Educational Facilities within the Context of a Changing 21st Century America

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Kenneth R. Stevenson
University of South Carolina
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Introduction

Regardless of our roles in society, each of us will be affected by what happens in the field of education in the coming decades. The impact may be personal and direct as our child or grandchild moves through the schooling process. Or, it may well relate to the quality of our employees and, thus, our chances for business success. And, certainly, the impact the educational system in this country will have on the quality of all of our lives is apparent. The knowledge gained, the work habits developed, and even the moral values learned by today's students in our schools will, for every American, at least partially determine the future efficacy of our health care system, affect our place as a country in the world market place, and influence the level of safety and security we will experience individually and collectively in the coming decades.

Within this context, this paper presents both possibilities and critical issues related to what the future holds for the field of education and the facilities that house it. This is done with the hope that, regardless of one's role or position - that is, parent, educator, employer, or citizen – the reader will gain a greater sense of what to expect in terms of the direction of education, and how school facilities will be affected by – and affect – that direction. The anticipation is that, by enhanced understanding of educational trends, we individually and collectively will be better able to successfully fulfill our various individual, societal, and corporate roles and responsibilities in the coming years.

The Ultimate Education Future?

Before delineating specific trends that are foreseen over the next several years, let's begin by speculating where all of the various changes in education and society will eventually lead us. If we are talking about what schooling will look like in the year 2055, or fifty years from now, the answer may be an easy one - and this paper becomes much simpler and certainly a lot shorter. Why? Because in the year 2055 serious doubt exists that there will be a physical place called "school" (Coates, et. al., 1997). There are two reasons for this belief.

First, as we begin the 21st century, we really are still in the very infancy of incorporating technology into the educational process. If we continue to make the advances in the use of technology in education in the next 50 years that we have made in just the past 10, one can only begin to imagine what possibilities lay ahead (Thornburg, 1998). Within less than one generation, we have gone from no computers in classrooms, to a bank of three to five computers in most classrooms, to wireless Internet connections throughout many schools, to entire student bodies carrying laptop computers to class as electronic notebooks. High school students are taking college-credit courses via the Internet. Foreign language courses are being delivered via Distance Education to remote sites where the class could not be taken otherwise. And, teachers can electronically monitor each student's individual progress in reading skills development through cutting-edge instructional software packages that not only present material but test for mastery and provide diagnostic information and remediation activities as needed (Kennedy, 2003).

But, this is just the beginning. The future will build on this emerging technology and take us to new heights in terms of integration of learning -- with computers, with telecommunications, with virtual reality, and with the community as a whole (Lackney 2001). For example, picture a teenager, let's call her Savannah, waking up on October 15, 2055. She washes down her nutritional, but artificially engineered, breakfast bar with synthesized orange juice, and heads for her learning capsule. The capsule, located in family's communication center off the den, is a fully self-contained learning center. Through state-of-the-art telecommunication interfaces, she has access to the best teachers in the nation and, in some cases, the world. Using her wonderfully sophisticated and powerful computer of the day, one about the size of your wallet and voice activated, Savannah literally can and does conduct virtual science experiments -- such as dissections that have every appearance and even the odor of reality. Later, she electronically connects with her French language partner, a student in Paris. She helps him with his English enunciations, while he helps her with French verb conjugations.

Further, in 2055 Savannah's parents don't worry about loss of human interaction. Savannah has the world at hand. She has a two-way audio/video communication system in her capsule that allows her to work together with a classmate in Singapore, or chat with her biology teacher at the University of Cambridge. Savannah can, through a cutting-edge version of the old Star Trek holo-deck, engage in discussions with the makers of history – U.S. Presidents of the

past, the doctors who performed the first brain transplant in 2025, and/or a panel of philosophers including Socrates, Plato, and Aristotle. And, on the same holo-deck Savannah can hone her interpersonal skills by creating a room of classmates with diverse personalities programmed to respond to Savannah in ways that challenge and develop her "people" skills.

And, what really pleases Savannah's parents is that the capsule and the learning materials are absolutely free. In the mid-2030s the federal and state governments finally realized that funding physical places called schools and staffing them with "highly qualified" teachers on site was no longer feasible financially. They quickly agreed that virtual schools were the answer and that, by providing every student in the country with a learning capsule and "virtual" access to state-of-the-art materials and content experts, the public costs of education would be reduced substantially. So, Savannah and her parents "check out" the capsule during her years of schooling. And, the educational entity periodically updates its operating systems and electronic interfaces. The only things Savannah's parents have to pay for now are co-curricular activities, such as the drama class that Savannah takes on Tuesdays at her former school.

Far-fetched? For only fifty years from now? Many really don't think so – because most of the required technology already exists. As we speak, some school districts and even states are developing and implementing virtual high schools where students can take the basic curriculum on-line (American Youth Forum, 2002). And, as Phoenix University has shown us all, full higher education degrees now can be earned without ever walking onto something called a college campus. So, virtual school at home, or even at work, is becoming a reality. Various futurists believe that it's not a matter of "if" technology will supplant the place called school, but "when" – and as importantly, "how!" (Snyder, 2004).

Obviously, this kind of "prophesy" causes widespread concern – concern with a future dominated by computerized machines as opposed to people (Postman, 1993). Many fear that more and more complex technology will bring with it a loss of human contact, decreased human interactions, the lessening of human touch, and maybe even the diminishment of the human spirit, if not its loss. However, there is an even greater concern in the United States today that offsets the fear of the loss of human interaction – that is the fear of human interaction (Popcorn, 1991).

This leads to the second reason why schools as physical places may well disappear by 2055. Today's American society is one that, more and more, is driven by a general state of fear – a state that has been created over time through terrorist attacks, senseless shootings in schools, and intense twenty-four hour news coverage in every form imaginable of violent acts committed in every corner of the globe (Ross, 2002). This "environment of fear" has generalized to all aspects of human lives, including schooling. Parents fear that their child will come to physical harm at school, but they also fear that the values and beliefs that may be taught at school to their child will be in direct conflict with their own. And, they fear that public education in trying to be all things to all learners cannot teach their child as fully and effectively as that child deserves.

As a result of these fears, Americans are, as Warren Bennis (1991) has described it in *Why Leaders Can't Lead*, "cocooning" themselves – that is, rapping themselves in a "virtual," protective coating against the intrusions of others. Nestled in this "technological cocoon," Americans feel they can better control their lives (Putnam, 2000; Kimbrell, 2001). For example, a computer nestled in our home office will not threaten us as we walk down the hall – which might be the case if one had to interact face-to-face with an office co-worker. Or, we can program our televisions through use of v-chips and other filters to block out the undesirable - or that which presents views and positions in opposition to our own. And, with the massive expansion of media outlets, we can find radio personalities, TV networks, and bloggers who present only what we wish to hear and see.

While this undoubtedly sounds overblown to some, the idea that fear is greatly impacting our society is reinforced by what is actually occurring across America. Figures indicate increasing numbers of parents across the U.S. are opting to home-school. Growing numbers of parents are choosing alternatives to traditional public schools, particularly public options (National Center for Educational Statistics, 2003). And, national survey data year after year continually show that the greatest concerns parents and community have are with the levels of safety and protection educational environments provide (Rose and Gallup, 2004).

Further, in terms of the general society, some are ruing the "Balkanization" of America, as happened with the former Yugoslavia. Just as occurred in that county, there are those who worry that the U.S. as a society is fragmenting – by race, by socio-economic status, by basic beliefs, etc. (Putnam, 2000). Instead of this country being analogous to a "melting pot," some liken the U.S. now to a "mosaic," with a growing emphasis on the individual parts as opposed to focus on single whole (Frey, 2001). Others see growing signs of "cocooning" even within apparently homogeneous communities as evidenced by the increasing number of gated neighborhoods, and housing developments catering to very specific groups, such as retirees. Others point to the numerous pieces of legislation introduced federally and/or in various states and municipalities to limit in-migration, restrict who has access to public services including schools, and control the amount and location of low-cost housing that can be built in specific areas (Close Up Foundation, 1998).

With all of this in mind, will the "schoolhouse" as we know it actually disappear within the next fifty years? This is yet to be seen, but certainly the growth of technology combined with the generalized fear factor at work in this country make the scenario possible. While the remainder of this paper deals with the "nearer" future related to schools and schooling, it is surely important to consider what the longer-term prognosis may be – and how that eventuality will affect, and may be affected by, the trends and issues that will come sooner.

Trends of the Nearer Future

Though this paper first looked at a scenario of what education in the United States may look like in the longer term, the question remains: "What can we expect regarding education and the place we call school over the next ten to twenty years?" Presented in the following pages are eight educational and societal trends and related issues that are operating in this country that may greatly impact schooling for decades to come. In some cases the trends are complementary – that is, one reinforces the likely occurrence of the other. However, in other instances, the more likely one trend, the less likely the other. Where appropriate, these relationships are discussed. It should be noted that while the trends are numbered, they are not necessarily presented in order of importance, or likelihood of occurrence.

Trend 1: The "Baby Boomers" Versus the "New Majority"

What Is Occurring: The changing demographics of our nation will make educating our youth in the next few decades tougher than any time in our history. The most politically powerful group in our society in the next twenty years will be the baby boomers. The first baby boomers, that American generation born starting right after World War II, will begin reaching retirement age before the year 2010 (Weiss, 2002). By the year 2025 approximately 65 million people who are 65 years of age or older will reside in this country – more than double those in that age range today. And, not only will their numbers increase – but so, too, will their proportion in relation to the total population. While a little over 10 percent of the population in America is 65 years of age or older today, by 2025 this group will constitute one out of every five people in this country (U. S. Census, 2004).

At the same time, the demographic makeup of children of this country will change dramatically as well. In 1980, about seventy-five percent of this country's school-age population was white, with relatively few children in our schools being identified as African-American or Hispanic. Current projections indicate that by the year 2040, white children will comprise less than half the total youth of the United States (Day, 1996, U. S. Census, 2002) . In fact, in combination, the historically minority school populations, Hispanics and African-Americans, will constitute the majority of American youth. Demographics indicate that this "new majority" will, on average, come from homes where: the chances of living in poverty are greater; parents are less likely to be well educated; access to pre-school experiences to develop school readiness skills is limited; and health care is insufficiently addressed (both pre-natal and natal) compared to what American schools have experienced in the past (Hodgkinson, 2003).

The Issues: The baby boomers will have the numbers and the wealth to exercise great control over the political process. As they reach retirement age, they will have little direct contact with schools and, thus, will be reluctant to support taxing themselves to operate something in which they see little personal benefit. Instead, the baby boomers will demand that public dollars be spent to reduce their health care costs, to build adult recreational facilities, and to maintain good roads so they can travel. And, their demands will be listened to because they will control much of the wealth of the country, and because they are, and will continue to be, politically active.

While an aging population will tend to resist being taxed, especially without obvious direct benefit, the predicament of the next generation of students in American schools will be dire. Since children of tomorrow's schools, coming more and more from diversity, will often a) possess fewer "readiness skills" for learning, b) have a greater chance of physical, mental, and/or social "development delays," and c) come from less stable home environments when they enter the formal educational setting, they will require more assistance from the educational system than ever before. To insure that these students are well-educated will require significant expenditures of resources to offset pre-existing learning/ developmental hurdles. For example, it is likely that more children will be identified as "special needs" students, requiring more intense educational and psychological services. Classes will need to be smaller to allow teachers sufficient time to work with students individually to overcome learning deficiencies. And, because many of these students will be poor, greater pressure will be put on schools to provide an increasing array of basic human services including not only lunch (as well breakfast and even dinner), but health care, after school care, individual and family counseling, and public transportation – as fewer students will have parents at home to drop them off and pick them up at school.

What This Means Regarding School Facilities: At the very least, educational systems will find it increasingly difficult to convince taxpayers to support bond referenda to build new schools and/or remodel existing ones. At the same time, school facilities themselves will need to be used more completely than ever before. In effect, to meet the needs of the next generation of parents and students, schools must be virtually full-service community education centers that are open year round, including evenings and weekends. And, these schools will likely require more space as class sizes are reduced to enhance learning, and as more ancillary services spaces are needed for social workers, nurses, etc.

Unfortunately, unless educators and policymakers find a way to connect an aging population directly with schools, and convince the baby boomers that schools are a direct benefit to them, a major crisis will develop. At a time when America will in fact need more money to operate, maintain, and construct/remodel schools, the funding may well not be available – at least from direct taxation of the general population. One answer to all of this is to make school facilities truly community facilities – places retirees may come for general health care services, recreation, meals, personal development through use of art and music spaces, and even added fulfillment through working with students at-risk who desperately need individual guidance and tutoring.

Policy Implications: If an aging population is to be expected to continue to pay for school facilities for coming generations of children, educators and policymakers should explore ways to

re-conceptualize the place called school. To continue to be viable, schools need to be viewed as centers for not only children, but adults as well. Policymakers and educators should work in concert to define "school" to be a place that any member of the community, regardless of age, can come most anytime for personal development, human services support, and human interaction.

Trend 2: The Struggle For Control of American Education

What is Occurring: A critical factor related to what schools will look like in the future, both in terms of what is taught and the physical appearance of facilities themselves, has to do with who, if anyone, will govern education in this country. Presently, there are at least five schools of thought regarding how education should be managed or administered. These range from the perspective that education, particularly public education as a system, is working well -- to the viewpoint that the "public" in public education needs to be abandoned, with total control and responsibility resting with the consumer.

The five different perceptions of how education should be governed can be likened to how best to handle providing one's personal transportation. Some argue that the education system, like a good car, needs periodic tuning up, but otherwise is completely satisfactory. Others want to keep the car, (that is, public education generally in its current form), but suggest it needs some major repairs, an overhaul, if you will. Yet others suggest that education is a public responsibility, but one that needs to be delivered in a different way – replacing the outmoded car with a new one. Still others contend that even getting a new car is not enough. They believe that the only way to assure quality education in this country is to move to a new mode of travel. And, though not garnering much public attention at this time, a relatively revolutionary fifth position as to what education should be (or in reality should not be) in this country is being touted by some members of the American society. Those in this camp argue that education is a commodity – something that consumers need to purchase themselves, based on what they want for the children and themselves. Thus, the "public" in education should be totally removed, including taxpayer financial support.

Fine Tune the Car. Many writers, including Gerald Bracey (2003), marvel at the success America has had with its public education system, especially considering the demise of other social institutions such as the family and the church. And, those who argue in favor of the current system of public education suggest that those who disparage the system do so to promote political agendas. Bracey and others cite the remarkable success of public education even as the student population served has become more and more diverse.

Those favoring public education as it is now structured and governed point out that the system has in fact regularly fine-tuned itself as changing expectations and challenges have presented themselves. Such modifications as block-scheduling, year-round schools, looping, magnet schools, specialized learning centers for the arts and career training, interdisciplinary teaching, and initiatives to replace school attendance zones with public choice among schools in a district are offered as examples of how education has effectively changed with the times. For those who support the current system of education, the primary criticism has been that the "public" in education is not fully addressed. For example, Stephen Kozol (1991), in *Savage Inequalities*, laments that the variation in quality of education, depending on where a child lives in this country, is so immense that a greater federal role is needed. Only through involvement of the U. S. government in equalizing educational funding across states can we assure that all students have opportunities to experience academic success.

Overhaul the Car – Change Out the Engine. There are others, though, such as Diane Ravitch (2002) and Chester Finn (2005), who argue that public education is encased in an entrenched bureaucracy that destines it to be mediocre at best, and certainly to be cost inefficient. Those with this perspective support public funding of education but indicate that the car needs a new engine – that being charter schools. Charter schools are publicly funded schools that operate outside the normal local and state bureaucratic framework. As Joe Nathan (1996), a nationally recognized expert on this movement points out, charters, or contracted schools, are developed by a private or public group that delineates the curricular focus of the proposed school, its delivery system, and its expected outcomes. An approving agency then reviews the charter proposal and, if suitable, grants the chartering group permission to operate the proposed school for a specified length of time. The charter then is reviewed periodically by the approving agency to determine if the school is fulfilling its contract regarding student outcomes, etc. As opposed to traditional public education where students often are assigned to a particular center based on prescribed attendance lines, students and their parents decide whether or not to attend the charter. Also, as opposed to traditional public schools, students may be dismissed from a charter for not fulfilling specified academic and behavioral requirements.

Those favoring charter schools as a better approach to delivery of education cite the contractual nature of this alternative as enhancing the likelihood of academic rigor, since charters are renewable. If a school does not perform up to expectation, the approving agency may well cancel its contract to continue to operate. Proponents of charters also argue that these schools can be much more creative and "cutting-edge" since they are largely free of the burden of bureaucratic rule and regulation. As a result, such schools are much more apt to find better ways to enhance learning and teaching. Further, proponents argue that because parents choose the school, there is a higher level of commitment on the parts of the parent and the child. However, charters are certainly not without their critics. As the Education Commission of the States (2005) points out, some opponents argue that charters are an attempt to re-segregate schools along racial, socio-economic, and moral belief lines, and that students with disabilities or limited English proficiency are not adequately served.

Get a New Car. Another perspective on what the governance of education should look like in the 21st century

proposes removing everything but public funding and oversight from the current approach. In effect, private entities would contract with the government, whether it be a local school board or a state board of education, to operate schools. Removed entirely would be the bureaucracy now in place in terms of public education employees, whether they be teachers, custodians, media specialists, or principals. The governmental agency granting the contract to a private sector provider would first solicit bids based on a detailed RFP, which would document expectations in terms of student performance. This "privatization" of public education is not new. School districts have long contracted out certain functions, including custodial care, bus transportation, food service, low-incident maintenance jobs, and even some psychological and special education tasks. What is relatively new in this approach is the contracting out of all of the education-related functions including basic classroom instruction (McCauley, 2004).

Those promoting this approach argue that it instills good business practice into a public function. Those providing the educational service must do two things. First, they must be able to deliver education in a cost efficient manner. If they cannot, the granting agency may well go with a lower bidder. Second, though, not only must the private sector provider offer to deliver the curriculum cost efficiently, that provider must also produce strong academic results. If not, then the granting agency may well void the contract, or at subsequent renewal points go with a different vendor. The most notable private sector provider has been Chris Whittle and his Edison Schools corporation, which has contracted to operate schools in various parts of the country. According to the organization's website, it has been instrumental in increased academic success in such urban settings as Philadelphia, Pennsylvania (Edison Schools, 2005).

However, as with the other possible education governance structures presented in this paper, the privatization model is not without critics. Critics point to a 2003 U. S. General Accounting Office (GAO) (2003) report that analyzed the success of privately managed public schools compared to matched publicly run schools. No significant differences in performance were found.

New Mode of Travel - Education's Version of the "Segway Human Transporter." The gyroscope-assisted "Segway Human Transporter," a new personal transportation device, is capturing the imagination of many in this country who see it as a more energy-efficient, flexible alternative to automobile travel. While the three different views presented so far as to how education should be structured have maintained a major "public" component in the control mechanism (keeping the car), there are those such as Terry Moe (2002) who contend that the "public" in education largely should be limited to providing resources to parents who then choose not only the form of education their child receives, but who delivers it. Providing a completely new mode of transportation (an educational version of the Segway Human Transporter, if you will), means removing most of the public bureaucracy controlling education and entails providing tax credits or vouchers that parents use in making individual choices of school – whether they be public, private, and/or religious. Those in favor of vouchers and tax credits argue that education is then placed in a "free market" environment, where staying in business for a school means producing results at a reasonable cost. Unless a school performs satisfactorily under this model, clients, the parents in this case, will cease to fund the school, and it will go out of business. Proponents insist that vouchers and tax credits bring full accountability to educating America's youth.

However, as with the other education governance options, significant opposition exists to implementation of such a free market system. Alex Molnar (1996) sees vouchers as "bad public policy in almost every way you look at it." He raises particular concerns about the impact of vouchers and tax credits on the separation of church and state. He also worries that, without governmental control, extremists could well promote unhealthy philosophies under the guise of a school curriculum.

Let Individuals Choose Their Own Form of Transportation. In a real sense, this perspective to schooling would return America to its original approach to education – a fully free market commodity. Proponents would argue that education is not mentioned in the U.S. Constitution and is not an inalienable right that must be provided by and/or protected by government. Instead, it should be viewed as a free market good that individuals buy in the quantity and quality they deem appropriate. Government should not dictate how much or what type of schooling parents choose for their children, or provide governmental subsidies to support the educational market (Peterson, 1984). Such things as compulsory attendance laws should be done away with (McGhan, 1998). While, for many, this likely is an extreme view of how education should be dealt with in this country, it is not without its supporters, and some argue that this view of the place of education in our country will grow as our population becomes more diverse, and as the baby boomers become more and more reluctant to support their own taxation for a service from which they see little direct benefit.

Of course, there are many who vehemently argue that education is the lynchpin of American democracy and needs not only to be provided with public support, but must be overseen by the public to insure children are effectively educated to live and work in a free society. From historical proponents such as Horace Mann and John Dewey, to today's advocates (Wynn, 2000), public education has been presented as the reason this country is free. And, each would argue that disassembly of public education as Americans now know it would be the first step toward dismantling our democracy.

The Issues. What education should be and how it should be governed in the United States is in great debate. Significant political efforts are being made on the one hand to strength public education within the context in which it has long operated. At the same time, powerful political efforts are underway to convince the American public and federal and state officials to open up the education enterprise to the free market. If vouchers and tax credits do come into general practice, the question becomes, what impact will this have on public schools and the school systems that operate them? Will

enrollments decline dramatically? Will public schools become the "pauper" schools of old, serving only those who have such limited resources they can't go elsewhere? Will the focus on "free market" drive how school success is defined even farther toward reliance on standardized test score results to measure school success - since numerical results are easier for the lay public to understand when comparing schools? And, if public schools remain largely intact, will public school choice create nightmarish problems related to a) transportation, b) under-utilized schools, c) schools with too great a demand for capacity, and d) recruiting teachers into unsatisfactory schools? The truth is, no one is really sure what school governance will look like in ten years, much less 25 to 50. However, until the debate is completed, and a general direction agreed upon, providing such things as adequate school facilities in appropriate locations becomes a major challenge.

What This Means for School Facilities. Historically, schools have been built to last 50 years and, though the population within a school community may well shift during that period, adjustments have been made in attendance lines to provide it with a full student population. As choice in various forms emerges as an education governance option, how to efficiently use existing facilities becomes a challenge. If parents don't elect to go to school A, whether because of the school's poor performance or its curricular focus, and it sits half full, how do educational leaders explain to the taxpayers the need to spend several million dollars on school B because of high demand on the part of parents to have their children attend this already overcrowded facility?

And, if there is a strong probability that education vouchers and tax credits eventually will be widely approved for use in the private sector, must not public school systems pursue long-range school construction plans with great care? It is not impossible to envision a scenario where a public school district in anticipation of growth constructs a new school, only to find that a newly approved voucher system leaves the public school greatly underused.

Further, if schools for the most part eventually will be schools of choice, whether public or private, does not the whole issue of what constitutes school facility equality have to be rethought? In the past, the public has generally judged whether their school facility was comparable to others by "counting" what was available. If another school had two art rooms, then fairness would dictate that all schools have two art rooms. However, with choice, for schools to be competitive and draw clientele, they will need to have an identity – something that attracts customers. That identity may take the form of a school becoming known for its fine arts curriculum, while another sells itself based on its use of technology in teaching and learning. As schools develop different "personalities," they will necessarily, then, be physically different. While one may need three art labs, the other may need three computer labs instead. Thus, equality of facilities as measured by "counting" will have to give way to helping the public understand that what is important is that each school have the unique facilities to support its unique program.

Policy Implications: Before decisions can be made about how to best provide children with adequate school facilities over the long term, policymakers, educators, and the citizenry must come to closure on what the governance structure of education in this country will be into the foreseeable future. So long as the debate continues about how education will be governed, planning for and building brick and mortar structures that last fifty years remains a risky business at best.

Further, policymakers and educators must rethink how equity in school facilities is defined. A school has adequate facilities when there is sufficient and appropriate space to house the programs offered by that school. The mindset that fairness means that all schools must have a cookie-cutter curriculum and, thus, cookie cutter shapes for facilities, must be replaced with the concept that schools and, thus their structures, need to have unique personalities.

Finally, if states and the federal government do generally embrace education vouchers and tax credits, careful thought must be given to how to provide capital funding so that students have adequate, safe facilities wherever they choose to attend. Thus, policymakers may well want to consider including a funding component within the voucher concept to be used for school construction, upgrading, and maintenance. In addition, because physical environment is critical to both the academic success of children, and to their safety and wellbeing, policymakers may well want to require any school receiving vouchers to meet specified building and environmental codes.

Trend 3: Defining What Schools Will Teach

What Is Occurring: Currently, educational accountability as measured by prescribed indicators of academic success (standardized test scores) dominates discussions about what should be taught in school. Some are excited by the potential of greater accountability and already see that the movement is producing results (Reville, 2004). Others fear that the focus on test results too narrowly defines what schools should impart to the youth of America (Smith, 2004).

Some educators have accepted accountability as the primary driving force in schooling into the foreseeable future. Whether they personally believe that such accountability is what schools should be all about, they have accepted the challenges of producing good academic outcome results, and eagerly seek out ways to garner even more positive results (Hamilton & Stecher, 2004). However, others continue to fight for a broadened definition of what schools should teach and what teachers should be held accountable for in the educational process (Droege, 2004). While some see schools of the future as places that teach little more than what is tested, others envision schools as places that "educate the whole child." The question becomes, which of these two schools of thought will prevail?

The Issues: Concurrently, taxpayer reluctance to fully fund schools in many places has put pressure on educational systems, both state and local, to prioritize how limited resources will be used. Because of state accountability

requirements and the demands of federal legislation such as No Child Left Behind, more and more educators are finding themselves having to reconsider the practicality of committing resources, including personnel slots, to programs and courses not directly related to what is formally being tested and reported to accountability agencies and to the media. Everything from driver's education, to the fine arts, to vocational/career education, to co-curricular programs such as athletics are being scrutinized in terms of importance and relevance to the central mission of schools. And, in many places such programs are being curtailed, if not eliminated.

Further, because testing is so "high stakes," schools are counseling individual students away from non-tested courses to those that are. Particularly if a child is performing poorly in something like math or English, he or she is being told that, instead of taking band or art, the student should take a second course in the content area in which he or she is weak. In effect, the assumption that schools are places that provide a comprehensive education for all children – or a well-rounded education – does not hold true for every student.

It is not difficult to imagine the curriculum in schools of the future as being very basic – that is, composed primarily of standard academic courses comprised almost exclusively of an "academic" curriculum with few or no "non-essential" subjects. In such settings, anything defined as "non-essential" would either have to be taken outside the school setting, or paid for as "extras" by parents and their children. In fact, in many places across the country students and/or their parents are already finding that they must pay for participation in co-curricular activities and furnish their own supplies, instruments, and clothing (or pay an added fee) for such subjects as art, music, physical education, etc.

A basic question regarding what should be taught in school, or what should be experienced in the educational process is, "What do Americans actually want students to learn and know as a result of taking courses and attending classes?" Some argue that the responsibilities of schools have been too broadly defined, making the job of educators nearly impossible. Others also argue that education has usurped the responsibilities of home, church, and community. They argue that schools should not be using limited resources to teach morals, promote respect for diversity, and/or defend/advance theoretical positions that are in conflict with religious beliefs. From both of these viewpoints, schooling should be very basic, that is, focused on teaching the traditional academic content.

On the other hand, there are those who see the education system of this country as the logical, and some would argue only, place to a) promote a democracy, b) encourage multi-cultural understanding, c) create a love of life-long learning in its broadest context, and d) assist future generations to develop an appreciation of quality of life (as at least partially defined to include an appreciation for the arts and a desire to participate in life-long physical activities). Those with this perspective insist that by limiting the school curriculum to a strictly academic focus we are missing a unique opportunity to develop students into well-rounded members of society. From this vantage point, schools are viewed as places that should in fact "educate the whole child."

What This Means Regarding School Facilities: Schools are extremely expensive to build. And, in reality, the more complex and varied the curriculum, the more costly is the facility. If schools are going to provide a curriculum to "educate the whole child," they will have to have appropriate spaces for fine arts, intramural and interscholastic activities, driver's education, vocational exploration and training, and for group and individual career and personal counseling. However, if the educational curriculum continues to become more narrowly defined in the coming decades, focusing on the core basic academic subjects, then construction and maintenance of such specialty spaces would be a waste of limited capital revenue. In effect, school facilities must be a reflection of what Americans expect to be taught in school, not what has been taught/offered in the past.

Policy Implications: Educators and policymakers should explore ways to work together to define what schools must teach. Unless curricular pre-determination is accomplished effectively, schools may well be under-built in some academic areas while expensive specialty spaces sit empty part, if not all, of the school day. Educators and policymakers also may want to explore alternative approaches to funding co-curricular programs and the facilities that house them. As an example, school systems could investigate paying for such spaces as gyms, dance studios, driver's education facilities, student parking facilities, etc. through special fee assessments – assessments that both students and community members would pay for use of these specialty facilities and the programs offered within them.

Trend 4: Instructional Delivery – People Versus Machines

What Is Occurring: A significant debate is occurring regarding how students will be instructed in the future. Linda Darling-Hammond (2000) and others insist that the only way to improve learning in this country is to more fully professionalize teaching. Those holding this perspective insist that research is clear that better trained teachers produced better academic outcomes. Darling-Hammond and others are promoting higher standards for admission into the teaching field, more sustained and rigorous preparation to teach, and higher pay, comparable with other professionals, in recognition of heightened teacher skills, knowledge, and productivity.

Others argue that this is not actually necessary. Teach for America, originated by Wendy Kopp, is based on the premise that if the "best and brightest" recent college graduates in content areas (such as math, science, economics, social science, etc.) are willing to enter teaching for a few years, students in K-12 schools will greatly benefit in terms of academic performance (Stanford Graduate School of Business, 2005). Kopp and others believe that the mechanics of teaching, the pedagogy, if you will, are relatively easy to coach and do not require the myriad of courses and time demanded by traditional teacher education preparation programs.

Yet others insist that the realities of the shifting demographics of America will mandate a greater and greater reliance on technology (Snyder, 2005). Their argument is that it is inevitable that tax dollars for education will diminish over the next twenty years as baby boomers reach retirement. Since personnel costs for schools constitute 85% to 95% of the total operating budget, they see schools and school districts replacing teachers with technology. In this scenario teachers in schools in the future, instead of becoming more "professional" in preparation and status, will become more "technical."

In this model, expert teachers, course designers, and instructional technology specialists would develop a complete curriculum that could be delivered through computer and telecommunications technology to any school in the country. While the original development costs would be high, once the course (or series of courses) was ready for delivery, schools could offer these relatively inexpensively by providing a viewing/computer work area for students, and by having, on site, instructional technology support personnel to assist students in accessing the course material electronically, to deal with technical glitches as they arise, and to maintaining order and insure students complete their own work. These support personnel would not necessarily need a 4-year college diploma but, rather, would more likely have a 2-year technological degree in instructional management. Since learning would be largely technology driven, and the expense of hiring 4-year college-trained personnel would not be necessary, schools and school systems would reduce costs substantially. At the same time, quality would be maintained since the curriculum would be delivered through the latest technology by someone of nationally recognized expertise in both teaching and the particular content area.

Still others envision a "middle ground" between the above extremes. In this third scenario expert or "master" teachers are found in individual schools. They are highly trained in both their content area and in the use of technology in instructional delivery. However, in this model, tomorrow's schools are organized much more like doctors' offices than what they look like today. As with the medical model, instead of the teacher doing all the mundane, routine tasks related to teaching, educational technology specialists, much like nurses and medical technicians found in doctors' offices today, would work under the guidance of the master teacher to carry out these responsibilities (Stevenson, 2002).

In this set-up a master teacher might be assigned one-hundred students and four instructional technologists. While the master teacher would be in charge of "diagnosis" and "prescription" for each child, the technicians would carry out much of the actual instruction under the supervision of the master teacher – much as a nurse or medical technician takes blood, administers shots, and makes sure materials are available for the doctor when professional procedures that only the doctor can perform are necessary. In effect, the highly professional teachers that Darling-Hammond envisions are found in the schools in this model, but so are technicians who protect the professional from being overwhelmed with the "administrivia" often associated with gearing up and gearing down related to instruction. And, operational savings accrue because, instead of having to fund four or five professionals for a group of one-hundred students, only one, like the doctor in the medical office analogy, leads technically trained, 2-year degree personnel of lesser pay.

The Issues: With the increasing teacher shortage, especially in content areas like mathematics and the sciences, schools and school systems are struggling to place "highly qualified" teachers required by No Child Left Behind federal legislation in every classroom. And, much of the teaching corps of today is made up of the members of the baby boomer generation who will begin to retire in large numbers within the next five to ten years. Further, the traditional sources of future teachers in this country are drying up as both minorities and women are finding that heretofore inaccessible occupations are now open to them. No longer is being a teacher or a nurse their only options. And, as pointed out earlier, the likely reality is that the educational system as a whole will face increased resistance from the citizenry to support tax increases necessary to improve teacher pay, thus reducing the ability of schools to attract and retain highly qualified individuals in the teaching profession.

For all of these reasons, providing effective teachers for classrooms across America will reach crisis proportions shortly. As this happens, a crossroads will be reached at which the citizenry will have to find a way to balance the need for providing quality teaching for an increasingly diverse, at-risk student population with an aging population's desire/need to protect a limited/fixed income.

What This Means Regarding School Facilities: Who teaches and how teaching occurs will affect the basic design of school facilities. If the future is such that for each 20 to 25 students there will be a professional teacher housed in a traditional classroom, schools will look very similar to what one sees today. However, if teaching and instruction become more "electronic," then schools may take on largely new configurations with students assigned to telecommunication cubicles that have the appearance of modern commercial offices of today. If the "medical model" comes to the fore, then schools will take on yet another appearance – with "diagnostic" rooms, "treatment" facilities, and "consultation" rooms. Places for large and small groups and for individual student activities will be necessary as the "doctor" and his/her technicians gather and re-gather students for prescribed lessons and learning experiences.

Policy Implications: Educators and policymakers should work together to create a shared vision of what teaching will be and who will teach in the future. The development of the shared vision needs to balance the importance of having high quality teachers to instruct our children against the funding realities of the coming decades. School facilities, then, should be funded and designed to support the shared vision of what instruction should be and who should deliver it. Without a clear vision of what instructional delivery will be in the future, schools constructed today may well be obsolete tomorrow – a costly error in a time of extremely limited capital revenues.

Trend 5: Smaller, Neighborhood Schools

What Is Occurring. The premise for most of the 20th century was that "bigger is better" when it comes to school size. Over the past seventy-five years in the United States the number of school buildings has decreased from almost 250,000 to approximately 95,000 (Kennedy, 2003). At the same time the K-12 public school enrollment has risen from about 28,000,000 students to over 53,000,000. Throughout the country small schools have been consolidated into larger ones, based on the belief that larger schools are able to provide a more comprehensive curriculum, and do so more cost effectively.

However, the concept that "bigger is better" is being dismissed by more and more educators, parents, and policymakers. Instead of school consolidation, school districts and states are considering "deconsolidation," a return to smaller schools within defined neighborhoods and communities. In such states as Florida upper size limits for schools have been legislated (The Rural School and Community Trust, 2000). The National Association of Secondary School Principals (NASSP), after studying how to better insure that high schools effectively educate students, recommended that high schools be limited in numbers of pupils served for optimal results (NASSP, 2004). And, some educational leaders who have operated successful schools for at-risk students, such as Deborah Meier (1995), argue that no school should exceed 300 to 400 students.

Some researchers such as Kathleen Cotton (2001) are convinced, after reviewing all the available studies on school size, that smaller schools produce better academic results. Some studies on size also indicate that there are fewer discipline problems in smaller schools and fewer dropouts. In fact, some researchers argue that, though it first appears that larger schools are more cost-effective to operate, if the dropout/graduation rates are taken into consideration, smaller schools actually are more cost efficient (Howley & Bickel, 2002). Further, recent research has suggested that larger schools are less likely to be attractive to prospective teachers and principals (Tobin, 2005), and that gang-related activity is less likely to be present in smaller schools (Watson, 2005).

Parents and small communities in particular are increasingly strong advocates for smaller schools. For parents it's a matter of feeling that their child is safe and that the child has a realistic opportunity to participate in various co-curricular activities. When parents look at large schools they see "factories," or places where students have little chance of being known as individuals. They also view large schools as places where only the best-of-the-best get to participate in such things as scholastic sports and the debate team, and/or to be class president. In small schools parents see places where they feel their child is known as an individual, and places where the child has multiple opportunities to be involved in co-curricular activities (Raywid, 1999).

Neighborhoods and small communities, on the other hand, view small schools as a key to survival. Many members of small towns across America relate the demise of their once prosperous communities to the day when the local high school was closed. Neighborhoods and small communities have come to understand that having a school nearby provides a major attraction in terms of drawing new people to these areas – and keeping the ones already there. Further, particularly in more rural settings, the only major source of community activity, other than church, is the school. In such communities neighbors and town people readily anticipate the high school football game on Friday night, or the junior class play each spring. Literally, without the local school, many communities across the country would be without a focus to provide an identity for those living in these settings.

The Issues: The return to the concept of smaller, neighborhood schools has several positive implications for education in general. Since small schools usually are located in readily identifiable neighborhoods, parents and community tend to take much more interest in them, and to relate to them on a personal basis. Historically, parents and others have rated their own schools much more positively than they rate education in general (Rose & Gallup, 2004). As additional schools become more closely associated with specific communities, the overall view of the productivity of the educational enterprise may well improve substantially. And, locally, at least, communities may be more willing to invest in the schooling process through higher taxes, more volunteerism, and private sector involvement and support than would be the case if the school were located away from the immediate area.

On the negative side, however, several factors come into play. First, though a cursory glance at the literature tends to support the benefits of smaller schools, closer examination reveals that there are a number of well-designed studies that tend to either find no effects of school size on student outcomes or, in some cases, suggest that bigger is in fact better (Durbin, 2001). Even Craig Howley and Bickel (2002), small school size advocates who have conducted numerous studies on the topic, conclude that the effect of smaller schools may vary with the type of student. They suggest that students who are at greater risk of not being successful in the educational process may perform better in small schools while high socio-economic status youngsters may benefit more from the diversity of curriculum and faculty expertise found in larger schools.

As noted earlier, from a sociological perspective some well-known educational researchers and writers fear that as a society America is fragmenting – that is, partitioning itself off into smaller and smaller miniature closed societies (Degrees of Separation, 2005). Within these miniature closed societies beliefs and perspectives tend to be narrowly defined. Viewpoints different from the community norm are not readily tolerated. In fact, those not thinking as the miniature closed society thinks may well be encouraged in various ways to leave, and if they don't, may be persecuted until they do so. Said differently, some fear that a return to the small neighborhood school concept, if not carefully thought through, will encourage re-segregation, increase intolerance, and generally promote isolationism. In such a scenario neighborhood schools could come to be centers for passing

along a community's biases, prejudices, animosities, and hatreds about those of other communities of different color, socio-economic status, beliefs, and/or customs.

What This Means Regarding School Facilities: The return to smaller schools has significant ramifications for the field of school facilities. First, and possibly foremost, smaller schools will necessarily require more educational facilities, increasing the capital costs to house students. For example, a district needing to house 1,500 high school students that decides to do this by constructing two high schools for 750 pupils each will have the expense of a) two sites and b) several sets of duplicated facilities in the form of cafeterias, media centers, athletic space**,** administration, and guidance facilities, Compared to the cost of constructing one school for 1,500, two schools would be noticeably more expensive.

An accompanying consideration would be what to do with large schools many districts already have in operation. For example, if a district has a high school that can house 1,800 students, will taxpayers be supportive of constructing another high school so that each has only 900 students? With an aging population, many on fixed incomes, it is doubtful at best. An alternative approach to achieving smaller schools without having to expend large sums of money for new buildings is gaining popularity across the country. This movement focuses on creating schools-within-schools. For example, a school of 2,000 students would be divided into four largely independent units under one roof. Each unit would have its own section of the building, and its own set of administrators and teachers. However, the units would share core facilities such as the media center. Such an approach creates small within large while maintaining the economies of scale. However, the disadvantage of schools-within-schools is that they are still part of a larger entity that likely does not have that ready identification with smaller, distinct neighborhoods and/or communities comprising the school's attendance area.

A second concern regarding the smaller schools movement is that research is still ongoing as to whether such schools actually produce better results. Some researchers such as Karen Irmsher (2004) and Ken Stevenson (1996, 2001) have suggested that size by itself is not the real issue. Instead, size is indicative of other factors that more directly impact on learning and teaching – such as the ability to interact on a personal basis with teachers, to have sufficient resources so students have cutting-edge instructional materials, to attract and retain good teachers, etc. Some studies have actually found that in terms of academic outcomes as well as teacher and student attitudes toward school, size has no bearing (White, 2005, Cauthern, 2004). Yet others have found conflicting results depending on grade level. In two separate state-wide studies within the same state, larger high schools were found to produce better test results than smaller ones (Durbin, 2001) while smaller middle schools were found to be more effective academically than larger schools (Roberts, 2002). Though "smaller is better" is a very popular political position regarding schools, the sampling of research presented above indicates that there still is much to be learned before the concept should be unilaterally mandated across K-12 education.

A third concern related to the small schools movement is connected to the current teacher shortage, especially in math and science. In larger schools there is greater efficiency in the use of teachers and their particular expertise. For example, in a high school of 2,000 there likely would be sufficient demand to have full-time, especially trained teachers in biology, in chemistry, and in physics. In small schools, to have several science teachers, each specifically trained/expert in one particular area of science, would be cost prohibitive. In reality most small schools must rely on science generalists who teach across the sub-specialties of the field of science. Thus, in small schools students may not get the depth of instruction in some aspects of science that they would in larger schools. While in the future technology will at least partially solve this problem by electronically bringing science specialists into classrooms via telecommunication, the question remains – From a facilities perspective, should small schools be planned to include science facilities that, though expensive, may not be fully used and/or, in anticipation of electronic learning, should such schools focus on providing virtual learning modules that serve a few students at any given time?

Policy Implications: While "smaller is better" first appears to be a constructive approach to improving schools, policymakers and educators need to more fully study its pros and cons before universally mandating smaller schools. There are cost issues, social/cultural considerations, and even questions about whether research supports better academic results that need further study. Without such study, the movement to smaller schools may not only be an unwise use of limited tax dollars, but lead to a further fragmentation of American society, and exacerbate the already critical teacher shortage.

Trend 6: Smaller Class Sizes Versus Technology

What Is Occurring. Research focused on the impact of teacher/pupil ratios on student outcomes, such as that of the historic STAR Project (Finn & Achilles, 1990) in Tennessee and the SAGE Project (Molnar, 1998) in Wisconsin, has been a driving force in a national movement to reduce the number of students assigned to a teacher's classroom. Using such research, local districts, states, and even the federal government have initiated comprehensive programs to reduce class size. For example, in the 1990s California legislated a significant reduction in teacher/pupil ratios in all K-12 schools across the state (Bohrnstedt & Stecher, 2002). In 2002 the citizens of Florida amended the state constitution to specify the number of students who could be assigned to public school classrooms throughout the state (Winn, 2005). South Carolina, as part of its 1998 Educational Accountability Act, specially allocated new funding for reducing classroom size in grades 1 through 3 (SERVE, 2004). And, in 1999 the federal government through the Class-Size Reduction (CSR) Program, authorized in PL 105-277, committed over a billion dollars to fund class size reductions in schools across the country (Millsap, et. al., 2004). The intent of the legislation is to eventually reduce class size in grades K-3 to 18 pupils and, as a result, improve student outcomes.

Unfortunately, in the rush to reduce teacher/pupil ratios many schools, districts, and even states and the federal government have placed unprepared or ill-prepared teachers in spaces not suited to be called a classroom. As a result, research on the effect of current smaller class size initiatives is, at best, mixed. In a study of California's class size reduction initiative, researchers found that teacher qualification levels declined as districts struggled to get adults, prepared to teach or not, into classrooms. While the study found that children did in fact receive more individual attention, the curriculum itself changed little. And, while there was a small, persistent improvement in student achievement in the general school population, special population students did not do as well as in the past (Bohrnstedt & Stecher, 2002).

In Florida the constitutional amendment created a logistical nightmare. Any space that could be appropriated as a general classroom was mustered into service as districts sought rooms to house all of the teachers required to achieve the mandated classroom student enrollment limits. As a result, specialty programs such as music and art often found themselves "floating" with a cart from classroom to classroom. And, funding has become a real issue as the state struggles to put the constitutional class size mandates into practice. It is estimated that Florida will need to spend upward of $30 billion dollars within a decade to fully implement the required teacher/pupil ratios (Wynn, 2005).

However, this is not to say that the findings from the Tennessee and Wisconsin studies have not been replicated. In a small scale study in South Carolina, Gilda Outz (2004) analyzed the effects of a combined teacher/pupil reduction and reading literacy initiative on an elementary school serving a high risk student population. Students improved their reading proficiency significantly, with the percentage of students in that school scoring basic or above on PACT (a state educational accountability test) comparing favorably with the performance of students in a more affluent comparison school (73% vs.75%). However, a relatively recent issue being raised is whether the cost of lowered teacher/pupil ratios is the best use of limited educational dollars (Laine and Ward, 2000).

The Issues. While few argue the potential effect of reducing class size, a growing number of researchers and policymakers are questioning whether the huge expenditures of funds are the most efficient way to attain the desired levels of improved student achievement. One argument made against reducing teacher/pupil ratios is that, unless educators change how students are now taught, fewer students in a classroom will not automatically assure better results. A second concern about the efficacy of smaller numbers of students in classrooms is that, while student achievement may improve, there may be more efficient ways to attain the same results. For example, some research (Laine & Ward, 2000) suggests that improving the quality of teaching may enhance student performance more than reducing class size. And, some critics argue that the same results could be achieved through use of technology, while actually reducing education costs - instead of increasing them.

A third concern focuses on the basic question of whether in reality there are even sufficient resources available to fully implement class size reduction to an optimal level, often cited as 15 to 1. Critics of class size reduction point out that school districts and states must bear two significant, but very different costs, to put into practice smaller class sizes. One type of cost relates to personnel. For example, for every 60 students, a reduction of the teacher/pupil ratio from 20 to 1 to 15 to 1 requires an additional teacher. Using the national average teacher salary of approximately $50,000.00 (American Federation of Teachers, 2004), a school system with 6,000 students which wished to reduce the student/teacher ratio from 20/1 to 15/1 would need to increase its teaching staff by one-third, or from about 300 teachers to 400, and spend $5,000,000 in reoccurring salary costs – not including fringe benefits, etc.

Further, assuming the district's students were already housed in adequate permanent facilities, the school system would require 100 new classrooms for the additional teacher units. Using $120.00 per square foot for new classrooms, the median cost of school construction in the U. S. (Council of Educational Facilities Planners, International, 2005), one-hundred new classrooms of 1,000 gross square feet each would require the expenditure of $12,000,000 in capital outlay. Critics of classroom size reduction question whether the expenditure of this amount of additional money is possible in most communities, or even states, at a time of increasing reluctance of the general public to tax itself to pay for schools.

What This Means Regarding School Facilities: School classroom size reduction as a practical matter does put great pressure on local school districts and state governments to find ways to adequately fund construction of enough classrooms to satisfactorily house students at a time when capital budgets already are limited. As noted in the previous section, a reduction of five students in the teacher/pupil ratio can easily increase a school district's required classrooms by one-third. For the moment, not considering personnel costs, the question becomes -- If a school were given the equivalent of $120,000 for each three classrooms it already has (the construction cost of a new classroom), is that money better spent building additional facilities, or purchasing better instructional technology, or further developing the professional expertise of the teaching corps? Then, when bringing personnel costs into the discussion again, if for each three current classrooms, a school were given $50,000 (cost of adding a teacher unit) every year for the foreseeable future to use as it deemed best for improving student achievement, would that money produce the best results through adding teachers to reduce teacher/pupil ratios, or paying bonuses to teachers who produce good results, or increasing base teacher pay to attract the "best and brightest" to the classroom, or enhancing the technology structure and purchasing quality instructional software?

The reality is that the answers to these questions are not yet fully known, and much more research is needed before we can discern which of the alternatives, or combination of them, produces the best results for the money spent. What is known is that reduced teacher/pupil ratios will certainly add to the cost of providing adequate school facilities.

Policy Implications: Though it is very appealing to jump on the "classroom size reduction bandwagon," insufficient research exists to confirm that the costs, both operational and capital, will produce the best results compared to other possible uses of the same resources. Policymakers and educators must encourage comparative research that presents cost/benefit analyses of various alternate approaches to improving student performance. While reduced teacher/pupil ratios may eventually be shown to be the most effective, efficient means of enhancing student outcomes, it has yet to be proven so.

Expenditures of very limited construction dollars to build new classrooms necessary to add more teacher units may exacerbate existing facilities problems by channeling funding away from renovation and updating of the physical environment of the myriad of older classrooms being used across the country. Policymakers and educators will want to be sure that construction of new classrooms to lower teacher ratios does not create facilities inequities in schools wherein one child is in a modern instructional space and the other is in a run-down 50s era classroom.

In anticipation that teacher/pupil ratios may be reduced over time, policymakers and educators should require design professionals to master plan where additional classrooms would be placed on a site if more teacher units are eventually required at a planned school. Too often today's schools are constructed without consideration of future growth or change in curriculum or instruction. As a result, when new spaces are needed at an existing school, often it is cost prohibitive and logistically difficult to do so.

Trend 7: Grade Span Reconfiguration

What Is Occurring. To date, what grade levels are grouped together in a school setting largely has been haphazard at best. A quick review of grade level structures currently in operation across the country indicates that a myriad of grade spans are in use (McEntire, 2002). These range from the relatively traditional K-5, 6-8, 9-12 configuration, to districts with K-3, 4-5, 6, 7-8, 9-12 structures, to others with K-4, 5-6, 7-8, 9, 10-12. And, within the same district, grade level patterns may vary almost as much as they do across school districts.

Over the years districts have come to have the grade span structures in use for a variety of reasons (Reeves, 2005). For example, some school systems have K-5, 6-8, 9-12 structures because the number of students that must be housed best fits into the school facilities available. Others have the same grade-span structure because the high school principal wants the ninth grade with the tenth, eleventh, and twelfth graders for athletic purposes and the elementary principal thinks sixth graders are too mature to be with fifth graders. And yet others have the same grade span because a previous superintendent was a big fan of the 6-8 middle school concept but, with that superintendent long gone, that concept no longer operates though the grade pattern remains the same.

Until recently, how grades are grouped has received little consideration. But, as researchers and policymakers have begun to explore any and all possible ways to maximize learning in this day of educational accountability, grade level span patterns have begun to garner attention. And, the initial findings are interesting and sometimes conflicting. A reoccurring theme in the grade span research is that the more transitions a student experiences, (that is, the more times he or she has to change schools to progress through the grades), the greater the chance for achievement loss (Renchler, 2000). Stated differently, the longer a student stays in a particular school in terms of grades completed, the greater the likelihood that student will be academically successful. In fact, some studies in Louisiana and Texas suggest that students attending the same school from grade K through grade 12 do at least as well, if not better, as students who attend the more conventional elementary school, middle school, and then high school sequence (McEntire, 2002). As part of the growing interest in the return to smaller neighborhood schools, communities in various parts of the country are reconsidering the desirable grade span for schools. Some have implemented a K-8, 9-12 structure with only one transition. And, others have adopted the K-12 configuration noted above, eliminating transition issues altogether.

However, while some districts have moved to expand the number of grades housed at a school, others have proceeded in the opposite direction. Though there is little actual research data to support the movement, some school systems argue that breaking the grade structure into smaller segments has real benefit (NcEntire, 2002). In these districts the grade structure might well be a grades K-2 school, a grades 3-5 school, a stand alone grade 6 center, a grades 7-8 school, a stand alone grade 9 center, and a grades 10-12 high school. The argument made for this more differentiated structure is that by limiting grades served at a school, teachers can be more focused on the specific developmental needs of that particular age-range of students.

Nevertheless, research on grade span issues tends to find significant weaknesses and limitations when districts operate with multiple grade span transitions. These range from parents with two or more children in different schools having difficulty being fully involved in school-related activities, to high costs of transportation to multiple schools, to the earlier noted achievement loss suffered when children transition from one grade span grouping to the next. However, while the hard research data tend to support fewer grade spans, researchers point out that, while grade span patterns can have some impact on overall educational productivity, use of a specific grade span pattern alone by a school district does not assure academic success (Renchler, 2000; McEntire, 2002).

The Issues: As schools, school districts, and state and federal agencies work to optimize student learning, every aspect of how education is delivered requires scrutiny. A relatively untouched area related to what makes schools more or less successful is grade spans served. There is enough research emerging, as noted above, to indicate that this factor, though

not likely the primary determinant of school productivity, does play a part in how much students learn – and maybe more importantly, how much they retain. It seems that school districts would be remiss if they blithely continue on without re-examining the effects existing grade-span patterns may be having on their ability to best educate children.

Even if further research does not point to an optimal grade pattern in terms of maximizing student achievement as measured by standardized tests, other benefits may be accrued that make reconfiguring the grade spans worthwhile. For example, some studies (McEntire, 2002) have shown that the self-esteem of young women drops significantly when they leave an elementary school and enter a middle school. However, this phenomenon was not noted among young women of the same age who remained in an elementary school that housed the middle grades. And, boys who left elementary school to attend middle school exhibited lower grades and less extra-curricular activity than their counterparts who completed the same middle grades in an elementary setting.

The Implications for School Facilities: The implications of changing grade span patterns are enormous from an educational facilities perspective. A change of grade pattern could affect everything from the size and location of a potential school site, to how a building should be designed, to how to maintain separation of various age groupings of children for instructional, supervision, and safety reasons while housing all K-12 grades all on the same campus. While the literature certainly cites advantages of small, neighborhood K-12 schools, implementation of this model could increase school construction costs appreciably. For example, if a 6,000 student district decided to move away from operating its one big 1,500 pupil high school, and split its total student population into six cohorts of 1,000 K-12 students each, with each cohort housed on a separate site, remodeling and new construction costs would be tremendous. Even if the district had six existing schools that could be modified to house 1,000 K-12 students, in all likelihood most sites would have to add high school-related facilities such as science labs and athletic facilities. And, the existing high school would require substantial remodeling to house its newly acquired lower grades.

Said differently, while the concept of expanding the grade spans served by schools is attractive in concept, the challenge in implementing it in reality is that districts already have huge investments in school plants that are configured for traditional grade groupings. Making physical accommodations for new grade spans would be costly. Nonetheless, if cost/benefit analyses eventually confirm that reconfiguring grade spans is critical to student academic success, then the capital costs may be worth the investment.

Policy Implications: As noted with other trends presented in this paper, the real impact of various grade span patterns is not totally known or even understood. Even if an ideal grade span pattern is eventually identified, policymakers and educators will want to study the benefits of changing to that pattern versus the costs. As was noted in the discussion of reducing teacher/pupil ratios, research may eventually bear out that implementing a new grade span pattern may be worth the cost – or indicate that the same amount of money spent another way (new technology, teacher development, etc.) produces greater results.

Trend 8: The Physical Environment in Schools and Optimizing Learning

What Is Occurring: It is often said that a good teacher can achieve good results even if he or she has to teach under a tree. Educators also often hear an aging community member say something like, "If this school was good enough for me, it's good enough for today's kids." Interestingly, a growing amount of research is indicating that neither of these statements is true. Buckley (2004) and his colleagues, for example, after studying why teachers left the field of education, discovered that the quality of the school facility was a factor. And, Maureen Berner (1993), studying student performance of Washington, D.C. school students, discovered that better academic outcomes were associated with schools that had better physical environments Further, a state-wide study in Virginia linked school physical condition to both achievement and student behavior (Earthman, 1995). As importantly, several studies have linked the basic health of both students and teachers to the school physical environment in which they must learn and teach (Mendell, 2004).

The Issues: Educational reform has focused primarily on what is taught, and how it is taught. As a result, curricula have been strengthened, instructional strategies improved, and instructional materials updated. However, what has received too little attention is the physical environment in which education occurs. Districts are finding that they cannot attract and retain "highly qualified" teachers because they do not want to work in outdated, unattractive facilities. School systems are also finding that parents are much more discerning about which school their child will attend, including the physical appearance of the school and the amount of modern technology available. In addition, school systems have discovered that schools with "sick" internal physical environments are shunned by prospective teachers and parents alike.

What has been created from all of this is a situation wherein at least some schools are not performing adequately, not because of lack of effort, but because the physical environment either keeps the school from attracting top-notch personnel and clientele, or hinders the teaching and learning experience by requiring teachers and students to expend enormous amounts of physical and emotional energy to a) overcome rooms that are too hot, b) deal with inordinate glare, and/or c) read without sufficient lighting to view assignments accurately. The growing number of studies linking student outcomes with the physical attributes of classrooms suggests that if we are serious about optimizing student outcomes in American schools, those schools must be places whose physical environments support, not hinder, the educational process. The latest national analysis of the physical condition

of America's schools indicates that 75% of this nation's schools need to spend money "on repairs, renovations, and modernizations to put the school's onsite buildings into good overall condition." On average it is estimated that each school needing repairs requires $2.2 million dollars to bring it up to standard (National Center for Educational Statistics, 2000).

What This Means Regarding School Facilities: While teachers and teaching are the paramount considerations when seeking to optimize student learning, it must be remembered that teaching and learning do not occur in a vacuum. The physical environment in which education is delivered must be given serious consideration as the federal government, the respective states, and local school systems seek educational accountability. If one school has modern, aesthetically pleasing school facilities, while another struggles with under-sized classrooms and a poor physical environment, the playing field is not level. While a new school, or an existing one renovated so that it is the equivalent of new, by itself will not insure good student outcomes, students and teachers in such schools have a significant advantage that those in poor school facilities may well never be able to overcome. In the interest of fairness, as well as in the interest of assuring that all children have an opportunity to learn to their fullest, poor school facilities across this country need to be brought up to standard. And, "when" and "if" such schools are revitalized should not depend on whether or not a child lives in a local community that has the ability and/or willingness to pay for such upgrades.

Policy Implications: Policymakers need to give serious attention to identifying an adequate source of funding for school construction and renovation.

Policymakers and educators must design funding formulas that allocate capital dollars based on a combination of local ability to pay and the extent of the physical needs of the local school system.

Policymakers should aggressively encourage further study of the relationship of the school physical environment, including school layout and design, so that future school structures best house programs, and current facilities are cleared of environmental hazards.

Further, educators should review all school designs, both new schools and renovation projects, with health and safety in mind. In many school facilities today some of the greatest challenges are related to inability to adequately supervise the building, limit access to possible intruders, and assure protection of students using rest rooms from attacks in such places as rest rooms.

Putting the Eight Trends Together –

What Needs to be Done to Assure Good School Facilities at a Reasonable Cost?

In reality two themes run across the eight trends presented in this paper. One is that the country and its education system are in a great state of flux (Degrees of Separation, 2005). The population is becoming more diverse, as are the expectations from the educational system as a whole. Many in the United States believe that education, more than any other public service, has performed admirably, especially considering the increasingly complex problems children bring to school. Others are as adamant that public schools as now constituted are nothing more than a huge bureaucracy mired in red tape and rules and regulations that stifle creativity, limit freedom of thought, and generally promote a "big government" curriculum. With so many different and often opposing views of the purpose of education in play, it is extremely difficult for policymakers and educators to move education as a whole forward toward a shared vision of what children should learn, how they should be taught, and where and when such education should be delivered.

Let's put this conflict into a school facilities perspective – school buildings only exist to house the programs, children, and staff involved in the educational enterprise. They have no value in and of themselves. Therefore, how school facilities can best support the education of students in the coming ten to twenty years is wholly dependent upon what the educational programs will be. Since at this time there is such great lack of surety about the mission of education and who will control and deliver it, in even the near future, a critical role policymakers and community leaders can assume is helping the country in its entirety reach consensus about the role of education in American life. Facilities are extremely expensive to build and maintain. And, historically, capital funding has been extremely limited. Thus, it is imperative that we know what schooling is supposed to be before we construct its brick and mortar containers. Encouraging dialogue across all the segments of the greater community is essential to defining education and assuring, then, that facilities reflect and support it.

A second theme running across the eight trends is that funding will continue to be a growing issue. Over the next ten to twenty years the school-age population will be comprised of more and more children of diversity. These young people will require greater and greater services from schools and society in general before they can be successful in the educational process. At the same time an aging population will become more and more reluctant to tax itself for any purpose, including education. Unless schools come to be seen as integral to the lives of those without children in school, tax dollars will slowly but surely dry up for public education. Policymakers and community leaders must encourage and expect the educational enterprise to broaden its mission so that places called schools are viewed as community centers. Such centers would provide traditional educational experiences, but also would serve as

neighborhood hubs for preventive health care, recreational/social activities, meals for the elderly and needy, development of avocational interests, and retooling for new job opportunities.

From an educational facilities perspective, if schools can be made to be true neighborhood community centers, the likelihood the general public will support taxing itself for new schools and/or renovation of existing ones will be enhanced greatly. And the wonderful thing is, the actual cost of such centers will vary little from the expense of building the structure for traditional educational purposes. Through careful design such spaces as music and art rooms, the health/nurse's room, the cafeteria and library, the computer and science labs, general classrooms, and the outdoor play and recreational fields can be shared. The key is breaking down the old bureaucratic/societal perspective that schools are only for children. Policymakers and community leaders can play a critical role in changing this mentality.

Closing Thought

Let's return for a moment to Savannah and her electronic learning cubicle. No one, as mentioned earlier, knows for sure what the future holds for education – particularly in the more distant future. Trends, such as those presented in this paper, are patterns that may lead to new realities. However, trends do not always maintain themselves and, in some instances, lead to very different future realities than expected. It is critical, then, that each of us regularly scan and monitor our environments for changes in trends, as well as to seek out and identify new ones. Only then can we truly have a better grasp of what the future will be.

With that said, will Savannah end up receiving her education in an electronic capsule? Will schools as the physical structures we know today largely disappear? The easy answer is to say, "Only time will tell." But the truth is, trends do not inexorably lead to a particular conclusion. How we individually and collectively react to them has as much to do with what the future will look like as do the trends themselves. Said differently, what schools will look like and will become in the future really rests with the extent to which Americans proactively respond to the trends. Leadership will be the key.

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