry and those depending on this industry, as unworthy of their time and effort – which includes academia, bureaucracies, and large corporations.

Therefore, for individuals to do well in the education culture, they must memorize the biased and "approved" subject matter for subsequent time-dependent tests. Instruction and testing are simply opposite sides of the same coin; or perhaps a better analogy is the yin-yang symbol where yin fades into yang and then yang fades into yin, with a never-ending, closed loop, self-nourishing environment.

Jensen discusses *g* as being either unitary or divisible.

> It is only when the concept of *g* is attributed meaning above and beyond that derived from the factor analytic procedures from which it gains its strict technical meaning that we run into the needless argument over whether *g* is a unitary ability or a conglomerate of many subabilities, each of which could be measured independently. We should think of *g* as a "source" of individual differences in scores which is common to a number of different tests. As the tests change, the nature of *g* will also change…. In other words, *g* gains its meaning from the tests which have it in common. (p. 11)

One thing that prevails in all such considerations is that we are talking about the ability to take tests versus real world abilities. Test taking is a whole universe in itself that requires various human attributes to come together. For example: Besides memory and recall abilities, one must have motivation to suffer through the torturous test taking process. In addition, one must have faith that tests truly have value to the individual taking a test. If no value is perceived, no motivation will be forthcoming, therefore poor performance can be anticipated. What happens to "intelligence" then? Will a genius then be identified as an imbecile? Of course, psychometricians believe they can account for this, but can they, and do they really? Or do they believe they have this omnipotent vision to read people's minds, since, after all, everyone wants to excel in academia … right? It is my very strong opinion that psychometricians are fooling themselves or are attempting to mislead the public.

Jensen realizes the influence motivation and interest play in learning and testing.

> *Fluid* intelligence is the capacity for new conceptual learning and problem solving, a general "brightness" and adaptability, relatively independent of education and experience, which can be invested in the particular opportunities for learning encountered by the individual in accord with his motivations and interests. (p. 13)

For example: An inner-city drug dealer may have dropped out or flunked out of school, but may demonstrate incredible abilities in: 1) eluding law enforcement efforts to catch him; 2) fighting turf wars with rival dealers; and 3) marketing his products with incredible effectiveness and efficiency. Our "intelligence" tests do not capture these abilities of rational thinking and therefore, dealing drugs is an option that becomes a lucrative opportunity for those who were marginalized by an unjust credentialing system. You see, dealing illicit drugs requires no formal education, no testing, and no credential. The risks certainly are extreme, but the potential profits reflect the extant of the risks. And then society wonders how individuals end up in such circumstances, believing that

building more jails is the answer, when the better solution would be to radically change the education system – and no, this does not mean "dumbing down" the system.

Jensen attempts to clarify the meaning of *g*:

> A simple analogy in the physical realm may help to make this clear. If we are interested in measuring general athletic ability, we can devise a test consisting of running, ball throwing, batting, jumping, weight lifting, and so on. We can obtain a "score" on each one of these and the total for any individual is his "general athletic ability" score. This score would correspond to the general intelligence score yielded by tests like the Stanford-Binet and the Wechsler scales. (p. 12)

This is a good analogy, and what it shows is such a test gives us a general idea of physical abilities, but doesn't tell us if this person has particular athletic abilities that he can excel at, nor do they tell us of his weaknesses. They simply tell us his general ranking compared to all others. The sports industry is not interested in general rankings; it is looking for particular physical abilities. Occupations also have these same needs.

Though Jensen recognizes individual abilities that differ, he appears to focus on averages of the various abilities being tested and then, perhaps, presumes "intelligence" has meaning based on the jagged ability profile. This is rooted in the flawed reasoning of the "law of averages." While the "law" may exist, it does not apply to individuals since no individual is "average," as Todd Rose, professor of Educational Neuroscience, has hypothesized. Jensen recognizes this in an indirect way when stating that no subtest would be recognized as an ability "in the usual sense of the term." (p. 12)

Jensen provides a quotation from O. D. Duncan that states:

> Our argument tends to imply that a correlation between IQ and occupational achievement was more or less built into IQ tests, by virtue of the psychologists' implicit acceptance of the social standards of the general populace. Had the first IQ tests been devised in a hunting culture, "general intelligence" might well have turned out to involve visual acuity and running speed, rather than vocabulary and symbol manipulation. As it was, the concept of intelligence arose in a society where high status accrued to occupations involving the latter in large measure, so that what we now *mean* by intelligence is something like the probability of acceptable performance (given the opportunity) in occupations varying in social status. (p. 14) [Underscore added to point to one man's view of what IQ entails.]

Something to ponder about Duncan's comment regarding a hunting culture: It is likely that the ability to read animal sign would have separated a good tracker from a bad tracker, and it can be imagined that this is closely correlated to symbol manipulation Duncan mentions above.

Jensen goes on to discuss that IQ isn't everything. "Because intelligence is only one of a number of qualities making for merit in any given occupation, and since most occupations will tolerate a considerable range of abilities and criteria of passable

performance, it would be surprising to find a very high correlation between occupational level and IQ." (p. 15) Of course, occupations that require memory and recall abilities along with vocabulary and symbol manipulation talents will tend to be occupied by those who perform well on "intelligence" tests.

Jensen continues narrowing the field of the meaning of IQ when he states, "Where educators and society in general are most apt to go wrong is in failing fully to recognize and fully to utilize a broader spectrum of abilities than just that portion which psychologists have technically designated as "intelligence." (p. 19)

In the end, individual differences are what really matter since careers are based on unique skills and abilities. "Intelligence" tests appear to steer academia toward a belief in an omnipotent mental capacity – which *g* is supposed to represent – that is non-existent.

High scores on "intelligence" tests are good for institutional type employees who can follow orders well and perform necessary tasks in an efficient and effective manner. The score on "intelligence" tests merely determine the level of complexity of tasks the individual is able to handle in a narrowly tailored field of some endeavor. For example: Basic math abilities demonstrate lower IQ requirements, whereas lengthy algebraic calculations demonstrate higher IQ requirements, but both are strictly computational tasks versus complex reasoning abilities. In other words, one only needs to memorize formulations created by an intelligent mind; but one doesn't need high levels of reasoning to solve computations – only good memory and recall abilities are needed. Therefore, what "intelligence" tests do not measure are medium and far transfer (such as one who can create a complex algebraic formulation for a novel purpose) which truly reveal intelligence.

Jensen addresses transfer of learning:

> The conceptually most pure and simple instance of this key aspect of intelligence is displayed in the phenomenon known as cross-modal transfer. This occurs when a person to whom some particular stimulus is exposed in one sensory modality can then recognize the same stimulus (or its essential features) in a different sensory modality. … How does the child manage to show the cross-modal transfer? Some central symbolic or "cognitive" processing mechanism is involved, which can abstract and compare properties of "new" experiences with "old" experiences and thereby invest the "new" with meaning and relevance. Intelligence is essentially characterized by this process. (pp. 10-11)

But what Jensen and most academics fail to realize is that education is stuck in close transfer – and to a limited degree, medium transfer – of learning modality abilities. Even the legal and medical professions have been optimized for close to medium transfer. Lawyers follow precedent to a fault (and not too infrequently, to society's detriment), and doctors utilize research findings done by others to diagnose patients and prescribe remedies. These are a lot like recipe books: follow what's been established by others and the outcome should be no worse or better. What differentiates the high IQ professionals from all others is their ability to remember where to look for their precedent or diagnoses

and to determine the correlation. Kahneman (2011) sums up the intellectual tools a doctor requires:

> To be a good diagnostician, a physician needs to acquire a large set of labels for diseases, each of which binds an idea of the illness and its symptoms, possible antecedents and causes, possible developments and consequences, and possible interventions to cure or mitigate the illness. Learning medicine consists in part of learning the language of medicine. A deeper understanding of judgments and choices also requires a richer vocabulary than is available in everyday language.

These requirements of the physician's mind correlate well with high IQ abilities. Granted, it's important to have these abilities for some occupations, but they do not reflect intelligence – they are *abilities* to accomplish *tasks*. The level of IQ determines the level of task complexity an individual is capable of performing, but it's not creative or intuitive abilities – that allow for medium and far transfer – that IQ measurements reflect. Therefore, professions have been optimized for high IQ abilities but not high reasoning abilities. This is not to say high IQ and high reasoning powers are mutually exclusive. Professors Thomas Sowell, Milton Friedman and Jordan Peterson are prime examples of people who have both at very high levels, but it is rare.

In admitting that the idea of human "intelligence," as academics perceive it, cannot be defined, Jensen points out that IQ tests

> had their origin in the educational setting … [of] the educational traditions of Europe and North America. The content and methods of instruction represented in this tradition, it should be remembered, are a rather narrow and select sample of all the various forms of human learning and of the ways of imparting knowledge and skills. The instructional methods of the traditional classroom were not invented all in one stroke, but evolved within an upper-class segment of the European population, and thus were naturally shaped by the capacities, culture, and needs of those children whom the schools were primarily intended to serve. (p. 7)

The aristocratic class of Europe, first and foremost, saw education as the means to develop a common knowledge of its culture rather than as a means to an occupational end. Those who had academic abilities were able to continue their education in colleges that had a handful of occupational choices in such fields as law or theology, but that was for a **VERY** small segment of the population – well under 5%. The educational system had not evolved to serve the common man beyond the rudimentary requirements of the three Rs; or serve the aristocratic class beyond, generally speaking, the classical education of antiquity to become a "well rounded" member of the elite class. Yet contemporary U.S. educators still project this European aristocratic heritage of instructional techniques upon the entire population; and they are utterly ignorant of their shortsightedness. Jensen states, "We have accepted traditional instruction so completely that it is extremely difficult even to imagine, much less to put into practice, any radically different forms that the education of children could take." (p. 7) Jenson then provides:

> If the content and instructional techniques of education had been markedly different from what they were in the beginning and, for the most part, continue to be, it is very likely that the instruments we call intelligence tests would also have assumed a quite different character. They might have developed in such a way as to measure a quite different constellation of abilities, and our conception of the nature of intelligence, assuming we still called it by that name, would be correspondingly different. This is why I think it is so important to draw attention to the origins of intelligence testing. (p. 8)

This reminds me of private communications with Dr. Ronald Spence who was a tribology research chemist who had worked for Amoco and Philips Petroleum in the lubrication and fuel fields. He said that there are numerous lubricant bench tests that have been devised to measure performance for such important things as friction modification and wear inhibition. While all these tests will give clear results of performance for what the scientist is measuring under the conditions devised, they do not correlate closely to how the lubricant performs in a real "fired" engine.[35] He said it is only in the real world of application that a research chemist can truly know anything of substance. The same can be said of psychometric efforts: They are like the bench tests that provide periphery information but should never be used to determine the potential for success. The tribology chemist who might follow the same pattern as academics in using artificial tests to measure real world potential would not be employed for very long.

Perhaps the greatest fundamental flaw in IQ testing is the belief that scholarship is the only important pursuit citizens must respect. It is seen as the *be all end all* for every citizen. If citizens don't see it this way and try with all their might to reach the goals academia has laid out for them, then there must be something seriously wrong with them. The arrogance is beyond comprehension … unless the plan is social re-engineering which requires manipulative guilt feelings to get everyone in line with their grand plans. Then everything starts to make sense.

Jensen reveals another flaw in the academic worlds perceptions as it relates to "occupational correlates of intelligence." However, Jensen does recognize the injustice in it which he concludes on page 15. He states:

> Intelligence, as we are using the term, has relevance considerably beyond the scholastic setting. This is so partly because there is an intimate relationship between a society's occupational structure and its educational system. Whether we like it or not, the educational system is one of society's most powerful mechanisms for sorting out children to assume different roles in the occupational

[35] For example: Molybdenum is an excellent friction modifier that can provide either greater fuel efficiency or faster energy transfer to achieve higher speeds quicker, which is important to a racecar driver. However, at elevated temperatures and/or under high shearing stresses that can take place in an engine being pushed to its limits, the molybdenum undergoes a transformation that turns it into a highly corrosive agent that will shorten the life of an engine. Bench tests cannot duplicate this dynamic in a way that is equivalent to a real "fired" engine. IQ tests are very much like lubricant bench tests.

> hierarchy. The evidence for a hierarchy of occupational prestige and desirability is unambiguous. (p. 13)

I think this demonstrates Jensen's bias for jobs requiring college credentials. Most people do not share his bias. First, this is demonstrated in the fact that the correlation between our society's occupational structure and educational system is not a strong correlation. Since we haven't had a viable career education system, and since only around 28% of all jobs require a college degree (associate's to doctorate),[36] education achievement and occupational opportunities are poorly related.

Second, he is correct in stating our educational system is a very powerful mechanism for sorting, but it is used incorrectly and unjustly since it rewards only those who are academically inclined.

Third, his reference to roles and "occupational hierarchy" is the result of a random and arbitrary history of social forces sorting different occupations into status niches that are not grounded in real superiority, but rather into niches that powerful groups commandeered to serve their desire for socially dominant positions. Two historic examples to compare superior social dominance are: The warrior class of the Middle Ages who ruled with absolute power; and the superior position the craftsmen and bankers held during the Italian Renaissance in Florence. Whereas today, the superior position is found in our contemporary professions who use the educational system to corner the market. The mistake is for society to actually believe that certain occupations possess something truly superior. It is the deception of a belief system that provides status and prestige, but the beliefs are rooted in false idols. If there is any human attribute that should be elevated above all other attributes that people should aspire to, it is virtue, but then, academia has completely lost sight of this due to its unholy alliance with postmodernism and/or socialism.

Jensen further reflects on Duncan's (1968, p. 118) work as it relates to "intelligence" and occupational achievement:

> Because intelligence is only one of a number of qualities making for merit in any given occupation, and since most occupations will tolerate a considerable range of abilities and criteria of passable performance, it would be surprising to find a very high correlation between occupational level and IQ. … there is a considerable dispersion of IQs *within* occupations.
>
> Duncan's detailed analysis of the nature of the relationship between intelligence and occupational status led him to the conclusion that "the bulk of the influence of intelligence on occupation is indirect, via education." If the correlation of intelligence with education and of education with occupation is, in effect "partialled out," the remaining "direct" correlation between intelligence and occupation is almost negligible. But Duncan points out that this same type of

[36] U.S. Bureau of Labor Statistics, Employment, wages, and projected change in employment by typical entry-level education.

> analysis … also reveals the interesting and significant finding that [abilities] play a relatively important part as a cause of differential *earnings*. Duncan concludes: "… men with the same schooling and in the same line of work are differentially rewarded in terms of mental ability." (pp. 15-16)

No doubt this is true, but which mental abilities? Intuition, interest, motivation, ambition, conscientiousness, etc., all play important roles in one's success. But "intelligence" tests do not measure for these attributes, other than perhaps peripherally. What would be interesting to see is which attributes contribute to success most: scholasticism (contemporarily determined by academic tests) or those attributes/abilities currently not measured. I would propose that IQ contributes the least, as long as the individual has the capacity a job requires. For example, a person with a terrible voice cannot be a good singer, but a person with a decent voice can make up for shortcomings if strong emotive feelings can really move an audience.

Jensen then analyzes the correlation between "intelligence" and occupational achievement:

> Intelligence, via education, has its greatest effect in the assorting of individuals into occupational roles. Once they are in those roles, the importance of intelligence per se is less marked. Ghiselli (1955) found that intelligence tests correlate on the average in the range of .20 to .25 with ratings of actual proficiency on the job. The speed and ease of training for various occupational skills, however, show correlations with intelligence averaging about .50, which is four to five times the predictive power that the same tests have in relation to work proficiency *after* training. This means that, once the training hurdle has been surmounted, many factors besides intelligence are largely involved in success on the job. (p. 16)

So, besides measuring test taking abilities, it appears IQ can help predict the speed at which one can learn something. While this might be useful for those who are of the social efficiency mindset, there are those who may be slower to learn, but who may prove far more capable than their higher IQ brethren.

In the end, and under the heading "Learning Quotient" versus Intelligence Quotient, Jensen concludes that IQ testing is not the whole story.

> If many of the children called culturally disadvantaged are indeed "different" in ways that have educational implications, we must learn as much as possible about the real nature of these differences. To what extent do the differences consist of more than just the well-known differences in IQ and scholastic achievement, and, of course, the obvious differences in cultural advantages in the home? … The important question is how many other abilities there are that are not tapped by conventional tests for which there exist individual and group differences that interact with methods of instruction. … In brief, we are finding that a unidimensional concept of intelligence is quite inadequate as a basis for understanding social class differences in ability. (p. 109)

One useful comparison is the difference between academic math, which is obsessed with computations, and historic stereotomy[37] type of math where no computations were used. Craftsmen who used stereotomy for architectural structures might have been substandard at computational math, yet build cathedrals that academic mathematicians would have been confounded by. The craftsman may have scored low on "intelligence" tests but those who score well on "intelligence" tests would have been lost in building architectural marvels. I subscribe to the idea that the one who mastered traditional stereotomic techniques demonstrated a superior intelligence to one who masters academic test taking abilities.

Jensen then provides an explanation of disadvantaged children with similar IQs of middle-class children. He refers to teachers' observations of the disadvantaged children learning a variety of real-world circumstances – "nonscholastic ways" – faster than the middle-class children even though their IQs are the same. (p. 111)

His final explanations provided for on pages 115-17 should be seriously looked at with open and unbiased minds.

Conspiracy or Human Nature?

Selingo (2012) divulges an almost conspiratorial effort of college faculty to elevate their community by eliminating as many people as possible from the educational system at the more advanced levels. "Most faculty members went through grad school learning that rigor is how many students you fail, not how many you graduate." Certainly, they believe they are serving a public good since it is obvious they believe in survival of the fittest or "may the best man win attitude," as if it's a race and each person must sink or swim on their own rather than achieving success together. Compassionate teamwork is an attribute that distinguishes man from beast but many in academia have lost sight of this. Perhaps this goes a long way in explaining the cultural mindset in academia that uncovers the lack of interest in pursuing high quality education for all, but rather a mindset that believes in optimizing the culture for the few by erecting barriers to ensure the failure of most. This competitive cultural attitude then radiates outward from the academy and permeates the educational establishment. Therefore, a very small portion of those in the lower socioeconomic sectors stand a chance of making it over the arbitrary academic barriers.

Those of this elitist attitude don't understand that in nature – and society is a reflection of nature – there are a multitude of niches that must be filled; niches that require very different abilities. No one is omnipotent nor so incredibly intelligent as to be able to step outside his talent-set and take on any job he wants. Only arrogant and ignorant people believe they are capable of this.

Academia has optimized the educational system for only a few niches and then asserts these are the only important ones, which justifies, in their minds, why "rigor" as defined by Selingo, is perfectly acceptable and encouraged. Academics may feel bad for the

[37] https://timberframehq.com/spotlight-patrick-moore-professional-school-practical-stereotomy/ and https://www.mobt3ath.com/uplode/book/book-59100.pdf

losers in the game, but obviously not bad enough to expand educational offerings that would make allowance for everyone under the tent of opportunity. Their tent is kept small on purpose to elevate themselves with arbitrary credentials that provide status and prestige, which is what they covet above all things. This is no different from other covetous pursuits such as wealth, power, beauty, fame, etc. As misguided as it is, academics believe theirs is simply the most important pursuit of all, justifying all their actions.

All of this may be fine for private schools where people have the right to pursue as many misguided endeavors as they choose – as long as no one infringes upon the rights and liberties of others – but colleges receiving public money must do everything they can to maximize students' chances, otherwise they should lose public support. It becomes a takings violation (Fifth Amendment, U.S. Constitution) since property (i.e. money) is taken from all citizens to benefit a minority. I certainly do not condone the use of my tax dollars to support a public system that provides privileged benefits to a select group who have erected protective barriers for self-serving purposes. It is reminiscent of 19th century monopolies that had few checks on the power wielded by those who held the reins of the economy. However, the effects of academia's control over credentials are far more pernicious since they close the door on the majority and therefore deny economic and political opportunity to the many who support the system with their tax dollars. Citizens are actually coerced into providing tax dollars to support a system of education that is used against the majority of them. One may consider this analogous to masochism. The 19th century captains of industry did not wield this kind of destructive force over society.

It would be better if private associations that represent various economic sectors determine credentialing requirements in order to be more efficient and effective in the use of educational resources, which bureaucrats and academics are incapable of achieving. It also disperses power by removing academic influence over society, other than their input in how best to instruct students in achieving what the associations' requirements establish, which is the job of cognitive psychologists and curriculum designers.

There is one important danger to be aware of that the history of guilds and unions reveal regarding private associations and training: They tend to monopolize access to the credentials they establish and restrict entry into their established educational corridor in a similar manner as academics are currently exploiting the system. They do this in order to restrict supply so as to create artificial demand forces, which have the effect of elevating prices (in contrast to academics' efforts to elevate their credentials). This is antagonistic to free trade and the antithesis of free government. Capitalism is then attacked as an unworkable economic system, which either leads to demands for socialism or statism, when in reality, the cause of so many social ills are social constructs that are at odds with capitalism and principles of liberty.

A Couple of Interesting Observations About Quality

Gewertz (2015) raises an important question regarding the quality of education as it relates to useful skills for life:

> In "Mind the Gap," Chad Aldeman argues that judging high schools primarily on their test scores and graduation rates, as we have done under No Child Left Behind, creates a perverse incentive to hustle more students over the threshold with inadequate skills. Even worse, he argues, those data don't really tell us what we need to know about our schools: Are they preparing students well for what lies next?

In *Comparing Private Schools and Public Schools* (NCES, 2006) a comparison was made between

> all private schools to all public schools in grade 8 … the average of the mean National Assessment of Educational Progress reading scores is higher among private schools (as well as Catholic and Lutheran schools separately) than among public schools. When student covariates[38] are included in the model, all private schools, as well as Catholic and Lutheran schools, maintain a higher average school mean than public schools.

This clearly demonstrates the failures of bureaucratically run education systems. As the Founders of our country thoroughly understood, the dispersal of authority is the foundation of a free society, and a free society offers the highest standard of living that can be achieved. However, no one ever claimed it would be perfect and that social challenges can be avoided. It is simply the lesser of evils of all current choices.

Conclusion

In the executive summary of the Southern Regional Education Board's report on career and technical education (2015), it is noted that credentials are critical to individual economic success and that greater effort is required of States.

> [T]he future looks bleak for young people with a high school diploma or less and no postsecondary credential of value in the workplace. The number of jobs available to those with a high school diploma or less has steadily declined for decades, and the Great Recession hit these individuals hard…. Workers with a high school diploma or less continue to lose jobs despite the economic recovery.

This proves that those not destined for postsecondary education, MUST be offered alternatives that provide credentials which can be obtained during the secondary school years. For this cohort, the current high school education no longer provides an economic advantage, as this report states, and is therefore a complete waste of time. Dual education (simultaneous high school and college attendance) proves the point: If many young people can get a college degree at the same time they receive their high school degree,

[38] "In statistics, a **covariate** is a variable that is possibly predictive of the outcome under study. A **covariate** may be of direct interest or it may be a confounding or interacting variable. The alternative terms explanatory variable, independent variable, or predictor, are used in a regression analysis." https://en.wikipedia.org/wiki/Covariate

what is the purpose of the high school degree? Employers are only interested in the highest credential and competencies.

However, if alternatives were offered such as an applied education program and vastly expanded CTE programs, then high school would no longer be a waste of time. There would be tremendous incentive to finish high school with a credential the market values, but this would require us to put the educational establishment in its place – that is, to serve what the public demands rather than fulfilling the aspirations of academic types.

We can begin the process of rectifying the ill effects of the public educational establishment by offering far more hands-on development of the useful arts and sciences for the non-college bound sector (however, even the college bound sector would benefit immensely by such a program) but strongly correlated with numeracy and literacy skill attainment. This can be accomplished by teaching related subject matter to a given discipline. For example: If a student desired to enter a particular trade in the construction industry, a relatively thorough curricular program introducing all of the construction trades, and the relationships between them, should be the starting point. Further, the origins of raw materials used in the trades should be understood as well as the processing, design elements, and manufacture of them should be addressed. Material sciences should be introduced, including strength of materials. Architecture from an engineering angle at a fundamental level, rather than from a design or esthetic angle, should be introduced. Then business practices in operating a construction company (marketing, financial, operations, and personnel management) should be covered. Microeconomics in general, but the construction economic sector in particular, should be examined. Real estate economic principles (as opposed to studying subject matter for a real estate license) should be surveyed.

As in most curriculum in the academic system, each of these subjects are currently taught as though students were going to pursue a career in each one of these disciplines. This must no longer be tolerated for introductory courses whether in high school or college. Advanced classes in a given discipline are the appropriate place and time to study in-depth aspects of a subject. Teaching advanced subject matter in an introductory class wastes students' time and public resources with little return to show for it. Introductory classes must be designed specifically to those who WILL NOT pursue a career in a given discipline.

It's time we rein in the out of control educational establishment and bring order and opportunity back for all citizens. We must recognize the multitude of talents (i.e. multiple "intelligences") and the multitude of economic opportunities that have ***very*** different instructional/preparational needs. This must begin at the primary school level through a focus on numeracy and literacy mastery – with all other subjects being subordinate to this effort – and then in the secondary levels – i.e. middle and high school – begin the process of establishing pathways to opportunity tailored for every individual's need. Voucher-like mechanisms would go a long way in dispersing power and dismantling the contemporary monopolistic educational forces that are so destructive to citizens' interests.

We can continue down the dead-end path of statist bureaucratic monopolistic education or we can implement a system that the Founders of our country had in mind. If we truly believe in freedom, there is no better place to begin the recovery of it than through an educational system rooted in the concept of freedom.

Appendix

1909 Analysis of Elimination

Let's look at the causes of school attendance attrition as it relates to those who did not complete grammar schools or high schools during the first decade of the 20th century. This allows us to consider the natural forces in play before compulsory school attendance laws increased minimum exit ages to 16.

Ayres (1909) analyzed the numbers and causes of students in public schools who were behind the average based on a comparison of age to grade. This is when mandatory attendance laws required children to remain in school until 14 years of age (ideally associated with 8th grade); and when between 6 and 7 years old was the average entry age into school. The completion of 8th grade was considered the necessary amount of education required to be sufficiently literate to function properly in society. High school was a luxury that most felt was unnecessary if they were not college bound, which the vast majority were not.

The word *elimination* was used for those who left school before completing 12 years. Occasionally, the word *dropout* was used as well, but as I've asserted throughout my essays, the word *dropout* is demeaning and that has an offensive derogatory stigma attached. It is a word used by educators to create guilt in the minds of children and citizens in order to indoctrinate society to believe that the contemporary educational establishment is the only way to a successful and prosperous life. There is some truth to this since this educational establishment has cornered the market on access to lucrative careers – at least those that require a license or certification. However, highly successful entrepreneurs frequently did poorly in public education and therefore blazed their own trails in spite of what the doctrinaires asserted. To prove the point, all of the wealthiest 19th century captains of industry had no high school education.

Words such as *retarded* and *backward children* were also used to describe students who were above the normal age for the grades they were in. Ayres knew these terms were inappropriate since the causes for being behind the average were numerous and frequently unrelated to academic or intellectual abilities. But he pointed out that the term *retardation* came to be used by the academic community for children out of sync as it relates to ages and grades.

To begin, Ayres (p xiii) distinguishes between children who are truly cognitively challenged – referring to them as *defective children* – and children who are older than most children in a given grade. To the former, he attributes 1 to 2 percent of the population, while for the latter, he attributes 5 to 50% of the school population – which is quite a spread. The reason for such a wide spread in percentage is due to differences in localities – some school districts performed much better than others.

It was pointed out that the typical barriers to progress through the grades could be removed for the vast majority of students; attendance and diligence in studies are major elements of success; effective teaching methodologies were already proving highly

successful in some cities; and that relatively few children were so cognitively challenged to the point where they could not perform academically.

Ayres summarizes the level of school completion as follows: “The general tendency of American cities is to carry all of their children through the fifth grade, to take one-half of them to the eighth grade and one in ten through the high school.” (p. 4)

> Taking the average of the conditions found in our city schools the figures show that for every child who is making more than normally rapid progress, there are from eight to ten children making abnormally slow progress. In the lower grades, before the process of elimination enters to remove the badly retarded children, the average progress of the pupils is at the rate of eight grades in ten years. *These conditions mean that our courses of study as at present constituted, are fitted not to the slow child or to the average child but to the unusually bright one.* (Emphasis provided)

For those who are required to repeat a grade, Ayres states:

> The average percentage is a little over 16. This means that in the country as a whole about one-sixth of all of the children are repeating and we are annually spending about $27,000,000 in this wasteful process of repetition in our cities alone.
>
> When we seek to analyze the causes which are responsible for the conditions which have been discussed we find the field a difficult one. There is no one cause for retardation nor can we say that any one cause is preponderant. Late entrance is a potent factor, irregular attendance is another. In both cases time lost through illness plays an important part. Certain physical defects are responsible for a part of the backwardness. (p. 5)

Ayres points out that the lack of English understood by foreign born children is no impediment. These children learned English so fast that it had virtually no effect. However, he showed that different nationalities had different levels of “retardation.” His position is supported by Callahan (1962) who in his book, *Education and the Cult of Efficiency*, describes in greater detail the performance of children from various countries. (See my essay, *A Lesson in Educational History to Help Explain Our Current State of Affairs*, “Social Efficiency Movement” chapter.)

> [In] 1908, an investigation of the problem of the comparative success of the children of different nationalities in fifteen schools was made as a part of the investigation conducted in the public schools of New York City. … In the fifteen schools a number of nationalities were represented. When the records of the pupils were tabulated for retardation by different nationalities, the results were surprising. The percent of retardation among the different nationalities was as follows:

TABLE 57.—RETARDATION BY NATIONALITIES IN NEW YORK CITY. PERCENTAGES.

Nationality	*Per cent Retarded*
German	16
American	19
Mixed	19
Russian	23
English	24
Irish	29
Italian	36

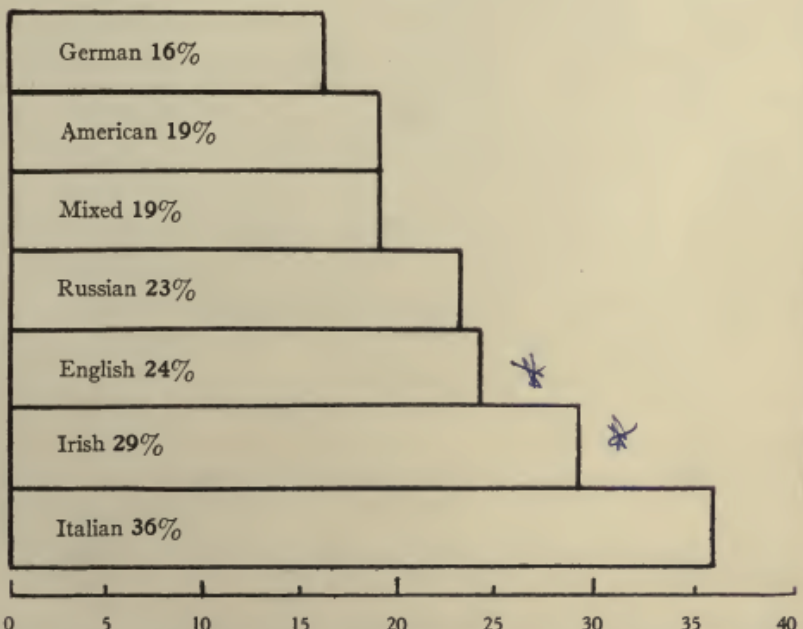


Diagram XX.—Retardation by nationalities in New York City. Percentages.

> … Opinions may differ radically as to the significance of these figures and the causes of the conditions disclosed, but one thing is certain. In all intensive studies of retardation, the nationality factor is important and must be taken into account. (pp. 106-108)

It can be imagined that given the fact that the eugenics movement was taking shape at this time, there were those who blamed genetics for the differences. However, we now know it is an issue of culture and not genes. Certain cultures prize education while others are less concerned about it. The Japanese embraced it while the Italians were skeptical of it.

Also, very interesting is Ayres comparisons between males and females. He states:

> Perhaps no more important set of facts has been brought to light than those relating to the relative standing of the two sexes. We have always known that fewer boys than girls go to the high school but we have not before known that there is … 13% more repeaters among boys than among girls, or that the

> percentage of girls who complete the common school course is 17% greater than the percentage of boys. *These facts mean that our schools, as at present constituted, are far better fitted to the needs of the girls than they are to those of the boys.* (Emphasis provided.) (pp. 6-7)

From this data, the author recommends improved compulsory attendance laws and better enforcement. As a corollary, he points out that better census laws are required. He also suggests increasing age requirements. He states:

> If we are to have all of our children complete the common school course, we must have an agreement which is now commonly lacking between the length of the school course and the length of the compulsory attendance period. It is a curious anomaly that we commonly have school courses eight or nine years in length and compel attendance for six years only. (p. 7)

In addition, Ayres points out the need for recording important data and greater ability to interpret the data to better understand how to improve the system.

One of the biggest problems for repeaters of grades was explained by Ayres:

> The repeater finds himself in the same class with much younger companions. His age and size are a continual reproach to him. He begins to resent the maternalistic atmosphere of the lower grammar grades. He becomes discouraged through his lack of success and, when he has passed the compulsory attendance age, he leaves school. (p. 8)

Ayres addresses high school:

> We have always known that in our general educational system, the high schools occupy a somewhat privileged position, in that they deal with selected and not with average pupils. Few of the pupils of the common schools continue their work until they reach this institution of secondary instruction.

Ayres analyzes the number of students entering and then leaving school based on age:

> Information as to age at entering and age at leaving may be gained from a study of Diagram I which shows in relative figures the distribution by age groups of 1,982,477 children enrolled in the elementary and high schools of 58 cities. The 10 year old children are represented as being 100. Using this as a basis, the other age groups are represented proportionally.
>
> There is little difference in size between the seven age groups at the ages from 7 to 13 inclusive. During these ages, going to school is the customary occupation of practically all of the children of our cities. But one-fourth of them have not yet started at the age of 6 and two out of every five have already left at the age of 14. A considerable number even anticipate the age of 14 and leave at 13 years. Now, since there are only six years (those from 7 to 12 inclusive) during which

practically all of the children are in school, and, if we add the age of 13, only seven years when nearly all of them are in attendance, it becomes obvious why they cannot all receive eight years of schooling.

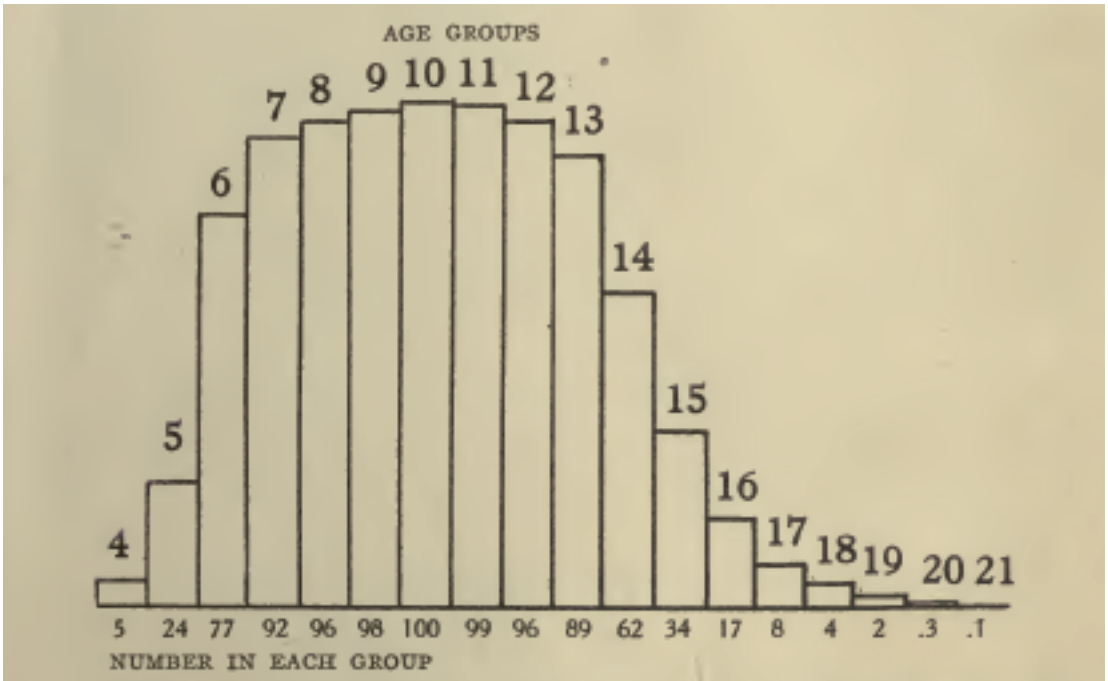


Diagram I.—Distribution by ages of children in city school systems. The ten year old children are here represented as one hundred; the other age groups are proportional.

When we consider that only those children who enter at 6 years of age can complete the eight elementary grades by regular progress before they reach the age of 14, we can better understand why it is that so few finish the elementary schools. … When we further consider that in no state are children compelled to go to school until they are seven years of age, it is manifest that no child going to school under such compulsion, and leaving upon reaching the age of fourteen, can ever, by normal progress, finish the eighth grade course prescribed by school authorities. Is it then not surprising that so few pupils can finish the elementary school course? And if the elementary schools represent a unit in education, is it not singular that our laws do not generally enforce this unit? (pp. 10-11)

We see here the logic behind the expansion in compulsory laws from ages 5-6 to 16 years old.

To complicate the matter, Ayres points out “There are few children who pass through the schools without losing a term, a year, or more in the course of their studies.”

Ayres then goes into the details of causes for disparities in numbers of students in the various grades when compared.

The Natural conclusion of the casual student of such figures is that the pupils are dropping out of school all the time, and hence the number in each grade diminishes as the grades advance. … That such a conclusion is not justified is made evident by a study of some of the factors contributing to bring about the disparity in numbers noted in the several grades. The assumption that the grades should normally be about equal in number rests upon the very common idea that substantially the same number of children enter school each year, that they advance with fair regularity from grade to grade, and that they remain until the completion of the elementary course.

In fact, all of these suppositions are erroneous. To begin with, there is a certain natural decrease in the number of children with advancing age which is due to death; so that we may always expect to find fewer persons with each advancing year of age. Secondly, there is an increase in the size of each successive and younger generation of children which is due to the natural increase in population. Looked at from the standpoint of the age of 7, each older generation is smaller than the preceding. … These two elements – that of death and that of the increased size of each succeeding generation – contribute to form the *factor of population*.

All children do not advance regularly from grade to grade; some of them are left behind to repeat a year or two. This is the *factor of retardation* (i.e., failure).

All children do not complete the elementary schools. In some localities, few, and in others more, leave the early or primary grades, but in all localities great numbers leave the grammar grades upon reaching the age of 14. This is the *factor of elimination*. (pp. 21-22)

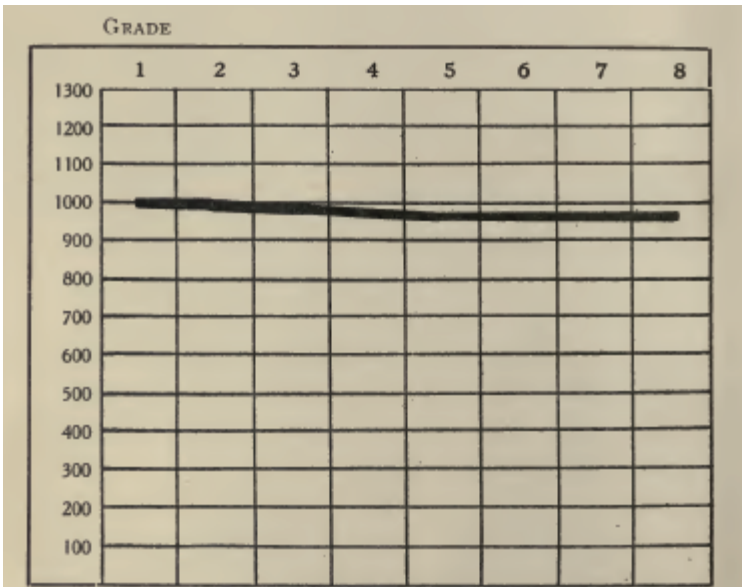


Diagram VII.—Decrease through death.

Ayres then provides diagrams to demonstrate changes in population for each succeeding grade. He starts by pointing out that in his day, the annual death rate [on average] for the ages 5 to 15 was 3.7 per 1000. *See* chart above.

Ayres then uses a table and a diagram to demonstrate how increases in the annual school age population gives the impression of a decrease in grade populations for a given year.

TABLE 8.—GRADE DISTRIBUTION AS INFLUENCED BY TWO ELEMENTS, DEATH AND INCREASE OF POPULATION.

Grade	*Pupils*
First Grade	1000 children 7 years old
Second Grade	985 children 8 years old
Third Grade	964 children 9 years old
Fourth Grade	938 children 10 years old
Fifth Grade	920 children 11 years old
Sixth Grade	904 children 12 years old
Seventh Grade	889 children 13 years old
Eighth Grade	871 children 14 years old

The foregoing shows most conveniently the tapering off in numbers of the population as the age increases. This becomes very evident when we interpret the facts of the table in a diagram.

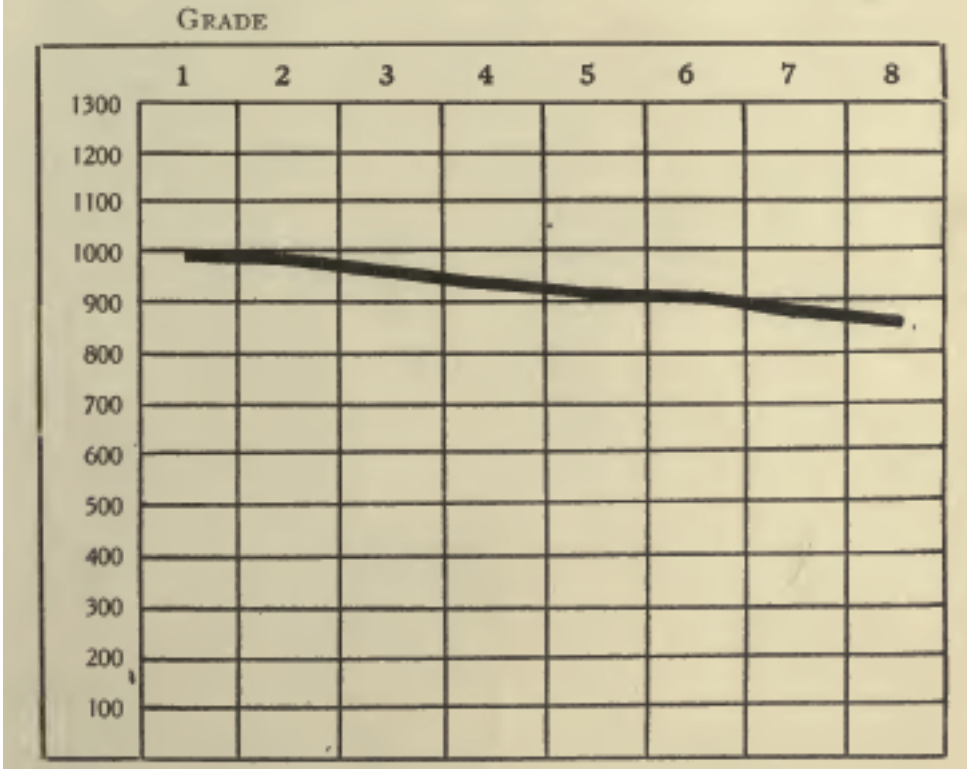


Diagram VIII.—Decrease through death and the population factor.

> As before explained, this tapering off resulting in an apparent diminution in the upper ages is in reality caused by successive increases in the lower ages. Were we to state it in other terms to make this clear we might take the age of 14 as the basis for computing our relative figures. In that case, instead of saying that for each 1000 children 7 years old there are 871 at the age of 14, we should say that for each 1000 at the age of 14 we may expect to find 1148 seven year olds. This is simply the same proposition stated in different terms. (pp. 24-26)

Next Ayres provides an average for those who are promoted to a succeeding grade. From data acquired from 5 large cities he calculated that approximately 80% are advanced and 20% fail.

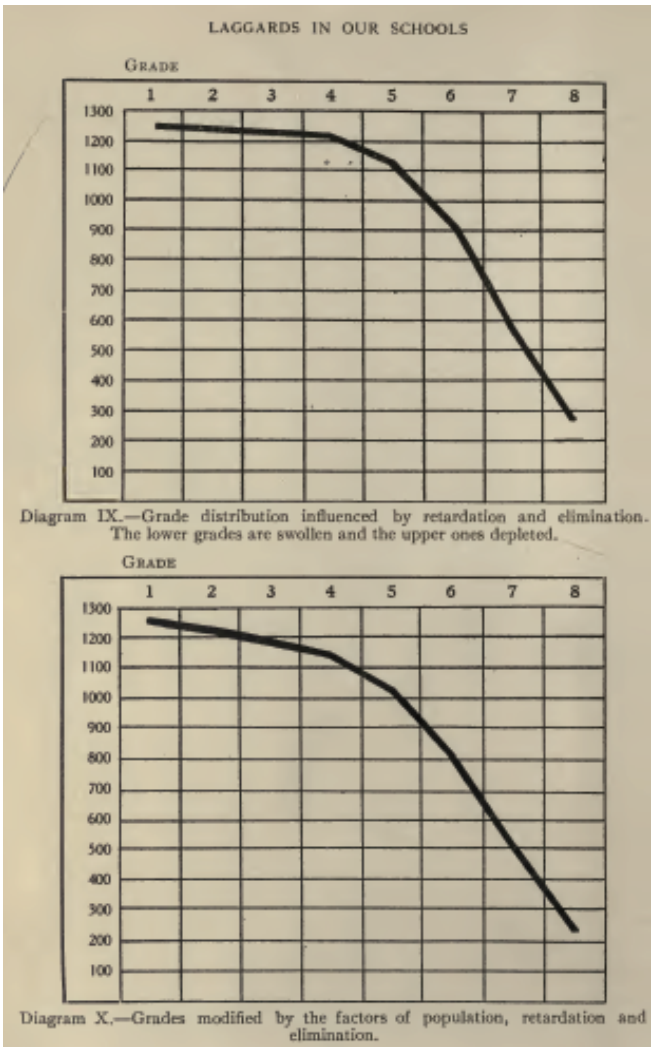
Ayres then provides an estimation of elimination at the various ages: "In the elementary schools 10% of the children will have left at 13 years of age, that 40% will have left at 14, half of the remainder at 15, and again half of these at the age of 16." (p. 28)

Ayres provides a summary of his three modifying factors of *population*, "*retardation*," and *elimination*. He compares "in one table the effect which each one of these separately, and finally the three working together, will have on the grade distribution of a community when 1000 children enter the first grade."

TABLE 13.—GRADE DISTRIBUTION SHOWING MODIFICATION BY DIFFERENT FACTORS.

Grade	*No Modifying Factors*	*Death only*	*Death and Increase of Population*	*Retardation and Elimination*	*Population, Retardation and Elimination*
First	1000	1000	1000	1250	1250
Second	1000	996	985	1247	1228
Third	1000	992	964	1238	1193
Fourth	1000	988	938	1219	1143
Fifth	1000	984	920	1127	1036
Sixth	1000	981	904	905	818
Seventh	1000	977	889	570	506
Eighth	1000	973	871	272	237
Total	8000	7891	7471	7828	7411

> The facts of the table showing the final distribution which we have as the resultant of the combined modifying influences of the three factors are even more impressive when expressed in graphic form as in Diagrams IX and X. (pp. 31-32)



To demonstrate the variation in performance in 33 different school districts, Ayres provides a table showing the percent that are behind in their proper grades ("retarded").

TABLE 22.—PER CENT OF RETARDED PUPILS. THIRTY-ONE CITIES.

City	Per cent Retarded
1. Medford, Mass.	7.5
2. Waltham, Mass.	10.6
3. Meriden, Conn.	13.0
4. Quincy, Mass.	17.9
5. Aurora, Ill.	18.3
6. Boston, Mass.	18.5
7. Malden, Mass.	18.5
8. Fort Wayne, Ind.	23.3
9. Springfield, Mass.	23.3
10. Decatur, Ill.	29.9
11. Newark, Ohio	29.9
12. New York, N. Y.	30.0
13. Portland, Ore.	30.7
14. Reading, Pa.	31.6
15. Trenton, N. J.	32.0
16. Utica, N. Y.	32.6
17. Woonsocket, R. I.	35.4
18. Troy, N. Y.	35.6
19. Philadelphia, Pa.	36.8
20. Wilmington, Del. (white)	37.2
21. Columbus, Ohio	37.3
22. Los Angeles, Cal.	38.3
23. York, Pa.	38.3
24. Kingston, N. Y.	38.4
25. Baltimore, Md.	46.3
26. Camden, N. J.	46.3
27. St. Louis, Mo.	46.6
28. Kansas City, Mo.	48.5
29. Memphis, Tenn. (white)	51.3
30. Cincinnati, Ohio	58.7
31. Erie, Pa.	60.1
32. Wilmington, Del. (colored)	62.8
33. Memphis, Tenn. (colored)	75.8

Ayres goes deeper into statistical analysis:

> Percentage of pupils above normal age is not in itself to be accepted as a trustworthy criterion of school efficiency. The widely varying conditions found in different sections of the city preclude the possibility of saying with any degree of certainty that because school A shows 30% of retarded pupils as compared with 20% for school B, that the former is thereby shown to be less efficient than the latter. When, however, schools are situated together and draw their pupils from the same social and racial classes, comparison becomes possible. These conditions are found in the cases of those schools where the boys and girls are taught separately in different buildings and under different principals. The schools where these conditions obtain and the percentage of retarded children for each are as follows:

TABLE 24.—BOYS' AND GIRLS' SCHOOLS COMPARED.

School	Per cent Above Normal Age
A Boys	27.7
A Girls	20.4
B Boys	14.4
B Girls	17.8
D Boys	29.3
D Girls	32.0
K Boys	10.9
K Girls	19.8

These comparisons are significant. It is noteworthy that the differences are not due to the sex of the pupils, for the boys make the better showing in three of the cases, while the girls do better in the other case. The difference then must be in the schools themselves. In the last case the comparison is particularly striking, the girls' school showing almost twice as large a percentage of retardation as does the boys' school. (p. 47)

The general tendency of city school systems is to keep all of the children to the fifth grade, to drop half of them by the time the eighth grade is reached and to carry one in ten to the fourth year of the high school. Diagram XII shows graphically this general tendency.

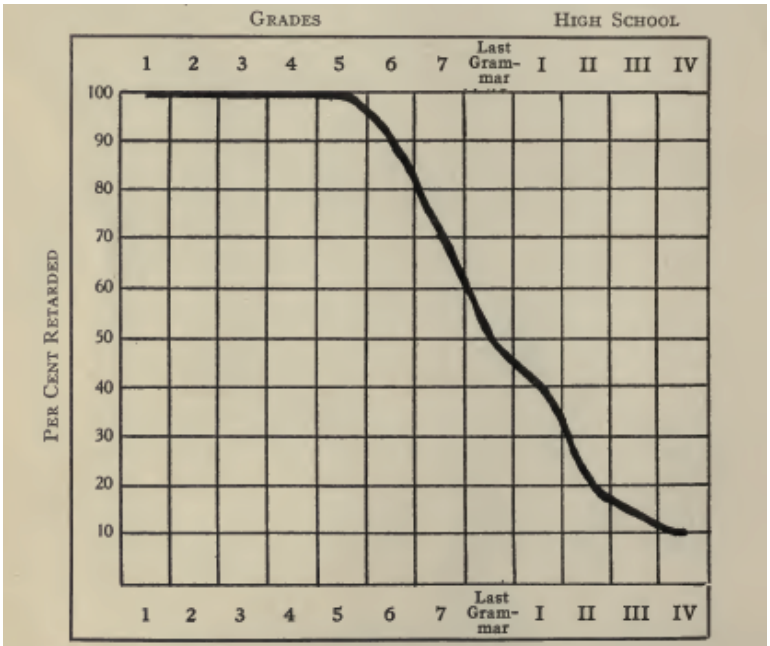


Diagram XII.—Showing general tendency of elimination in city school systems.

Next, Ayres analyzes the causes of leaving school.

The question why pupils leave school is one that is often asked and seldom answered. Of course, the great majority of them go to work, but this fact is far

from being an explanation of their leaving school. In the case of the great numbers of children who leave before completing the elementary course, if the question asked were why they do not continue longer in school, the answer would be, as stated previously in other connections, that upon reaching the end of the compulsory attendance period they find themselves in the fifth or sixth grade instead of in the eighth and, seeing that the prospect of graduation is remote, they leave and go to work.

TABLE 53.—CAUSES OF WITHDRAWAL OF PUPILS FROM HIGH SCHOOLS IN FIVE CITIES.

Cause	*Cambridge, Mass.* 1907	*Bay City, Mich.* 1904	*Decatur, Ill.* 1908	*Medford, Mass.* 1907	*Springfield, Ohio.* 1907	*Total*
To go to work	16	57	28	20	50	171
To help at home	8	..	..	..	..	8
Poor health	13	23	23	..	30	89
Failure in studies	11	..	..	..	..	11
Removal from city	6	19	15	11	28	79
To private schools	5	10	3	6	..	24
Marriage	1	..	1	..	..	2
Death	..	1	1	..	..	2
Sickness in family	..	..	14	12	..	26
Expelled	..	..	4	1	..	5
Dissatisfaction	..	..	16	3	..	19
Lack of ability	..	..	..	2	..	2
No reason	..	8	8	4	4	24
Miscellaneous	..	13	..	..	43	56
Total	60	131	113	59	155	518

In studying the table it must be borne in mind that the figures were gathered by different methods. It is quite possible that some of the reasons assigned may be given quite different interpretations in different cities. For these reasons, only the most general interpretations of the figures may safely be made. By adding together the figures under such headings as “To go to work” and “To help at home,” “Poor health” and “Sickness in family,” etc., the cases under the several causes may be grouped under six general headings:

TABLE 54.—REASONS FOR LEAVING HIGH SCHOOL. PERCENTAGES.

Cause	*Pupils*	*Per cent*
Work	179	34.5
Ill Health	115	22.2
Removal	79	15.3
Private Schools	24	4.6
Lack of Success	32	5.1
Other Reasons	89	17.2
	518	100.0

More than one-third of all the cases are attributed to "work," either at home or outside of it. … Nearly one-fourth of the cases are ascribed to ill health, either of the pupils themselves or in their families. … A fifth of the cases are ascribed to removal and transfer to private schools. … Under "Lack of Success" have been grouped the cases found under the headings "Failure in Studies," "Dissatisfaction" and "Lack of Ability" in the first table. It is noteworthy that the school authorities ascribe to these causes combined only 5% of the cases. In reality it is probable that lack of success in school studies is the greatest single cause which impels pupils to drop out of school.

Turning now to the elementary schools we find slightly more data than for the high schools:

TABLE 55.—CAUSES OF WITHDRAWAL OF PUPILS FROM ELEMENTARY SCHOOLS IN SIX CITIES.

Cause	*Cambridge, Mass.* 1907	*Bay City, Mich.* 1904	*Decatur, Ill.* 1908	*Medford, Mass.* 1907	*Springfield, Ohio.* 1907	*Johnstown, Pa.* 1908	*Total*
To to go work	39	190	90	2	168	215	704
To help at home	21	..	..	..	..	..	21
Ill health	..	180	146	..	114	105	545
Removed from city	128	427	494	1	415	322	1787
To private schools	8	87	37	..	..	..	132
Death	1	3	4	1	..	16	25
Sickness in family	..	..	30	5	..	..	35
Visiting	..	..	17	..	..	..	17
Expelled	..	..	10	..	..	..	10
Dissatisfaction	..	..	2	..	..	..	2
No reason	..	29	23	2	15	53	122
Miscellaneous	..	28	..	..	54	..	82
Total	197	944	853	11	766	711	3482

Making in this case the same sort of general classification of the cases under five main heads as we made for the high school table, we get the following:

TABLE 56.—REASONS FOR LEAVING ELEMENTARY SCHOOLS. PERCENTAGES.

Cause	*Pupils*	*Per cent*
Work	725	20.8
Ill Health	580	16.6
Removal	1787	51.4
Private Schools	132	3.8
Other reasons	258	7.4
	3482	100.0

In this table, removal becomes such a large factor as to include more than half of the cases. Work occupies a position of less importance, and ill health retains nearly the same importance.

The net results of this study of the available data bearing on the reasons why children leave school are … unsatisfactory in nature. Until more satisfactory statistics are gathered and careful studies made, we must content ourselves with the general statement that failure in school studies is frequently followed by dropping out of school as soon as the attendance law permits. This is shown by the fact that very few children repeat grades after passing the compulsory attendance period. Unless compelled to remain in school, pupils who fail, drop out. (pp. 99-102)

References

Aka, Laura, *A Model for American Manufacturing Education*, Working Nation, Oct. 19, 2020.

Amselem, Mary Clare, *FBI Exposes Wealthy Parents Rigging College for Kids. But It Was Always Rigged*., The Heritage Foundation, Mar. 12, 2019.

Ayres, Leonard, *Laggards In Our Schools*, The Russell Sage Foundation, Charities Publication, 1909.

Below the Surface: Solving the Hidden Graduation Rate Crisis,
Alliance for Excellent Education, April 2015

Bickford, Ian, *The College Prep That's Worse Than Neutral? High School: How "Early College" Reimagines the Path to Higher Ed*, The Hechinger Report, Dec. 27, 2017.

Brunner, Eric, Shaun Dougherty, and Stephen Ross, *The Effects of Career and Technical Education: Evidence from the Connecticut Technical High School System*, (EdWorkingPaper: 19-112). Annenberg Institute at Brown Univ., 2019.

Busteed, Brandon, *America's "No Confidence" Vote on College Grads' Work Readiness*, Gallup, April 24, 2015.

Callahan, Raymond, *Education and the Cult of Efficiency: A Study of the Social Forces That Have Shaped the Administration of the Public Schools*, The Univ. of Chicago Press, 1962.

Caves, Katherine and Parton, Brent, *Assessing Industry's Power in Education*, New America, Aug. 22, 2017.

Comenius, John A., *The Great Didactic*, Adam and Charles Black, 1633/1907.

Dynarski, Mark, *Is The High School Graduation Rate Really Going Up?*, Brookings, May 3, 2018.

First-Year Undergraduate Remedial Coursetaking: 1999-2000, 2003-2004, 2007-2008, Statistics in Brief, National Center for Education Statistics, Jan. 2013.

Fuller, J. B. and Hess, F. M., *Does Attending a More Selective College Equal a Bigger Paycheck?*, American Enterprise Institute, June 2020.

Gewertz, Catherine, *Beyond Graduation Rates: Holding High Schools Accountable*, High School & Beyond, Education Week, July 30, 2015.

Gewertz, Catherine, *Students Say Schools Do Poor Job of Preparing Them for College*, High School & Beyond, Education Week, Aug. 4, 2017a.

Gewert, Catherine, *College Leaders: Preparing Students for Careers Isn't Top Priority*, High School & Beyond, Education Week, Nov. 15, 2017b.

Hart Research, *Fulfilling the American Dream: Liberal Education and the Future of Work*, Association of American Colleges and Universities, July 2018.

Heckman, J., and LaFontaine, P., The American High School Graduation Rate: Trends and Levels, MIT Press, The Review of Economics and Statistics, Vol. 92, Pp. 244-262, May 2010

Herrnstein and Murray, *The Bell Curve*, Simon & Schuster, 1994.

Hull, Jim, *The Path Least Taken II: Preparing Non-College Goers for Success*, Center for Public Education, July 23, 2015.

Hurley, Peter, *Let's Not Focus On Graduate Incomes When Assessing the Worth of Education*, The Conversation, Nov. 2018.

Iasevoli, Brenda, *Teachers Go Public With Their Resignation Letters*, Education Week, April 14, 2017.

Jacoby, T. and Haskins, R., *Kentucky Fame: Fulfilling the Promise of Apprenticeship*, Opportunity America and the Brookings Institution, Oct. 2020.

Jensen, Arthur, *How Much Can We Boost IQ and Scholastic Achievement*, Harvard Educational Review, Vol. 39 No. 1, Winter, 1969.

Kahneman, Daniel, *Thinking, Fast and Slow*, Farrar, Straus and Giroux, 2011.

Kamenetz, Anya, *High School Graduation Rates: The Good, The Bad And The Ambiguous*, NPR, June 9, 2015.

Kliebard, Herbert M., *The Struggle for the American Curriculum: 1893-1958*, RoutledgeFalmer, 2004.

Laitinen, Amy, *College Credit? Kill That*, CNN, March 30, 2015.

Mahnken, Kevin, *More HS Students Are Graduating, but These Key Indicators Prove Those Diplomas Are Worth Less Than Ever*, The 74 Million, March 26, 2017. https://www.the74million.org/article/more-hs-students-are-graduating-but-these-key-indicators-prove-those-diplomas-are-worth-less-than-ever

Mahnken, Kevin, *Study: Career and Technical Education Yields Not Just Higher Earnings, But Higher Test Scores*, Forbes, Mar. 11, 2020.

Massey, Karen, "The Power Skills Revolution: Unleashing the Potential of New Workplace Competencies," *Chief Learning Officer-CLO Media*, June 26, 2023.

Montaigne, Michel de, *Essays of Michel de Montaigne*, "Chapter XXV – Of the Education of Children," 1580, Trans. By Cotton & Hazlitt, 1877, made available by Project Gutenberg, 2006, EBook #3600.

National Assessment of Educational Progress: *Comparing Private Schools and Public Schools Using Hierarchical Linear Modeling*, 2006, National Center for Education Statistics, Institute of Education Sciences, U.S. Dept. of Education, NCES 2006-461

OECD Skills Studies, *Time for the U.S. to Reskill? What the Survey of Adult Skills Says*, Organization for Economic Cooperation & Development, 2013.

Petrilli, Michael J. and Finn, Chester E. Jr., *College preparedness over the years, according to NAEP*, Fordham Institute, April 08, 2015

Ramírez, Eddy, *U.S. Aims to Tackle Inflated Graduation Rates: Initiative comes as a private report shows staggering dropout figures in many big cities*, U.S. News, April 2, 2008.

Rice, J. M., *The Public-School System of the United States*, The Century Co., 1893.

Rising to the Challenge: Views on High School Graduates' Preparedness for College & Careers: Key findings from survey of college instructors and employers who teach and hire recent high school graduates, Conducted by Achieve, April 2015.

Selingo, Jeff, *The Rise and Fall of the Graduation Rate*, The Chronicle of Higher Education, March 2, 2012

Spencer, Herbert, *Education: Intellectual, Moral and Physical*, A. L. Burt Co. 1860.

Stanovich, Keith, *What Intelligence Tests Miss: The Psychology of Rational Thought*, Yale Univ. Press, 2010.

Stinson, Sonya, "College Readiness: Perspective from the First Community College," 21st Century Center, American Association of Community Colleges, Oct. 29, 2015.

Sublett, Cameron and Griffith, David, *How Aligned is Career and Technical Education To Local Labor Markets?*, Thomas B. Fordham Institute, April 3, 2019.

The Relationship Between Education & Work Credentials, Data Point, U.S. Dept. of Education, NCES 2015-556, June 2015.

Thomas Jefferson Writings, The Library of America, 1984.

Tyson, Charlie, *The "Murky Middle,"* Inside Higher Ed, Sept. 10, 2014.