

30 Strategies for Education Innovation



Prakash Nair

Early Praise for *30 Strategies for Education Innovation*

By Prakash Nair

Prakash Nair has synthesized key learning theories and current practices into 30 strategies that stress how the learning environment needs to be humane and attentive to individual children's needs. Considering that billions of dollars are needed for renovation and construction of new schools, this publication proposes an educational outlook that challenges traditional practice, while offering important insights about the promise of schools for the future.

Henry Sanoff
Professor of Architecture, North Carolina State University

Prakash Nair has certainly put forward some challenging ideas. I think it will also be a valuable guide for facility planners particularly as it highlights many of the issues to be debated, discussed and deliberated in developing educational specifications.

Jeff Philips
Principal Consultant, Research & Development, Department of Education & Training, Western Australia

I found the manuscript *30 Strategies for Education Innovation* an excellent document in the context of school improvement.

Tim Sandercock
General Manager, Educational services, Delfin Limited, South Australia

This manuscript contains a wealth of good ideas that are presented in an invitational, easily-accessed manner. Kudos to you for this effort.

Thomas R. Hoerr, Ph.D.
Head of School, New City School, St. Louis, MO

As a career educator I congratulate and applaud Prakash Nair on the development of this important guidebook for education. He has successfully taken many vital strategies and molded them into an easy to understand guidebook. This guidebook will be a valuable tool for all those involved in educating children. Bravo!

Ben Sender
Chief Executive Officer
TechKNOW Associates Corporation, NJ

I have been a classroom teacher, director of a middle school in East Harlem (one of the schools of choice with a student body of 250 - an example of your item 3) and Director of Instructional Technology responsible for all aspects of Technology integration in East Harlem. I just finished

reading the manuscript 30 Strategies for Education Innovation. Prakash Nair never ceases to amaze me. As I was reading it through, I kept shaking my head in agreement. I taught in a middle school with 1500 students. Never mind learning the names of the students...it was difficult to know all the teachers. Nair's point on isolation was right on the money. At the small middle school in East Harlem, everyone knew everyone, which made it not only an effective model, but a safe one. I recognized many of the strategies in this manuscript that my colleagues and I at TechKNOW have found and continue to find extremely effective as educational tools. Nair has managed to distill all of these strategies and more in a clear and easy to read guide that educators, parents and the community at large will find both thought provoking and valuable.

John Ferro,
President, TechKnow Associates Corporation, NJ

"Prakash Nair has produced a very valuable and readable booklet around the current issues to do with school design. It is impossible to read this publication without coming to the conclusion that there is radical work to be done in many of our schools to bring them into the 21st century. Paradigms need to be broken. This booklet is a welcome addition to the literature on school building design change."

Andrew Bunting
Director, Architectus, Victoria, Australia

"Nair's Strategies successfully and responsibly bridges the issues, trends and leading edge thought of a rather pluralistic educational reform movement with the latest school design concepts while simultaneously offering a very practical and reasonable approach to analyzing any given local condition and making it better for real and meaningful learning."

Jeff Lackney
Assistant Professor of Engineering, University of Wisconsin, Madison, WI

Prakash Nair is an exceptional visionary and leader who is effectively driving change in education practice internationally. His document, '30 Strategies for Educational Innovation' comprises a collation of key strategic, contemporary, and effective teaching and learning practices which can be used as a blue print to guide today's leading educators as they strive for best practice and ongoing improvement in curriculum and pedagogy.

Tim Gourlay
Manager, Facility Services Section, Department of Education, Tasmania, Australia

Prakash Nair's 30 strategies provide an excellent scaffold; relevant and important reference points to inform debate around current educational improvement efforts.. They provide an easy, readily accessible source of theory underpinning best practice that challenges our thinking about how we do things

in school. As we become more involved in our planning for our redevelopment and the implementation of a new curriculum framework, I find myself coming back to the strategies again and again!

Judy Bennett, Principal
Ogilvie High School, Hobart, Tasmania, Australia

"This guidebook will help educators and lay people alike identify ways in which they can begin to rethink and change schools to meet 21st century needs. Prakash mirrors what the "clients" (students) are trying to tell adults. Here is a guidebook which will help adult leaders and reformers listen and change educational practices that no longer work."

Anne Taylor, Ph.D., Hon. AIA
Professor and Director, The Institute for Environmental Education, University of New Mexico

A framework for positive change! Prakash Nair provides a thoughtful guide for dialogue and prioritization in creating successful schools.

Jim Brady
Council of Educational Facilities Planning International, Planner of the Year, 2003

30 STRATEGIES FOR EDUCATION INNOVATION

By Prakash Nair

Preface - Why This Guidebook and How to Use It?

This Guidebook is written to help close some big gaps in education - the gap between research and action, between stated goals and policy and between perception and reality.

Few will argue that these gaps exist when it comes to the way education is delivered in this country. In what other industry would the majority of proven research be discarded in favor of an overused, discredited model? In education, the research unequivocally supports a student-centered model but schools and school systems overwhelmingly favor the older mass-production model of schooling. Where else is there such a gaping chasm between the stated goals of an organization and the policies that are adopted to accomplish those goals? In education, there is widespread support for the idea that every student is important and yet, in practice, systems are set up to favor a few at the expense of the many. As for the gap between perception and reality, the perception among most parents, communities and policy makers is that failing schools can be "fixed" by doing more of what has failed. The reality is that failing schools need a completely new approach that engages students and co-opts them into the learning

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process. And what about the "successful" schools, those whose students rank high on standardized tests and go on to college in impressive numbers? These have an even lesser incentive to change even though they are better at selecting talent than at nurturing it.

Why do these gross disconnects exist? Mainly, the problem lies in the entrenched nature of bureaucracies. Systems designed for a different time and for a different set of needs have since become fragmented and deeply compartmentalized. Even where there is commonality of purpose, the "systems" themselves remain hopelessly gridlocked. Communities need to bypass the system and focus instead on making a set of specific strategies happen. Systemic roadblocks can be more easily identified and overcome when they prevent some specific strategy from being implemented. This approach is more practical than wholesale systemic improvement which is nearly impossible to implement except in the most desperate of circumstances.

Another attractiveness of this method of instituting change through the implementation of specific strategies, is that it is very flexible

and can be tailored to the needs of any given community. It permits districts with modest goals to begin with small victories and use them to leverage more widespread change. For those with more ambitious expectations, change efforts can be focused on specific strategies. Even widespread change is more easily managed when broken up into easily measured chunks.



By providing a simple and common vocabulary that all school constituents can use, this Guidebook bridges the gap between laypersons and experts. It can thus help diverse school constituents to work together toward realizing shared expectations.

The following sections show how various school constituents can mobilize support for their goals using this Guidebook as a resource.



If you are a district superintendent, school board member or business administrator

Use this Guidebook to take stock of where your district is relative to your own vision statement. There is a very good chance that almost any vision statement that you have crafted will be better served via the adoption of some or all of the 30 strategies. If you are redefining your vision or creating a new strategic plan for your district, consider how you can incorporate these ideas to the extent that they capture the essence of what you are trying to accomplish in your community. Just as important, use this list to determine what resources you will need to allocate to accomplish your goals. You should also discuss the list with your school principals and ask them what you can do to support the actual implementation of these ideas at the school level. Have your principals complete the attached survey so that you have a sense of their priorities relative to those of the district at large.

If you are a school principal

Use the 30 strategies as a tool to brainstorm with your teachers and staff. Use the attached survey to gauge their preferences and also get a quick sense of their readiness for change. Match staff development programs with specific strategies as needed before implementation. Discuss those strategies that are favored by your school community with the district establishment in order to align expectations and garner district support and any resources they can offer.

If you are a parent or Parent Organization member

If you are looking at alternative schools for your child, discuss the 30 strategies with your child, prioritize those that are most important to your family and use your prioritized list to "rank" the schools according to how many and how well the strategies are practiced there.

If you are a member or executive of the parent organization, call a meeting to discuss each item on the list relative to their applicability in your own school setting. Strategies

that seem to fit the philosophical model of your own school can then be prioritized and recommendations for the implementation of those not yet adopted can be made to the school establishment.

You can also use the ideas slated for implementation as the basis to obtain supplemental funding and/or resources from the business community and other entities such as local higher education establishments and philanthropic organizations.

If you are a teacher

Selectively apply strategies that you feel will result in greater student engagement and participation - but only after you discuss them with your students. If you favor some strategies, but are unsure how to apply them in your classroom, use the research sources provided in this Guidebook and the Internet to learn more. You should also talk to your principal about suitable staff development to reinforce skills that you will need to introduce your selected strategies into the classroom.

If you are a student or student government representative

Study the 30 strategies and talk to your fellow students and teachers about implementing those that you are able to build consensus around. If necessary, prepare a "petition" signed by your fellow students to present to your school principal and the parent organization requesting the adoption of strategies that you favor.

Introduction

All around the world, a new kind of educational model is taking tentative steps toward the mainstream. This model is far better suited to provide the knowledge and skills that students will need to succeed in a new global economy than the traditional model still practiced in most schools.

The new model embodies many ideas which are not new but are only now being seen as a real alternative to traditional schools. The reasons why these ideas are taking root have to do with the simple fact that the old mass-production model of education simply doesn't work for most, if not all, students. The old model was designed to weed out the "smart" students destined for college from those who would work in non-academic vocations. But that kind of distinction is no longer valid.

Today, meaningful, *useful* education is something *all* students need regardless of the career choices they will eventually make. Schools need to do more than just select students according to their cognitive abilities. They need to become places where diverse talents are recognized and nurtured, where every student is made to feel special, has an opportunity to realize his or her full potential and succeed on his or her own terms - in other words, they need to become "New Paradigm" schools.

The pressures for change in education are building fast. These include:

- Demands by parents that education work for *all* children;
- The increased push for accountability from education officials;
- The information and communications revolution;

Cultural diversity is an important strength in today's increasingly global society. It may even be the answer to one of the most pressing problems facing the world today – that of cultural polarization.

- New research and greater understanding of the way we learn as children and adults;
- Changing employment patterns in a global economy.

The 30 strategies for innovation discussed in this Guidebook, taken together, represent a new, alternative, education model. It is highly unlikely that any one school can or will utilize all 30 ideas. Additionally, some strategies are more relevant to younger students, while others apply only to older students. However, a true "New Paradigm" school will embrace a vast majority of these strategies.

Overarching Principles

There are some overarching principles that cut across many of the strategies discussed here. In fact some of the strategies themselves can be viewed as "overarching". For example, ideas like personalization and project based learning cut across many other strategies.

Beyond this obvious overlap, there are other overarching principles that underpin the philosophy of "New Paradigm" schooling – they include leadership, lifelong learning and cultural diversity.

Leadership

Few innovation strategies can succeed without real leadership. However, in the world of education, good leadership at the top alone is not enough to improve student achievement. This is particularly true with the larger school systems like New York City and Los Angeles where the leaders of the system are

many layers removed from the teacher in the classroom. We need to redefine leadership to include all the elements within a school system from the superintendent to the principal to teachers, students, parents and community representatives. This kind of distributed leadership provides the best opportunity to effectuate real change and is advocated by leading reform efforts including *Breaking Ranks – Changing an American Institution*, the landmark publication about reforming the American High School. Peter Senge in his book, *Schools That Learn* provides many useful ideas for educators, parents and other school constituents to exercise leadership while working together.¹

Lifelong Learning

In the world of education, Lifelong Learning is a popular, if somewhat misunderstood, idea. From the perspective of educational change, there are really two distinct parts to the idea of lifelong learning that need to be addressed. The first idea is to think about a child's learning in school becoming the foundational phase of a life of learning. In this scheme, the emphasis of education shifts from teaching disconnected content to teaching learning skills – because it is the ability to learn that will keep both relevant content and life-skills current as the child grows up and takes his or her place as a responsible, contributing adult in society. Many of the strategies

¹ *Schools that Learn. A Fifth Discipline Fieldbook for Educators, Parents and Everyone Who cares About Education*, by Peter Senge, 2000.

discussed in this Guidebook such as inter-disciplinary curricula, cooperative learning and project based learning emphasize life-skills over mastery of content. But there is a second, and often neglected, aspect to the idea of lifelong learning and this is the opportunity that schools should afford to adults to continue their education. According to the OECD, which has identified some obvious reasons why adults need to keep learning:

“From a purely economic viewpoint, competencies of individuals are seen as important because they contribute to 1) boosting productivity and market competitiveness; 2) minimizing unemployment through developing an adaptive and qualified labor force; and 3) creating an environment for innovation in a world dominated by global competition.

From a broader social perspective, knowledge, skills, and competencies are important because of their contributions outside the domain of economics and work. They contribute to 1) increasing individual participation in democratic institutions; 2) social cohesion and justice; and 3) strengthening human rights and autonomy as counterweights to increasing global inequality of opportunities and increasing individual marginalization.”²

All schools, but particularly the hundreds of new schools that are constructed and renovated every year must provide times, programs and methods for community access to education – something that rarely happens today. Not too many adults will feel comfortable or welcome in a traditional school setting and that must change. These settings must

² *Lifelong Learning and Sectors of Education*. Organisation for Economic Cooperation and Development. Building Partnerships for Progress.

become welcoming, comfortable and enjoyable places for adults to congregate – and if they do, they will automatically become better places for younger students to learn as well.

Once the question of “where” has been dealt with, schools also need to address the issue of “by whom” – in other words, a good community school that provides opportunities for lifelong learning will break down the barriers that prevent the coordinated delivery of education and services by a bevy of government, private and non-profit organizations that exist in most communities. An effective strategy to accommodate lifelong learning is also an effective way to break down the isolation that students and teachers of traditional schools feel and to make education itself both during the “school day” and beyond real and meaningful.

Cultural Diversity

It is readily apparent that, for most organizations, cultural diversity is an important strength in today’s increasingly global society. It may even be the answer to one of the most pressing problems facing the world today – that of cultural polarization. Schools are an important place to begin a culturally rich life experience. There are few things about the world into which our children will graduate that is more certain than the notion that it will be more culturally diverse than it is today. Students who experience and learn to value diverse perspectives from an early age are more likely to become well adjusted members of the global society they will inherit.

While a culturally diverse school population should be an important policy goal, it is easier said than done in locations whose populations themselves lack diversity.

Understanding the importance of creating culturally diverse school communities, districts are resorting to the use of magnet programs and

specialized schools and academies to attract a diverse population to areas that may otherwise not be able to do so. For example, the Interdistrict Downtown School in Minneapolis attracts students from 10 surrounding districts and is thus able to create the rich diversity that many inner city schools lack. In the absence of a diverse student population, it becomes even more important for schools to use technology to make local, national and global connections that expose students to people and opportunities they miss by virtue of their cultural isolation.



The 30 Strategies

The following chart shows all 30 innovation strategies (listed in no particular order). Each strategy is linked to one or more of three categories - pedagogy, organization and non-academic. **Pedagogy** refers to any strategy that requires teachers to adopt teaching methods or practices in order to implement it. **Organization** refers to the need for support from the school administration, educational establishment or other governmental or constituent group to implement the strategy and **Non-Academic** refers to any strategy that has non-academic benefits (many proponents of New Paradigm schools believe that these benefits are just as important, if not more important, than the academic benefits of school). This chart begins to explain why New Paradigm schools are not easy to develop. Many of these strategies require extensive preparation by teachers, the "blessings" of, and significant organizational effort by, the educational establishment and, in many cases, outside sources of support and funds. However, by organizing them in a manner that clearly shows why they are important and how they can benefit schools, there is a greater chance that they will begin to be more widely adopted by communities everywhere.

Number	Innovation Strategy	Pedagogy	Organization	Non-Academic
1	Personalization	X		X
2	Multi-age Classes	X	X	X
3	Small Learning Communities		X	X
4	Student Advisories		X	X
5	Small Learning Communities with Academies		X	X
6	Multidisciplinary Curricula with Block Scheduling	X	X	
7	Cooperative Learning	X		X
8	Project-Based Learning	X		X
9	Peer Tutoring	X		X
10	Peer Instruction	X		
11	Team Teaching	X	X	
12	Community Service Learning	X	X	X
13	Looping		X	
14	Business Partnerships for Assessment, Resources and Funding	X	X	
15	Global Connections	X	X	X
16	Internships	X	X	X
17	The Resurgence of Art	X		X
18	Laptops and Wireless Technology for Anytime, Anywhere Learning	X	X	X
19	Parent Involvement		X	X
20	Student-Led Performances	X		X
21	Non-Academic Life Skills Curricula	X		X
22	Meaningful Career Counseling			X
23	Social/Emotional Counseling			X
24	Physical Fitness Programs - Beyond Sports			X
25	Outdoor Learning			X
26	Student-Run Independent Newspaper		X	X
27	Relevant Staff Development and Adequate Staff Preparation Time		X	
28	Portfolio-Based Assessment	X	X	
29	New Paradigm School Buildings		X	
30	After School Programs and Community Use of Schools		X	X

1 Personalization

Personalization of learning is an important underpinning of the whole New Paradigm model of education. It starts with the idea that learners are not products that can be mass-produced by schools. If one accepts the undeniable truth that no two children are exactly alike, then it must logically follow that no one system of education can work for all students. From this follows the notion that a good educational model will "personalize" each student's learning experience. The idea that each student has an "Individualized Education Program" is not new to those who specialize in educating children with learning disabilities. Now, the idea of an "IEP" for *all* students is gaining currency. Personalization includes not only what will be learned in school, but also *how* it will be learned.

While it is possible and perhaps even desirable to postulate certain "standards" which define the kind of skills and knowledge that constitutes robust learning in any given discipline, each student must have adequate and individualized preparation to master these standards. Further, a school that promotes personalized learning will make every effort to deliver education using a variety of means and methods in an attempt to involve all students. Personalized learning is therefore compatible with the idea of Howard Gardner's "Multiple Intelligences Theory" which identifies eight different intelligences whose development is essential for success in a variety of today's professions.³ Being "clever" or

³ Howard Gardner's Multiple Intelligences Theory identifies the following nine "intelligences" that all human beings possess:
Cognitive/Analytical,
Bodily/Kinesthetic, Spatial, Musical,

Personalization includes not only what will be learned in school, but also *how* it will be learned.

"smart" in the traditional sense meant having a high IQ, but we know today that this kind of cognitive intelligence alone is no guarantee that students will be prepared to face life's challenges. Personalized learning environments develop not only an individual's cognitive and analytical skills, but are also concerned with the development of their other intelligences and creating responsible citizens.

2 Multi-Age Classes

Author Daniel Pink once asked, "When was the last time you spent any significant time with a group of individuals who were all the same age as you?" Age-based groupings don't make sense in the real world and make no sense in school either. While there are certainly some developmental stages that are more or less age-specific, even these milestones are not exact. That means, it makes eminent sense to group students in ways that offer them the best opportunity to get a rich learning experience and not on the basis of their age. Accordingly, multi-age groupings (in and outside "classrooms") are a more suitable way in which to organize a given student population.

At the Quinns Beach Primary School in Western Australia, multi-age classrooms are commonplace. Far from creating a chaotic atmosphere, multi-age groupings at this school and many others across the world are unusually self-directed, with students appearing to be far more engaged in their work than in traditional teacher-centered, single-age classrooms.

Interpersonal, Intrapersonal,
Naturalist and Existential.

3 Small Learning Communities

When it comes to schools, there is ample evidence that "smaller is better". But smallness is not a virtue unto itself. It is a means to an end, and the end is to have each student feel that he or she is part of an intimate community where (to borrow a line from the popular TV show "Cheers",) "everybody knows your name". That means it is not enough to simply break up a large school into "houses" or "pods" for the purpose of creating smallness. Students need to identify clearly with their smaller community and feel a sense of belonging, common purpose and loyalty to the smaller unit.

As to how big this unit should be, there are various theories. Some insist that the small learning community should be no larger than 100 students, yet others say that it can work well up to 150 students. However, there is general agreement that the smaller this unit, the more likely it is to provide the sense of security and belonging that students need.

4 Student "Advisories"

It is almost impossible to think about a school and not see the "classroom" as its basic building block. And, yet, as this report on New Paradigm schools illustrates, there is absolutely no logical or educationally compelling reason for classrooms in schools - at least not classrooms in the traditional sense. With personalization, multi-age classes, project-based learning and team teaching, schools have an opportunity to organize themselves differently than they have done in

the past. One such organizational structure is the "advisory". While small learning communities remove the anonymity associated with large institutional settings, advisories carry the idea of student belonging one step further. Advisories team up a certain number of students (no more than 15 for purposes of manageability) with an adult "mentor" and try to keep this core group together for as long as possible.

In the case of the Met School in Rhode Island, perhaps the most successful national example of how successful advisories can work⁴, advisories remain in place throughout a student's high school years. Students are thus able to develop positive, long-term relationships with peers and with caring adults. In order for them to work well, it is important for advisories to meet as a group often. At the Met School, daily meetings are the norm.

5 Small Learning Communities with Academies

In the case of middle and high schools (grades 6 and higher), there is evidence that developing small learning communities around some common "themes" is the most effective strategy to improve student engagement and a sense of belonging. Academies can run the gamut from computer technology to veterinary science. But the key to their success is not so much that they prepare students for any particular career, but that they develop essential life skills associated with the world and workplace outside school.

⁴ *One Student at a Time: A Deeply Personalized Public High School* by [Elliot Washor](#) and [Dennis Littky](#), New Horizons for Learning. <http://www.newhorizons.org/lifelong/adolescence/washor.htm>



At the Met School in Rhode Island, advisories remain in place throughout a student's high school years.

The move is gaining momentum to break up larger, comprehensive high schools all across America into themed academies. The Bill and Melinda Gates Foundation has set aside tens of millions of dollars toward this cause. There are national and statewide networks that assist schools in setting up academies. The largest such organization is the New York City-based National Academy Foundation with over 1,000 member academies around the country. NAF defines its mission thus, "The mission of the National Academy Foundation (NAF) is to sustain a national network of career academies to support the development of America's youth toward personal and professional success--in high school, in higher education, and throughout their careers."⁵ In California, the "Career Academy Support Network is housed within the Graduate School of Education at UC Berkeley. Its purpose is to support the growing number of career academies developing around the country,

⁵ National Academy Foundation, <http://naf.org/>

fostering their growth and improvement."⁶

6 Multi-disciplinary Curricula with Block Scheduling

It is true that nothing that is worth learning can be taught or learned in the traditional 45 - or 50-minute block that most schools employ. Block scheduling is an alternative way to break up the school day into larger time segments that permit students to enjoy a richer learning experience. Another disadvantage to the traditional school day is that it divides up time according to subject classifications like language arts, mathematics, social studies, science and art in ways that isolate these subjects from each other and from their natural richness as they are encountered in real life. In this sense, the word "multidisciplinary" is just a fancy way of saying "real".

⁶ Career Academy Support Network, <http://casn.berkeley.edu>

7 Cooperative Learning

Education Week defines cooperative learning as, "A method of instruction that encourages students to work in small groups, learning material, then presenting what they have learned to other small groups. In doing so, they take responsibility for their own learning as well as their classmates."⁷ In other words, cooperative learning is a system in which students become both motivated and motivators. By shifting responsibility for learning from teachers to students, cooperative learning takes away the "us vs. them" mentality that the typical school organization naturally tends to encourage and creates in its place a new dynamic where students feel empowered and eager to succeed on their own terms and not only to please their teacher.

8 Project Based Learning

This strategy is implicit in various others described here. PBL is a way to make learning meaningful and real. Instead of "learning" material out of textbooks, students work in teams to tackle real-world problems. Often, students will collaborate with peers across the world on global projects, forge meaningful relationships and build virtual communities of learners in the process. There are many advantages to PBL as a way to promote learning. Among them:

- Develops collaboration skills;
- Deals with real-world problems so students can make important connections between what they

⁷ Education Week Glossary on the web. 2003 but updated regularly <http://www.edweek.org/context/glossary>



- learn in school and its relevance to the world outside school;
- Results in a deeper and more holistic understanding of the subject being studied;
 - Provides the means to integrate skills in various disciplines in much the same way that problems in the real world need a multi-faceted approach to solving them;
 - Provides a good vehicle for delivering multidisciplinary curricula.

9 Peer Tutoring

There is a saying that the best way to learn something is to teach it. In schools across the world, students become better learners as they take on the role of teachers and mentors to younger children. Peer tutoring is also valuable because students can often forge stronger bonds with other students than with adults and are more easily able to develop interest and motivation in the younger learner. While there are some problems with this approach including the fact that not all students are good teachers and also

that the quality of instruction may not be as high as desired, there are many advantages to peer tutoring as set forth by University of Western Australia below:⁸

- Involves students directly in the teaching and learning process;
- The act of teaching others enhances student's own learning;
- Encourages collaboration between learners;
- Enriches learning environment;
- Shares responsibility for teaching between teacher and learners;
- Uses expertise in the learning group;
- Can be viewed as a strategy for dealing with individual differences in the classroom.

10 Peer Instruction

While peer instruction is not a new concept (it is what happens when

⁸ Issues of Teaching and Learning, Vol. 3, No. 3, April 1997, the University of Western Australia. http://www.csd.uwa.edu.au/altmode/to_delivery/peer_teaching.html

two friends study together), it is rarely practiced in the classroom. The problem lies with two questions – how best to implement peer instruction in class, and what kind of role does it entail for the teacher? There are also questions regarding the quality of the instruction and the resulting quality of learning that takes place using this system. Beyond that, there are the obvious concerns regarding the organization of the classroom itself and how peer instruction may be disruptive, noisy and chaotic within the confines of small spaces.

Eric Mazur at Harvard has addressed these concerns and has used a method of peer instruction that can work successfully even when it is applied to groups as large as 250 students.

Mazur's technique involves the teacher posing a question to the whole class. First, each student is given a moment to think about the question and formulate his or her own answer. Then, the teacher asks students to discuss their answers with whoever is sitting next to them, after which each student is asked to give his or her answer to the question once again. Invariably, Mazur finds, a vast majority of students are able to get the right answer after only about a minute's discussion with another student even if only a few of them had the correct answer prior to the peer-to-peer discussion. Another benefit of the peer-teaching technique that Mazur discovered is that it gives students a greater sense of confidence in the correctness of their responses after discussing the topic with a peer than they had when formulating responses in their own minds.

Peer instruction in practice confirms what many of us know intuitively. That we sharpen our knowledge and understanding of most subjects when we get a chance to discuss them with our colleagues and friends.

While the exact form of peer instruction may vary from class to class, there seems little doubt that when students talk to other students, they do become engaged in ways they never would have if they were passively listening to a lecture. While this is not an argument to do away with the lecture format, it certainly suggests that teachers should supplement lectures with opportunities for classroom discussions between the students themselves.

11 Team Teaching

Strategies like Project Based Learning can work in isolated classrooms with a good teacher, but they are most effective when teachers of various interests and abilities work together as a team to deliver a multidisciplinary program for the students. Team teaching is also beneficial because it makes teaching a less lonely profession than it has traditionally been. By working closely with their peers, teachers themselves gain the benefits of cooperative learning. Students benefit from team teaching curricula, not hampered by a teacher's weakness in any given area because that might be a strength another teacher in the group possesses. Team teaching also facilitates the use of block scheduling that was discussed earlier.

12 Community Service Learning

Community service learning is now becoming an integral part of most high school programs. Many schools are requiring students to compile a certain number of hours of community service for graduation. But like all good ideas, this one is also only as good as its implementation. Community service programs work best when students

are matched up by the school and community organizations in accordance with their unique strengths and interests. In this scenario, community service also becomes a vehicle to deliver quality programs to the recipient communities. As for the students, they gain an important lesson in giving, are better prepared for the challenges of college, and sharpen and strengthen the social and technical skills they will utilize in the real world after college.

13 Looping

Most students will confirm what we already know – that teachers are among the most important people in their lives. However, the extent to which a teacher can really know a student diminishes sharply as the number of students that teacher has to teach on a daily basis increases. How many parents have attended parent/teacher conferences in a large school where the teacher has to shuffle through her papers to see how a student has performed on tests and homework assignments before she can even comment on how the child is faring in her class? Don't blame the teacher for this – it is hard for anybody to keep detailed track of 150 students who flit in and out of the classroom. Looping allows students to return year after year to the same teacher.

John Strachan, writing for *New York Teacher*,⁹ notes, "The strategy has a huge upside, according to looping proponents like Brehaut and Rappolt, who heads the Port Byron Teachers Association:

- *Having the same teacher and classmates for two or more years provides stability for students,*

⁹ *Maximizing learning through looping: Sticking with one class has advantages, teachers say.* New York Teacher, October 25, 2000. <http://www.nysut.org/newyorkteacher/2000-2001/001025looping.html>

reduces anxiety and increases their confidence.

- *Teachers and students don't need to learn new names and personalities every year, so actual learning time increases in the second year.*
- *Classroom discipline problems decline, while parental support and involvement increase, because the longer time frame motivates parents, students and teachers to resolve problems that might otherwise be tolerated."*

14 Business Partnerships for Assessment, Resources and Funding

It is one thing for students to do good work to please a teacher and something else altogether for them to understand how the work is viewed by professionals in the industry. In Eeva Reeder's geometry class at Mountlake Terrace High School in Seattle, students complete a six-week architectural assignment that involves the design of a school for the year 2050¹⁰. This project is only possible because the architectural firm of Wise/Miller is actively engaged with guiding students in class and also doing an actual assessment of student work based on team presentations in the firm's office. This kind of real connection to the world of work outside school makes learning the theory more meaningful for students.

Other kinds of partnerships with the business community can also be very helpful to schools. Business involvement in schools runs the gamut from sponsoring student projects and trips to donating specialty equipment and furniture.

¹⁰ *Schools for the Year 2050*. Edutopia, George Lucas Educational Foundation
<http://www.glef.org/reeder/open.html>



For example, Dave Master, an art teacher in California, built a world-renowned animation program in his Los Angeles high school by partnering with the major Hollywood studios. The studios supplied specialty equipment as well as expert assistance to the school to support the students. Sometimes whole schools are created with business support. For example, CART (the Center for Advanced Research and Technology in Clovis, CA) is a public high-tech school largely sponsored by leading corporations.

15 Global Connections

Not all schools will be able to take advantage of the proximity of related industries as Dave Master was able to in Los Angeles. However, with the advent of distance learning, it is now possible to reach experts wherever they might be. Schools are increasingly using the distance learning capacities they are installing as part of their technology infrastructure to reach national and international experts. Such global networks are good not only because they bring expertise to schools they might not otherwise be able to get,

but also because they forge relationships between students throughout the world based on common goals and aspirations. Dave Master himself is now developing an international network of animators who volunteer their time to work with students from around the world via distance learning technology. This program also permits students spread across six continents to communicate and work with each other.

Here's how the local newspaper reported the formal opening of a school in Tasmania, Australia by the State's Premier, Jim Bacon. "Mr. Bacon addressed a large audience in the school's assembly hall, where he gave a spectacular demonstration of the school's technological capability. Mr. Bacon was joined on stage by education architect Prakash Nair, who appeared on a giant screen via the Internet from his office in New York."¹¹ My talk with the Premier was not only seen by the invited audience of 500 attendees, but also shared with the entire school community via monitors distributed throughout the school. One of the

¹¹ The Advocate, Tasmania, Australia March 26, 2003.

first things I said to the Premier was, "When you build a school like this, you build a thousand bridges. You are no longer an isolated community". While particularly true for Tasmania, which is an island community with few ties to the mainland, the problem of isolation is hardly unique to Tasmanian schools. Distance learning technology in schools, combined with more established technologies like email and Internet access and dedicated school websites, are now helping to create "nations without boundaries" – people connected by common interests and aspirations, not divided by artificial national boundaries. From a learning perspective, this kind of access to people and experts all around the world provides students at even the most remote school with opportunities for being part of the larger, global community.

16 Internships

There is a growing "school-to-career" movement in high schools everywhere. Such programs are aimed at improving student engagement and achievement by giving relevance to the curriculum. The newly emerging internship programs are designed to prepare students for the world outside school while exposing them to career choices. This approach is different from the older "vocational" internships which were simply designed to give students proficiency in one particular industry. Both approaches are legitimate and have been proven to improve student achievement in and outside school as well as college attendance rates. At the Met School in Rhode Island, "students spend two days per week at internships that they select based on their interests. Across four years, one student interned with an engineer, a judge, a choreographer, and a marine biologist. He completed many personalized projects such as co-directing a musical and

developing water quality systems in Narragansett Bay."¹²

David Woods, Principal of Sevenoaks Senior College in Perth, Western Australia, considers internships to be so important, that he has assigned a full-time staff coordinator to develop the industry contacts needed to set up good internships with local companies. Sevenoaks has succeeded in signing up over 400 companies to provide internships to the students at the school.

17 Resurgence of Art

Artists and creativity have always gone hand-in-hand, but the study of art in school used to be seen as something separate from and less important than the "hard" subjects like math and science. Only now are connections being recognized between the creativity that is implicit in artistic endeavors and the creativity that the global society will demand from all citizens. "Creative people invent, imagine, problem-solve, create, and communicate in fresh, new ways. Every business requires creative thinkers in the form of scientists, engineers, medical researchers, technology innovators, business entrepreneurs, artists, performers, writers and illustrators."¹³

Beyond the use of art as a means to nurture and strengthen the creative spirit that resides in all children, there is now an added impetus for art to assume its rightful place in our schools – the advent of technology.

¹² *One Student at a Time: A Deeply Personalized Public High School* by [Elliot Washor](#) and [Dennis Littky](#)/ New Horizons for Learning.

<http://www.newhorizons.org/lifelong/adolescence/washor.htm>

¹³ Crayola. The Importance of Creativity.

<http://www.crayola.com/parents/powercativity/>

With technology, learning is quickly becoming a multi-media experience whose demands include not only technological know-how, but also artistic skills. Regardless of the subject being studied, demands are now being placed on all students to present their work professionally, and this takes a certain level of artistic competence.

By combining their artistic ability with technological competence, students are also expanding their career choices. Today, there are many professions where art and technology are interwoven. They include graphic arts, advertising, set design, architecture, computer animation, claymation, digital photography, computer art, computer game design, digital publishing, industrial and costume design and even filmmaking, which now involves extensive off-camera "effects" that are created in the studio.

18 Laptops and Wireless Technology for Anytime, Anywhere Learning

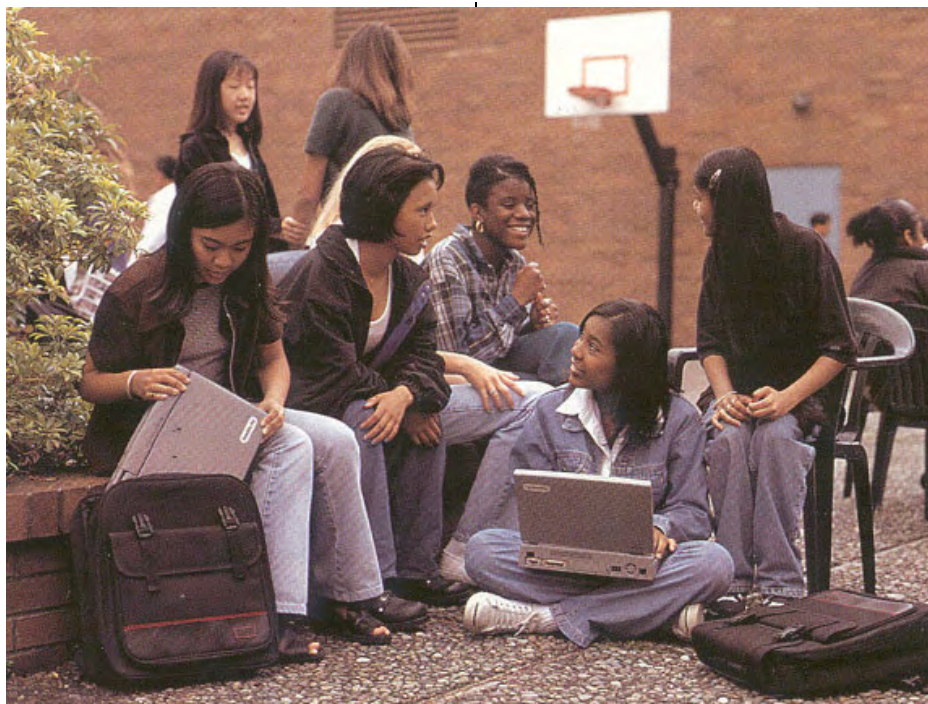
The following summary by Jamie McKenzie about the benefits of laptops and wireless technology for Anytime Anywhere discusses why wireless networks utilizing mobile computers are preferable to the still-prevalent practice of putting a few desktop machines in the back of each classroom. (Also see a related publication by NCEF on this subject¹⁴). Jamie McKenzie's list published in the journal *From Now On* is paraphrased here:

- **Ease of Movement:** Untethered laptops can be moved anywhere in the building and require no special furniture.
- **Relaxed Fit:** Laptops are easier to accommodate within existing classrooms because of their small footprint.
- **Strategic Deployment:** Laptop computers can be deployed on rolling carts where they are needed most, creating one-to-one learning opportunities that traditional methods of distributing computers throughout a school do not provide.
- **Flexibility:** Laptops can be used within existing rooms and can be configured to fit the teacher's preference and the nature of the learning experience, whether that is team, group, or individual.

Wireless laptops place no

¹⁴ "The Role of Wireless Computing Technology in the Design of Schools", Prakash Nair, National Clearinghouse for Educational Facilities.

<http://www.designshare.com/Research/Nair/wireless.pdf>



additional demands on furniture or space.

- **Cleanliness:** Elimination of cables and wires means that 25 or even 30 laptops can be accommodated in a room without creating a mess.
- **Low Profile:** Unlike desktops behind whose large monitors students may be hidden, laptops have low profiles, allowing teachers and students to have important eye contact.
- **Convenience:** As with the Quinns Beach example, wireless laptops' ability to be readily available when needed and easily stowed when not makes them more likely to be used.
- **Simplicity:** The simplicity, comfort, and reliability of wireless laptops means that teachers and students can focus on learning, not on hardware. This may help technology attain

the full use that has been hoped for but often not realized because of technical difficulties or inconvenience.

- **Speed:** There is almost no setup time for wireless laptops. They can be up and running without needing to locate and connect or disconnect a wire. This is a huge

advantage and another way in which the technology itself becomes subordinate to the task of learning."

19 Parent Involvement

Sometimes, it is not how good an improvement program is, but how well it is understood that matters. Parents are likely to resist change that takes them outside their comfort zone. There is a general sentiment that when it comes to the education of our children, it is better to live with the existing system with all its problems than to "experiment" with new ideas. The only way to overcome this fear is by working closely with the parents so that they develop a real understanding for the need to change and then become active partners in the change process.

Parent involvement in New Paradigm schools goes far beyond typical voluntary efforts of the school PTA. With the proliferation of charter schools, parents are increasingly becoming involved in developing schools from scratch. One great example of a parent-inspired school

is the Avalon School in Minneapolis. The other is the Discovery 1 School in Christchurch, New Zealand. Neither one of these schools looks or feels like a traditional school. Neither has “classrooms” and almost all the learning at these schools is rigorous and experiential.

But parent influences can be significant even when the traditional, government-sponsored school development model is followed. The award-winning Reece Community School in Tasmania, Australia, whose planning was led by the State Department of Education, was heavily influenced by parents. Parents played an important role in the committees established to develop this school. Not surprisingly, the Reece School practices a majority of the strategies identified in this report.¹⁵ New Paradigm schools see parents as legitimate partners in the way schools are managed and run, and this is one of the key factors in their success.

20 Student-Led Performances

Play is a legitimate form of learning and is often the only form that works when students are disenchanted with the educational process. Children are natural performers, and this is one way to introduce play into the learning equation. Performance is a way to get children to become engaged, active and motivated participants in school. Performances can range from impromptu skits in the classroom to elaborate professional-quality stage productions.

Halsey Junior High School in Queens, New York allows its students to write, produce, direct and act in a series of contemporary skits as part

¹⁵ For information about Reece and other international award-winning schools, please see <http://www.designshare.com/Awards/Review.asp?ProjType=HIG>

of its annual production. These performances involve literally hundreds of students and introduce them not only to the traditional range of dramatic skills, but also teach them important lessons in planning, collaboration, accounting, public relations, administration and management. Students are willing

and pursues volunteer initiatives that build and strengthen communities.”¹⁶

The great thing about performance-based education is that it can be used to teach just about anything, with little or no infrastructure. This is evident from the wide acclaim earned by one national award-



to put a lot of effort into this endeavor, because it is always well-received by their audience of peers, parents and community residents. Often the enthusiastic cheers from the audience drown out important dialogue on stage, though no one seems to mind.

Another great example of using performance to engage students is the All Stars Project (ASP) based in Newark, NJ, Philadelphia and Oakland, CA. “The ASP creates outside of school, educational and performing arts activities for tens of thousands of poor and minority young people. It sponsors community and experimental theatre, develops leadership training

winning social studies teacher who was featured by Disney in its Creative Classroom series. His secret? His classrooms are almost all devoted to helping students discover the joy of learning through performance. By the students’ own admission, this teacher’s class help them develop a deeper understanding of the subject matter and also makes them think both critically and in ways that allow them to apply skills learned in one context to a different context and time. Imagine what it would be like for a student to play the part of a historical figure based upon thorough research and study of that character and the social context in which that character lived, and compare the

¹⁶ All Stars Project, Inc. <http://www.allstars.org/index.html>

quality of that learning experience with "learning" the same material out of a textbook.

21 Non-Academic "Life Skills" Curricula

- **Conflict Resolution:** The ability to peacefully resolve conflicts is a vitally important skill. Most individuals are left to figure out for themselves the best way in which to deal with conflict - be it with members of the family, with friends or with colleagues. But many schools actually "teach" students how to deal with and resolve conflicts in their life. Not only is this important in building better citizens, but it also addresses the problem of conflicts interfering with a student's ability to get the most out of school.
- **Character Education:** Since humans are not necessarily born with character traits like caring, civic virtue and citizenship, honesty, justice and fairness, respect, responsibility and trustworthiness, they need to be introduced to these virtues in school - particularly when they do not have adequate role models at home. However, it is not possible to "teach" character, because these are virtues that must be appreciated and practiced over time. Schools are finding that it is far easier to build character in non-traditional settings where students work independently and cooperatively in hands-on environments. By more closely duplicating the work environments of the real world, students are able to "practice" virtues and perfect them while their essential natures are still developing.
- **Teaching Wisdom:** It is a well accepted notion that "wisdom" is something gained with

experience - and many believe that age is a prerequisite for wisdom. However, wisdom is nothing more than the ability to face life choices and make good decisions, decisions with the potential to yield the best long-term results. Another aspect of wisdom is the ability to make decisions that positively impact the maximum number of people - thus differentiating wisdom from selfish acts that may yield positive benefits for oneself at the expense of others. Robert Steinberg, Professor of Psychology and Education at Yale University, is an ardent believer in the idea that wisdom can be taught. Unlike IQ, which is mostly inherent and difficult if not impossible to change, wisdom, according to Steinberg, can be acquired. Further, Steinberg maintains, wisdom is an even more important "life skill" and certainly a better predictor for success in life than IQ. To prove his point, Steinberg talks about how "smart" people can make "stupid" decisions - implying that "practical intelligence" or wisdom is not the same thing as intellectual intelligence or IQ. Steinberg defines wisdom as a human quality "based on common values that run through most religions and cultures: reciprocity, courage, sincerity, honesty, integrity and compassion. It involves knowing what you know and what you don't know. It is sustained by balance: balance between one's own and others' interests; by short- and long-term perspectives."¹⁷

It is important for children to "learn" how good decisions have positive life-long impact, but children are often asked to learn

¹⁷ "So you think you're smart, stupid?" The Guardian, Tuesday, June 25, 2002.

wisdom by osmosis - watching adults make decisions. Obviously children who grow up with wise adults who make good decisions are more likely to learn wisdom themselves. However, rather than leave it to chance that children may be able to watch and emulate good role models, schools can follow Steinberg's lead and "teach" wisdom. This can be done via highly visual and interactive exercises where students are exposed to hypothetical "real world" scenarios and then asked to make good decisions. Through a process of discussion, children get to understand the ramifications of their decisions and are taught the difference between short-term gratification and long-term fulfillment. By learning to make good decisions in school under a variety of situations, students acquire an essential life skill - that of wisdom.

22 Meaningful Career Counseling

Career counseling in school has come a long way from the traditional "career day" or worse, the "tracking" of students according to so-called ability. Today, we know that students may be "intelligent" in a hundred different ways. In a forum on educational planning published on DesignShare.com, I had noted, "Let me hasten to debunk the myth that kids who are good or even brilliant at science and math are more 'intelligent' than those who are not. Let's face it. In this increasingly complex world, we need such 'whiz kids' more than we ever did and we should do everything we can to encourage them to achieve their fullest potential. But do we have to make the other kids who have no interest in science and math look stupid in the process? What happened to actors and musicians

and artists and architects? The counselors and naturalists and chefs and jewelers and librarians and historians and writers, marathon runners and entrepreneurs? Society will still need all these people so why are all children forced to compete with the future geneticists and rocket scientists?"¹⁸

Good career counseling programs meet children where they are and nurture the talent that all children have. New Paradigm schools build on students' innate strengths and abilities and encourage them to pursue their interests in careers of their choice. Career counseling recognizes that while some students are certain about the career they want to pursue as adults, others are less sure about their life goals. Despite their uncertainty, schools can do a lot to prepare students for a good career by focusing on the life skills that most adults will need regardless of their career choice. These include social and emotional intelligence, collaboration skills, research skills, and critical thinking ability.

23 Social/ Emotional Counseling

Studies have shown that social and emotional skills are a more important determinant for life success than professional competence in any particular field. While it is not likely that a reclusive personality can be converted into a social butterfly, it is possible to teach children socialization skills at an early age. The best way for them to develop

¹⁸ "But Are They Learning?" A Conversation between Bruce Jilk and Prakash Nair, Forum on DesignShare.com.
http://www.designshare.com/Research/Nair/Are_They_Learning_Forum.htm

good social skills that they can use in life is to practice these skills while in school. Student-centered schools, by virtue of giving more opportunities for students to work in collaborative settings, thus provide better life preparation.

Similarly, students who are having difficulty in school due to emotional problems can be counseled at an early age to work through their problems. They can also be taught important emotional skills they will need to use in life - such as anger management and understanding the connections between their feelings and their life experiences or "sub-text". In student-centered schools, students who have weak social and emotional skills are also easier to spot, since they are unable to "hide" behind high academic achievement. Not only can these students benefit greatly from the more social nature of student-centered schools, but they are also likely to be helped through peer and adult counseling - both essential components of a New Paradigm school.

24 Physical Fitness Programs - Beyond Sports

Why do schools focus so much on sports and so little on physical fitness? While sports has universal appeal, and schools should encourage all those interested to play sports, it is a well-known fact that only a tiny fraction of students who play sports in school actually continue to pursue sports as a physical activity after school. Beyond this problem, it is also important to remember that only a small percentage of a school's total population can participate in its sports teams. As for the rest of the students? They are relegated to boring "gym" periods with listless (and often forced) physical activity.

In America, it is obvious that public schools are doing a terrible job in the arena of physical fitness. Today's teens are more obese and less healthy than at any time in recent memory. For example, in Texas, nearly 40% of all 4th and 8th graders are obese.¹⁹

The lack of a sustainable physical fitness regimen is not only a health problem, but it also has direct ramifications on the academic performance of students, their rate of absenteeism, and their mental health and overall well-being. The way to attack the problem is to develop physical fitness programs in school that students can continue to utilize throughout their life. Such programs run the gamut of activities from dance and aerobics to yoga, walking, hiking and bike-riding (the last two in areas where outside terrains permit). Indoor activities can include jogging on indoor tracks, recreational swimming and weight training. When student "gyms" begin to look more like adult physical fitness centers, they are more likely to develop healthy, lifelong habits.

A more complete physical fitness regimen in school will include related classes in nutrition, health and cooking. The idea is to teach students that good health is involves a balanced diet and a regular regimen of exercise - and that these aspects of living can actually be fun and enjoyable while serving to enrich all aspects of one's life.

"So, educators across the country, including Texas, are turning to what is being embraced as a socially gentler, scientifically smarter 'New P.E.' Students spend part of their class time engaging in their choice of popular cardio activities such as kick boxing, Pilates, fencing, juggling and tai chi, and part of it studying subjects such as cholesterol, dental

¹⁹ Texas Department of Health

care, drug prevention, blood pressure and body composition.”²⁰

25 Outdoor Learning



An argument can be made that keeping students in indoor classrooms for extended periods of time over the course of many years, "chained" to hard chairs for the ostensible purpose of learning, is nothing short of inhumane. Children, even more than adults, need to move around and experience the outdoors. In fact, there is definitive research about the importance of sunlight and fresh air being essential for healthy human development and academic achievement. By imbuing outdoor activities with some educational purpose, schools achieve the dual goals of making learning more authentic while simultaneously allowing children to be more physically, socially, emotionally and spiritually healthy.

26 Student-Run Independent Newspaper

One of the biggest obstacles that New Paradigm schools have to overcome is the hard-and-fast rule in most schools that students become second-class citizens when they enter the school building. Other than

²⁰ "New P.E. Finds Way into Schools" by Paige Hewitt, Houston Chronicle, May 7, 2003

prison, it is hard to find any institution in which the "inmates" have so little power. The irony of this situation is that schools are intended to "serve" the student population, and it is hard to understand how the idea of "service" became equated with a demand for subservience to the "rules" of the adult establishment. An institution whose basic purpose should be to develop student autonomy toward preparing students to enter the world as responsible citizens is instead focused on fostering dependence and obedience to authority. There is nothing in the research that suggests that such control exercised by schools over every aspect of a student's day and behavior has any beneficial effect - and so the idea that "it is for their own good" holds no water at all.

How to solve this dilemma? One answer is to give students a real voice in school. An independent student-run newspaper unimpeded by adult interference can begin to serve this purpose. But can any school afford to allow students to produce a journalistic piece without censorship? Actually, yes. A pilot program run out of a New York City public high school (Middle College High School at LaGuardia Community College in Queens) does just that -- and in spite of the fact that the student body is made up entirely of kids transferred from other high schools due to ongoing behavior problems. Students produce an independent daily newspaper with no oversight whatsoever from any school official. Instead, the newspaper is produced with guidance from professional journalists who work for the City's major newspapers. Fears that a completely independent student voice would wreak havoc on the delicate student-staff balance of power in school have not materialized at all. Because students have so much power to write what they want to, they take their responsibility seriously. Taking their

cue from their professional advisors, students really research their stories and are careful when they say anything critical about the establishment by making sure that their facts are accurate. Since they are responsibly written, such "negative" stories, whenever they have appeared, actually encourage the school's establishment to solve the problems the stories address. The journalism project is not just an exercise in student independence. It has become a tool of empowerment - solving many social pathologies associated with an inner city high school. It shows that when students stop feeling powerless and are able to take charge of their own destinies, school begins to have a different meaning in their lives, becoming a positive stepping stone for life success.

This student journalism pilot program was so successful that it has been accepted by Columbia University's Journalism School for replication in schools throughout the city and possibly nationwide.

27 Relevant Staff Development and Adequate Staff Preparation Time



I have interviewed many teachers whose classrooms are models of New Paradigm schooling. They are uniformly of the opinion that this method of teaching - serving as a guide and mentor and allowing students to "discover" knowledge, is far more unpredictable and difficult

to manage than a traditional classroom. It is no longer possible for a teacher to rely exclusively on so-called lesson plans and repeat them year after year.

In order to be good facilitators in project-based learning (PBL) environments, teachers need substantially more preparation time and more staff development seminars that expose them to the latest research and effective methodologies for managing non-traditional "classes". But once they are freed from the isolation of their classroom, teachers are also eager to team with colleagues to design multidisciplinary projects. For PBL to be effective, it is not unusual for teachers to need up to two hours of preparation time each day.

28 "Rubrics" and Portfolio-Based Assessments

Multiple-choice tests are just about the worst way to assess how much progress a student has made in understanding a given subject. One's ability to remember something long enough to spit it out on a test is quite different than "learning" the material so that the knowledge can be applied in other contexts and become a useful life skill. Deep understanding of a subject is best evidenced by original student work that demonstrates that understanding. With project-based learning has come the need to develop better and more authentic assessment measures.

In her non-traditional geometry class discussed under the PBL strategy above, Eeva Reeder developed a rich "rubric" that measured student learning in a variety of areas. Reeder's rubric was also keyed to the State's standards. Another form of assessment is the student portfolio. A portfolio of student work - often stored electronically on the Internet at a student's own website - is now

becoming a legitimate and more genuine assessment of how much a student has actually learned than performance on a test. Portfolios can be created not only for older students, but for younger ones as well.

The primary purpose of a student portfolio is to provide both teachers and the students themselves with a meaningful measure of learning. Good student portfolios done by high school students also become valuable tools to help them gain admission to a good college or even enter the workplace. Showing prospective employers actual work products is a far more convincing way to indicate the student's abilities and increase salability in a particular industry than a good set of "marks" or grades which proves good test-taking skills but little more.

29 New Paradigm School Building/Campus Design

It is impossible to accept the idea of New Paradigm schooling and not also understand that these kinds of programs are best conducted in non-traditional learning settings. For example, as the earlier discussion on advisories illustrates, New Paradigm schools challenge the preeminence of the classroom as a school's basic "building block", challenging the "cells and bells" model for school planning and organization still prevalent today.

When designing a brand new school, there is no reason why classrooms (at least in the traditional sense as the primary location for most "learning") should enjoy the kind of preeminence they have in the past. Several new school buildings that could be considered exemplars of New Paradigm teaching are

organized without traditional classrooms.²¹

Despite the success of these truly New Paradigm learning environments, it is highly unlikely that educational establishments and local communities will be ready to start building schools without classrooms. This reluctance to break away from tradition must be seen in light of the reality that a majority of the world's school buildings have already been built - and almost all of them have classrooms. The good news is that New Paradigm schools *can* still work even with a basic building arranged around classrooms. Sometimes, just re-labeling the classroom and arranging it so that the lecture format is no longer the primary form of instruction within the confines of this room can work wonders. In writing for Education Week, I described this and several features of a new paradigm school building as follows.²²

"Research is still sparse when it comes to evaluating the benefits of nontraditional learning spaces on learning outcomes. However, since there is solid evidence that progressive methods of education do work when properly implemented, it makes sense that school facility design should follow suit and support the new teaching and learning modalities. Here are 11 ways in

²¹ These include: The Zoo School, The Interdistrict Downtown School, Crosswinds Middle School, the Avalon School and the Harbor City International Schools in Minnesota; High Tech High in San Diego; the Center for Advanced Technology and Career Exploration in Virginia; The Reece Community School in Tasmania, Australia; and the Discovery 1 School in Christchurch, New Zealand.

²² *"But Are They Learning?"* Commentary by Prakash Nair, Education Week, April 3, 2002.

which small, learner-centered schools will be configured, though the list should not be read as some precise prescription for what will work in a particular community.



1. Learning Studios Instead of Traditional Classrooms. Classrooms will give way to multipurpose "learning studios," places where different children

could be engaged on different tasks in various activity zones. Daylight will be abundant, fixed furniture will be eliminated, and there will be adequate room for resource areas that students can use as they see fit—not on some predetermined schedule.

5. Multi-age Groupings. As a reflection of the real world, most student groups will be based on aptitudes and interests and represent a range of ages.

6. Learning Outside School. Older students will spend a significant part of their time—perhaps as much as two or three days a week—outside the school building, involved in community service and school-to-work programs, and all students will share the wealth of the community's many learning resources, like libraries, parks, and museums. This means that buildings may not need to accommodate as many students as before and could be built to a smaller scale.

7. Parent and Community Use. Areas will be designed with all the amenities needed for school-hours use by parents and volunteers and after-school use by all community residents.

8. Teacher Workrooms. Places will be provided for teacher research, collaborative work, and student meetings that treat teachers like the professionals they are.

9. A Place to Think. Students will have places where they can enjoy a moment of solitude, where they will be

both individual space and group gatherings.

2. Kivas, Atriums, and 'Learning Streets' Replace Corridors. Beyond the learning studio, new learning environments will have fewer corridors where students run past one another and more open areas—both within and outside the building—where social interaction is encouraged. A number of schools that have put these ideas into practice are showcased in the DesignShare- and School Construction News-sponsored 'Awards 2000' and 'Awards 2001' programs.

3. Project Rooms for Project-Based Learning. These will be high-ceilinged areas with ample power,

gas, work tables, and specialized equipment. They are places where students can work on long-term projects—usually building something. Such rooms are distinguished from the traditional science labs and art rooms by the fact that they are not specialty-oriented. That means one student could be building an architectural model next to another who is painting a large canvas next to a student building a robot. As with the world outside school, projects won't start and end with bells, and students will work on them at their own pace.

4. From Programmed Spaces to Resource Areas. The school library or media center, cafeteria, and fitness center will become

allowed both the time and the space to think or not think. Almost every creative endeavor is achieved at least in part through moments of solitude. Given the frenetic pace of modern daily life, the need for places that nourish the spirit and provide those moments has never been greater.

- 10. Technology as Liberator.** With wireless laptops and other digital communications devices proliferating, and with the Internet becoming available to students when and where they need it, there will be less reason for students to be situated in a classroom to learn. Wireless technology will also permit equipment previously fixed in place, such as data projectors, printers, and scanners, to move freely around the school.

The school day will not end when students leave the building. Learning will continue at home, as students and teachers talk to one another via e-mail, or perhaps audio and video chat sessions. With more online course offerings, many classes will have no connection with the school building at all. 'Classmates' will not be limited to those who share the same space, but will include those who share the same interests—in town, in another town, or even in another country.

- 11. Living, Not Static, Architecture.** The building will be designed as a 'living' space for maximum flexibility and change, so that the mix of learning areas—individual, team, small-group, and large-group—can be



adjusted easily as needs vary."

30 After-School Programs and Community Use of Schools

While the term "community schools" is widely used, one would be hard pressed to get consensus on what exactly this means. Mostly, community schools refer to schools which open early in the morning and close late at night so that they service the entire community and not only the students who attend the

strengthen the community while at the same time improve both children's and adults' opportunities to get a better education.

The CAS' idea of setting up community schools in partnership with the City's Board of Education and a number of other public service agencies in New York City, has been successfully realized at various locations within the City. According to the CAS vision that led to the creation of these schools, "The community school would be an integral part of the neighborhood, a focal point in the community to which children and their parents could turn for a vast range of

What we proposed was not simply to use the schools in the after-school hours, but to work side-by-side with parents, teachers and the broader community to ensure that children are given every chance to succeed

school. However, the problem with most community schools is that they strongly delineate the academic and non-academic components of the programs offered so that there is little synergy between the two. This problem has been effectively solved by the Children's Aid Society (CAS) in New York City, whose community schools are developed in order to

support and services. It would simultaneously reach for the highest educational goals and standards, and contain all of the health, welfare and youth development services of a large social welfare agency. Medical, dental and mental health services, family life education and even summer camp opportunities would all be accessible through this one

building, while the comprehensive focus of every activity would be the promotion of children's learning and development. The building would be open up to 15 hours a day, weekdays and weekends, year-round. What we proposed was not simply to use the schools in the after-school hours, but to work side-

districts and the students they serve operate under the traditional teacher-centered model of education. However, the climate for change within the traditional systems is right because of the many pressures they face from alternative systems. The most visible alternatives to the traditional model

Finally, real and sustainable school improvement can only happen when entire communities are both informed about and involved in the process of change. This Guidebook can become an important catalyst for both.

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by-side with parents, teachers and the broader community to ensure that children are given every chance to succeed."²³ Community schools whose creation was coordinated by CAS have vastly improved school achievement and its value to the community by a variety of measures. There is improved academic performance, improved attendance rates, greater parental involvement and improved student-teacher relationships, schools are safer and environments are more cheerful and welcoming to both parents and students.

Conclusion

In the end, this Guidebook is about repairing what we have today and not replacing it altogether. There are purists who will argue that the current system, created for a different time and world is so far removed from what today's learners need, should be scrapped altogether and not be subject to band-aid fixes.

If one could wave a magic wand and instantaneously create a new system of education, the purists' argument would be valid. However, we have 60 million public school students in 15 thousand school districts in the U.S. alone – and one could safely argue that close to 99% or more of these

are offered by home schooling, charter schools and online schools. These alternatives systems have strong advocates and are growing rapidly. As the alternative models continue to grow in size and respectability, the influence and size of the traditional education establishment will diminish. Some will argue that, in most communities, the traditional establishment will simply disappear as it becomes increasingly irrelevant. Of course, some of the more agile bureaucracies (if the two words can ever be juxtaposed in this manner) will adapt to the new order and reinvent themselves so that they become the alternative of choice for parents, students and communities.

While no one can predict exactly when the vast majority of students in this country can expect to benefit from systemic educational change, few will argue that such systemic change that will benefit tens of millions of students is still at least several years away. This Guidebook is written for the intervening period – for the next few years during which current systems will remain firmly entrenched. The strategies themselves, while they are geared toward a student-centered model of education, can be incorporated within existing systems. They do not threaten current establishments, but rather, provide tools to make them better, thus increasing the chance that they will be adopted.

²³ Building a Community School. Third Edition. The Children's Aid Society, New York.

About Prakash Nair



Prakash Nair is a futurist, a visionary planner and architect with Fielding Nair International, one of the world's leading change agents in school design. He is also the Managing Editor of DesignShare.com which attracts over one million visitors each year. He is the recipient of several international awards including the prestigious CEFPI MacConnell Award, the top honor worldwide for school design.

He has written extensively in leading international journals about school design and educational technology and their connection to established educational research. He is also the author of two guidebooks on school planning including the landmark 2005 publication, *The Language of School Design* which he co-authored with his partner Randall Fielding.

Prior to co-founding Fielding Nair International, Prakash worked for 10 years as Director of Operations for a multi-billion dollar school construction program for New York City.

Prakash led the effort to develop a new research-based tool to evaluate the educational effectiveness of schools. This tool (EFEI), is now in use by schools and governments and will revolutionize the way we look at how school buildings and campuses actually work to support teaching and learning.

FNI has serviced projects in 26 countries on 5 continents. Prakash has served as the Managing Principal, school planning and design consultant, presenter and/or keynote speaker for clients in Australia (five states), Canada, Finland, India, Indonesia, Kazakhstan, Malaysia, Mexico, New Zealand, Qatar, Singapore, Switzerland, Thailand, The Netherlands, Spain, U.A.E., U.K. and the United States.

By staying current with the research as well as national and international social, economic and cultural trends, Prakash is always able to bring best practice thinking from many disciplines and fields to bear on education-related problems and projects. This approach has helped education clients save millions of dollars while still achieving or exceeding their schedule and quality expectations.

Prakash's signature talent lies in his ability to communicate his passion for a new approach to education across the globe. He has consistently built strong partnerships with local firms, helped client communities visualize their future, built consensus for uniquely tailored solutions, and helped execute them successfully. You can contact Prakash by emailing him at Prakash@FieldingNair.com.

30 STRATEGIES FOR EDUCATION INNOVATION

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\$20/Education/School Innovation

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This publication has been developed with funding from the following sponsor:

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Executive Editor: Jody Sampson

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Printed in the United States of America

Cover Photo by Prakash Nair.