

Transcendent Schools for the 21st Century

By Greg Monberg, George Kacan and Riyad Bannourah

Amidst the debate over funding cuts, an increased focus on teacher effectiveness, and the move toward e-learning, many question the importance of quality educational facilities. But an examination of developmental and psychological theory suggests that exceptional schools have an exciting and crucial role to play in 21st century education.

“We don’t want a Taj Mahal School.”

“We need a Chevy school, not a Cadillac.”

“Buildings don’t matter; kids can learn in tents.”

Anyone involved in the planning and design of school facilities has almost certainly heard one, or all, of these statements. At their core, these sentiments call into question the role of the learning environment in the educational process. In these economic times—when funding for education is increasingly limited and budget cuts are the norm—is it more important to spend our money on teachers than on facilities? Can the quality of a teacher transcend a subpar environment?

Put another way, “Do school facilities matter?”

This question is in no way new. For years, educational theorists, psychologists and economists have tried to identify the specific factors which impact a person’s development. Their findings not only suggest that schools do indeed matter, but that they have an important new role to play in the educational process—one that is focused on inspiring achievement rather than limiting obstacles to education.

A Tale of Two Communities

To highlight the difference that school facilities can make, it is helpful to examine two very different learning communities.

In 2008, the American Institute of Architects’ Committee on Architecture for Education held its annual conference in Helsinki, Finland. The theme of the conference was “Schools in a Flat World: Global Perspectives in Pedagogy and the Built Environment,” and part of its purpose was to expose attendees to Helsinki’s schools, which are widely acknowledged to be among the best and most sophisticated in the world.

Contrast this with a 2010 trip to Haiti sponsored by Schools for Children of the World (SCW). Organized in response to the devastating earthquake, the purpose of the trip was to help rebuild the nation’s schools. Upon arriving in Léogâne, one of the hardest hit regions of Haiti, the SCW team found students learning in tents that served as makeshift schools. It was not a rare occurrence to see goats grazing inside the “classrooms.”

The juxtaposition of these very different learning environments raises an interesting question: What role do schools play in the quality of education in Helsinki and Haiti? Historically, Haiti has one of the lowest literacy rates of any of the Latin American and Caribbean countries, while Finland has some of the highest literacy rates in the world. Obviously, there are many social, economic and political factors which lead to these results. But if you removed Helsinki’s students and

teachers from their modern schools and placed them in the tents of Léogâne, what would be the effect on student achievement?

Can you get great results teaching in a tent?

Development Theory and Environmental Impacts

For hundreds of years, humans have wrestled with the issue of our relationship to the surrounding environment. In 1935, the psychologist Kurt Lewin published his famous equation $B=f(PE)$, in which he stated that behavior (B) is a result of a person’s (P) interaction with their environment (E). This theory was intended to equalize the role of nature and nurture, stating that behavior was a product of the dynamic interaction between the two forces. Of equal importance was the emphasis that Lewin’s equation placed on an individual’s current conditions as opposed to their past experiences.

In 1992, Urie Bronfenbrenner, another noted psychologist and the co-founder of the Head Start program, suggested a substitution to Lewin’s theory, stating that a person’s development is the product of their interaction with the surrounding environment. This equation is presented as $D=f(PE)$, and explains how emotional, social and cognitive development occurs in context. (Bronfenbrenner, 2004)



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The work of these two eminent psychologists was ahead of its time. Both recognized the impact of the environment on human development, and both lamented the lack of focus in general psychology on an individual's physical environment, in particular.

Throughout the 20th century, the educational community displayed a similar reluctance to address the link between student achievement and school facilities. Then, in 1970, Eric Hanushek, an expert on educational policy, published a theory in which he stated that educational outputs are a function of innate abilities (I), family inputs (B), peer influences (P) and school inputs (S). This was expressed as an equation: $A_{it} = f(I_i, B_i^{(t)}, P_i^{(t)}, S_i^{(t)})$. (Hanushek, 1970)

Hanushek's equation does acknowledge that the school environment is a significant factor in educational success. However, a closer look reveals that three of the four inputs – innate abilities, family, and peer influences – primarily occur outside school

walls. This observation is further borne out by Dan Goldhaber, who, in a 2002 article in *Education Next*, cited research revealing that 60 percent of the difference in student test scores can be explained by factors outside the school itself. (Goldhaber, 2002)

The implications are obvious for the student of Haiti and Helsinki. Hanushek and Goldhaber's research suggests that, tents or no tents, the students of Haiti are hamstrung by their social and economic limitations. By the same token, the students of Helsinki—with their strong social structure and, by-and-large, privileged backgrounds—should be able to thrive in nearly any learning environment.

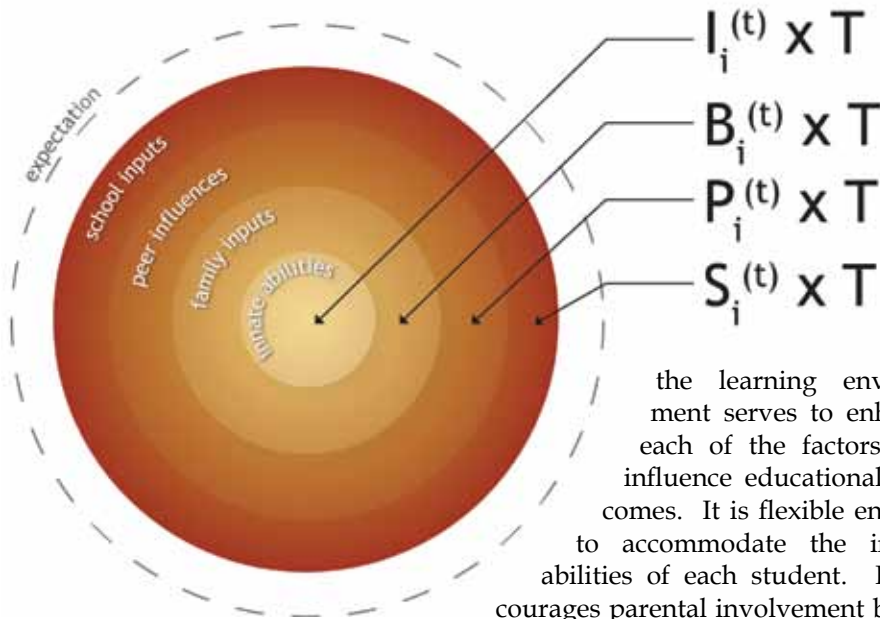
In the model of the school planning and design that defined the 20th century, the previous statement may be true. However, by taking a new approach to K-12 school planning and design, we can give school facilities renewed relevance in the 21st century.

The Deficit and Humanistic Models of Educational Facility Planning

In the mid-20th century, Abraham Maslow forever changed the field of psychology. Up until that time, psychologists viewed patients as a "bag of symptoms," made up only of diseases to be cured. (Hoffman, 1988) Maslow reversed this view, choosing instead to focus on the qualities of an exceptional person. From this revelatory change in emphasis came the famed Hierarchy of Needs.

To ensure that school facilities have a positive impact on education in the 21st century, there must be the same shift in focus. The 20th century approach to K-12 school planning and design viewed facilities as problems to be solved. How do we provide an adequate amount of space within the existing site? How do we meet the budget while accommodating the educational program? How do we remove barriers to learning?

By merely focusing on removing barriers to learning, we engage in a



the learning environment serves to enhance each of the factors that influence educational outcomes. It is flexible enough to accommodate the innate abilities of each student. It encourages parental involvement by establishing the school as a community center. It enhances peer-to-peer relationships through the integration of project-based learning environments and through physical and technological connectivity.

In short, in the Humanistic Model, a school is more than a vessel for the learning process; it becomes an integrated tool for enhancing education.

A Hierarchy of Needs for 21st Century Schools

Much like Abraham Maslow used a Hierarchy of Needs to explain what makes certain individuals so successful, we can use a Hierarchy of Needs to assist in the planning and design of school facilities. In such a hierarchy,

transcendent schools would satisfy all, or most, of the following needs:

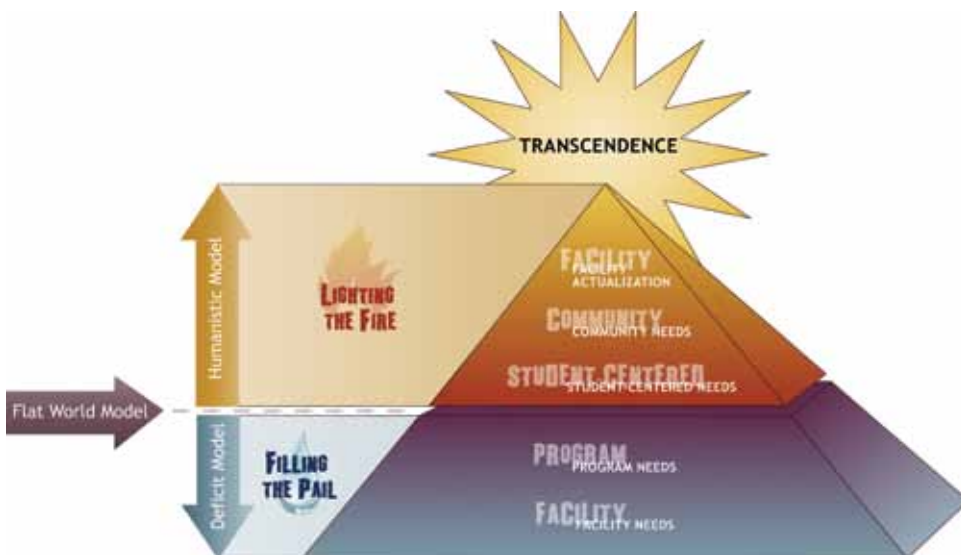
- **Level 1 – Facility Needs:** The school is safe, secure, weather-tight and code-compliant.
- **Level 2 – Program Needs:** The school has space appropriate to the curriculum and pedagogical approach.
- **Level 3 – Student-Centered Needs:** The school is optimized to meet the ideal environmental needs of students, reducing stress and increasing choice.
- **Level 4 – Community Needs:** The school is reflective of neighborhood values and meets esteem and community service needs.
- **Level 5 – Facility Actualization:** The school is a fully-integrated teaching and learning tool.
- **Level 6 – Transcendence:** The school inspires other communities to achieve similar results.

20th century, or Deficit Model, of educational planning and design. In this approach, a school has little chance to impact the 60 percent of factors which exist mainly beyond the boundaries of the campus. However, to meet the challenges of the 21st century, the educational community must adopt a Humanistic Model of educational facility planning, in which the physical environment acts as a catalyst for raising the quality all of these inputs.

The difference between the two approaches can be summed up by a quote attributed to W.B. Yeats: “Education is Not the Filling of a Pail, but the Lighting of a Fire.” In the Humanistic Model of educational facility planning,

As in Maslow’s Hierarchy of Needs, one level is not necessarily more important than the others, but each lower level must be achieved before the next can be reached. For example, if students do not feel safe in their classroom, or if the learning environment is not arranged to effectively support the current curriculum, it does not matter how much daylighting you have or if you employ the latest technology. Each level of the hierarchy builds upon the next, and school districts must address all needs to create a truly transcendent school.

In the same way, the higher you go on the Hierarchy of Needs, the easier it is to achieve the next step. This suggests that in educational facility planning, the majority of the available resources should be spent addressing lower order needs. A school only achieves transcendence when it first lays the groundwork by providing a safe, educationally-appropriate learning environment. In fact, once a level



has been satisfied, many districts naturally begin to focus on the next.

The Future of Transcendent Schools

So, what does a transcendent school look like? Boiled down to its simplest terms, it is about creating connectivity among students and their surroundings. The traditional classroom model filters information through a primary source, “the sage on the stage.” In an integrated classroom, all students are connected and can learn from one another. The teacher then becomes the “guide on the side.”

The ubiquity of digital information is another important aspect for a transcendent school. Although technological change is rapid and seemingly unpredictable, the direction of change is apparent – towards lower cost and increased connectivity, mobility and speed. This requires school districts and their planning and design consultants to have a clear understanding of technology and its influence on curriculum delivery. Cloud computing, thin clients, virtualization – each of these developments are changing how students and teachers interact. In the future, the classroom will not be as we know it today. However, by following the Hierarchy of Needs, we can ensure that the school – in whatever form it takes – will be a relevant and powerful tool for intellectual, social and emotional growth.

It is this commitment to growth and change that is the most exciting for school districts, educational planners and architects. In the previously referenced 2008 trip to Finland, two members of the AIA Committee on Architecture for Education spent time exploring nearby Estonia. There they found the Adolphi Gustav School, which was established in the 1600s by the King of Sweden and is housed in an 800-year-old building that originally served as a nunnery. But rather than touring an old and outdated structure, the architects were treated to a high-tech learning environment, complete with LCD images projected onto centuries-old stone walls and interactive

whiteboards being used to teach students about the work of Frank Lloyd Wright.

Located a world away in an 800-year-old building, these Estonian students were taking a virtual tour of Frank Lloyd Wright’s Falling Water. This scene typifies the educational landscape of the 21st century – a world that is rich with opportunity. As educators, educational planners and architects, it is our job to ensure that these opportunities are met with relevant, functional and inspiring school facilities. It is our job to do more than “fill the pail”, we must transcend what we thought was possible just decades ago and “light the fire” by creating dynamic learning environments that allow students to meet the challenges of an increasingly complex, connected and wondrous world. ■

Greg Monberg, AIA, REFP, LEED AP BD+C, is a principal with Fanning Howey and has focused on school design for more than 17 years. He is an active member of CEFPI, and recently volunteered for the Haiti Relief Task Force sponsored by CEFPI and Schools for Children of the World. In 2008, Greg participated in the AIA-CAE “Schools in a Flat World” Conference in Helsinki. His recent projects include the award-winning Harding Elementary School in Hammond, Indiana, and the new Greater Gentilly High School, one of five “Quick Start” schools constructed as part of the rebuilding efforts in New Orleans.

George Kacan’s, AIA, REFP, LEED AP, experience as a school architect spans the country, ranging from Washington, D.C. to Detroit, Michigan, to the state of Washington. As a member of the American Institute of Architects’ Committee on Architecture for Education, George participated in the AIA-CAE “Schools in a Flat World” Conference in Helsinki. During the course of his career, he has focused specifically on the need to restore our nation’s aging buildings and equip them to serve the students of tomorrow. His experience in this area includes the award-winning modernization of Phelps Architecture, Construction and Engineering High School in Washington, DC.

Riyad Bannourah served as technology designer for the Multimedia Broadcast Academy. He has more than 30 years experience in the technology design industry, with the last 14 spent focusing solely on school facilities. Riyad has presented new trends in technology design at conferences for CEFPI, the Michigan Institute for Educational Management, and for E-School in Washington, DC, and has contributed to multiple articles on safety and security issues in schools. Recently, Riyad directed technology design for the new V. Sue Cleveland High School in Rio Rancho, New Mexico, a 2010 James D. MacConnell Award Finalist.