Maintaining a Safe and Healthy School
Environment for Learning

Abstract

President Obama's Education Blueprint of March, 2010 pinpointed safety and health conditions of school facilities as essential elements to improve school learning environment. The Blueprint concluded with increased flexibility and use of data to target health and safety needs of schools. This paper explored the current literature about school safety and health environment issues and discussed how safe and healthy school environment could be created. In addition to budget constraints, poor design, poor construction, poor supervision, poor maintenance, high abuse, high vandalism, high maintenance, and high risks are identified as challenges to school safety and health conditions. Implementation of flexibility and use of data to achieve a safe and healthy school environment for learning was also discussed.

Providing a safe and healthy school environment is fundamental to student learning. This is fully documented by Maslow (1943) who identified safety needs and physiological needs being the basic needs of his Hierarchy of Needs of Human Motivation. However, what is disturbing is, according to School Facilities: American's Schools Report Differing Conditions (Government Accounting Office, 1996), about one-third of the school buildings in the United States were in extensive repair or replacement conditions. Many of these conditions constitute clear safety code violations. The same report also found that more than half of U.S. schools have unsatisfactory environmental conditions. Recent literature has also provided sufficient evidence that safety and health conditions at school threaten the learning environment of students (Schneider, Walker, & Sprague, 2000; Tanner & Lackney, 2006). President Obama's Education Blueprint particularly pinpoints safety and health conditions of school environment as essential elements to improve student learning (U.S. Department of Education, 2010a). In support of the Blueprint, the U.S. Department of Education elaborated the President's direction to include increasing flexibility and use of data as essential approaches to target health and safety needs of schools (U.S. Department of Education, 2010b). It is clear that safe and healthy conditions of schools have become essential school issues educational leaders need to address expeditiously. In addition, as educational accountability is becoming more and more demanding, school leaders, not only are held responsible for the safety and the healthfulness of students in school, but also are closely scrutinized for how they proactively and reactively respond to safety and health issues in school.

A Safe and Healthy Environment and Student Learning

Current literature is abundant with documents in support of safe and healthy school environment for learning. Studies have indicated that most young children were at higher risk of safety at school than elsewhere (Kelly, 2010; Kingsley, 2000). As reported by Schneider, Walker, and Sprague (2000), increasing number of students had been killed and injured on school grounds since 1993. Walker and Eaton-Walker (2000) analyzed that schools encountered vulnerabilities to their safety and security in four major areas: (a) the design, supervision and

use of school space; (b) the administrative operations and practices of the school; (c) the neighborhoods and surrounding environments of the school; and (d) the behavioral characteristics and histories of the enrolled students. In view of continued crisis in school, to maintain a safe learning environment, Kerr (2009) formulated a model for school crisis prevention and intervention to include such components as prevention, preparation, response, and recovery.

School cleanliness is related to the design and health conditions of the environment as well as the health of the school building occupants (Tanner & Lackney, 2006). Schmidt (1994) pointed to floor carpet acting as a sink to collect and entrap soil, micro-organisms, plant and fungal spores, pollen, chemicals, and other allergens. The U.S. Environmental Protection Agency (2000) warned that moisture trapped in rooms could become a primary source of microbial growth which frequently results in adverse human health effects. Dunklee and Silberman (1991) recommended specific procedures to ensure healthy indoor air quality. The Responsible Industry for a Sound Environment (1999) focused on the importance of pest control to maintain a healthy school building. A comprehensive plan was developed by Marx and Wooley (1998) to lay out steps to create a healthy school environment. In plain language, Shideler (2001) simply states that a clean school is a healthy school that supports learning.

Creating a Safe School Environment

A safe school environment consists of physical safety and strategic safety. Physical safety refers to the safety of school buildings that house the students. School buildings continue to deteriorate as they are aging. The physical conditions of school buildings need to be inspected on a timely basis to ensure student safety. Daily and periodic checklists have been developed by Chan and Richardson (2005) to serve as essential tools to detect building deficiencies. No school leader could afford the consequence of students getting hurt in school as a result of negligence in school building inspection. School building emergencies need to be reported to School Maintenance Department immediately. The school safety hotline has to be connected with School District Security Department, Police Department, Fire Department, and Hospital System for speedy assistance. To examine the security and fire safety of school buildings, Ornstein, Moreira, Ono, Franca, and Nogueira (2009) have focused in the following areas: (a) the possibility of evacuating in case of emergency, (b) the building fire safety issue, (c) the safety and security against vandalism, (d) the security against thefts and invasion, (e) the safety against accidents within the building, (f) the safe use of staircases, and (g) the feeling of protection inside the building.

Strategic safety relates to planning for procedures to prepare for accidental and detrimental happenings. Today, intrusion alarms, motion detectors, security lights, and surveillance cameras have been installed in most schools as a means of protection. All school districts have established policies to require their schools to develop fire safety plans, bomb threat plans, tornado safety plans, and gun-fire safety plans to be submitted for review and approval. Rules also require schools to conduct drills of these plans to test for practicality and effectiveness. Any irregularities detected during the drills need to be well documented and corrected immediately (Crisler & Chan, 2007). Although the "what", the "when" and the "how" of school accidents cannot be forecasted, at least, school leaders are prepared to address the situations with all available connections and resources. A school safety audit helps assess where

the school stands in safety preparation (Folks & Hirth, 2009). This is the least that parents expect school leaders to do to fulfill their professional responsibilities.

Creating a Healthy School Environment

A healthy school environment goes far beyond basic cleanliness of the entire facility. To start with, school buildings should be constructed of materials free from asbestos and other harmful materials. Special attention has to be paid to cleaning restrooms and food serving areas per sanitary standards. Paint used in schoolhouse has to be lead free to meet the Standards of Building Code. Periodic steam cleaning of carpet is needed to extract the pool of bacteria embedded in carpet fabrics (Chan, Richardson, & Jording, 2001).

Food service equipment such as cooler, freezer, warmer, and dishwasher have to be kept at the right temperature to meet satisfactory sanitary standards. Drinking water fountains have to be made available everywhere in school (Fahey, 2000) and water needs to be periodically checked for possibilities of excessive lead contents which is injurious to health. In food supply, the provision of healthy breakfasts and lunches and the stop of junk food sales in school will help promote good diet practices.

Air quality of school buildings is a major concern (McPhee, 2005; Spencer, 1998). In air circulation, air exhaust systems need to be installed in all laboratories, restrooms, art room kiln area, homemaking room cooking areas, and the school kitchen for ventilation. School indoor air has to be periodically checked to ensure that it is free from pollution by radon, carbon dioxide, formaldehyde, and other poisonous gases (Johnson, 2007). Moisture of school building interiors not only causes bodily fatigue but also provides a warm bed for the growth of mildew leading to human sickness. Therefore, interior moisture control of school buildings has to be monitored on a daily basis to maintain an adequate comfort level for mankind (U.S. Environmental Protection Agency Indoor Environments Division, 2004).

In all the science laboratories, chemicals must be kept in secured storage to avoid spilling or leakage. Smoke disposal chambers need to be installed in science laboratories. Eye-washer and emergency shower devices need to be installed in science laboratories in case of accidents.

Additionally, a fully equipped health care room is needed in schools to provide a restful and comfortable environment for sick children to receive treatment. The room needs to be centrally located within the school, equipped with first-aid medical supplies and equipment, and staffed by a full time licensed nurse for medical emergencies.

Challenges to Safe and Healthy Environment in School

Budget issue. Tight school budget problems have laid constraints to many school projects including creating a safe and healthy environment for learning. Consequently, many school districts cannot afford to maintain the safety and healthfulness services as needed. This results in reduced management staffing, limited functional crime detection devices, less frequency in checking for facility safety, and fewer times inspecting health conditions of the school environment (Chan & Richardson, 2005). This is absolutely shocking to hear that the safety and health environment of a school is compromised for budget shortages? We strongly urge that school administrators place school safety and health conditions as top priorities of education business.

Poor design. Poorly designed school buildings create unsafe and unhealthy conditions for students. Sharp corners, rough walls, hidden areas, and slippery floors are typical examples of unsafe conditions. Hard to clean floors, inadequate air flow, and water with excessive lead contents create hazardous health conditions for students (Roberts, 2009). Unfortunately, some of the poor school building designs either are difficult to modify or cannot be modified.

Poor construction. Inferior construction quality of a school building could create safety and health problems for the students. Leaky roof, inefficient heating and air-conditioning system, faulty wiring, and flooding conditions as a result of poor workmanship could be both dangerous and unhealthy for the building occupants. While certain construction materials have warranties extended beyond one year, in most cases, workmanship has a typical one year warranty. Contractors should be held responsible for correction within the building warranty period.

Poor supervision. Student injuries are very often caused by poor supervision of student activities by teachers and staff. Many playground and laboratory accidents could have been avoided if close supervision had been exercised. Schools could mobilize community volunteers to help supervise student activities.

Poor maintenance. Poor school maintenance could be the result of ineffective planning, plain ignorance, procrastination, and misjudgment. The price to pay for poor maintenance could be costly because of the domino effect that one system failure leads to another (Vasfaret, 2002). Repair work to school buildings needs to be done soon after it is reported.

High abuse. Highly abused school buildings could cause unsafe and unhealthy conditions to occur. Types of high abuse could consist of excessive uses and misuses. Using storage rooms for instructional purposes, placing student workstations in hallways, and damaged floors in high traffic areas are typical examples of high abuse.

High vandalism. Vandalism to school buildings certainly is the cause of unsafe and unhealthy conditions to students. Unfortunately some schools are located in high crime areas of the community. Damage to school grounds and school building exteriors are commonly detected. Vandalism to the school building interior is mostly the result of violence caused by student fights and bullies. Vandalized school properties need to be repaired as soon as possible to avoid continued vandalism attempts (Cooze, 1995).

High maintenance. High maintenance areas refer to areas in the school building that have low durability. These are caused by either poor choice of construction materials or incorrect installation procedures. Frequent replacement is not only costly but also posts unsafe and unhealthy conditions while waiting for repair.

High risk. The use of temporary classroom buildings, though inevitable in growing schools, places students in higher risk than those in permanent buildings. Student safety and health conditions in temporary classrooms have been the problems of study by educators and environmental scholars (Choremiotis, 1993; Shelton, 2003). Plans need to be developed to replace temporary classrooms with permanent classrooms in a reasonable number of years. Meanwhile, increased patrol and security lighting could help reduce crimes in the surrounding areas.

Implementation of "Increase of Flexibility and Use of Data"

President Obama's Blueprint highlighted two significant strategies to meet the school's need for safety and healthfulness: increase of flexibility and use of data. In budget-tight years,

when resources for facility management are limited, it makes good sense to play smart on the flexibility and data-driven principles to improve school safety and health conditions. It is an interplay of the two strategies that works out best for the efficient use of resources. It has to be remembered that increase of flexibility and use of data are more than operational practices. The increase of flexibility and use of data in school safety and healthfulness indicates a change in administrators' and policy-makers' mindset. Educational leaders have to be convinced that flexibility and data-driven principles are the ways to school safety and healthy environments. Some of the flexibility and use of data examples and implementation of school safety and health conditions are discussed in the following:

"Increase of flexibility" strategy. Increase of flexibility starts with the use of funds in addressing school safety and health issues. When a school maintenance budget is finally approved after repeated cuts, it is almost down to the minimum. The deplorable budget can easily be overspent. For any special incidents threatening school safety and health conditions, school administrators should be given the authority to transfer funds from other accounts at their discretion to protect all school children by ensuring that they are housed in safe and healthy facilities. In addition, as Grebow, Greene, Harvey, and Head (2000) suggested, school health policies need to be established to ensure that health plans survive in the face of budget cuts and personnel changes.

In scheduling maintenance work, flexibility should be allowed to prioritize school safety and health problems on top of others. Since school safety and health conditions are critical issues, they need to be handled with no delay. In addition, flexibility has to be exercised in minimizing the bureaucratic procedure of requesting, reporting, and processing to accommodate a quick response to address the problems (Chan & Richardson, 2005).

In designing a school building, planners need to pay attention to the flexibility in the use of the classroom spaces. It is anticipated that changes in educational programs will occur during the long life expectancy of school buildings (Earthman, 2009). When educational programs change, the built-in flexibility would allow an easy conversion of existing classroom spaces to meet the new program needs. Without that flexibility, it is not unusual to see that, in crowded schools, many storage spaces are turned into classroom use and wide fire escape corridors are blocked with study stations. Violations of life safety codes as such pose a direct threat to student safety in school.

"Use of data" strategy. The use of school facility data to monitor the school maintenance needs is nothing new but unfortunately has not been given much attention for years. When a new school building is completed and put to use, little attention is paid to the life-long maintenance of the building. Data of the school building components can be analyzed and projected for life-expectancy and scheduled for routine services. School building components such as the roofing system, HVAC system, refrigeration system, floor system, and exhaust system need regularly scheduled maintenance to keep its functional use and life-expectancy. All data need to be well maintained for warranty purposes and problem diagnosis for the future (Castaldi, 1994). Well maintained school building systems with effective use of a database keep the school building safe and healthy.

Shoop (2004) created an inventory of major life-safety school building information for emergency use, such as utility supply systems, surveillance controls, emergency buttons, communication networks, fire safety zones, school building floor plans, and public agency contacts. All emergency school data are compiled and stored in a disk for emergency use.

At the same time, data from student injuries in the past year should be well documented. An analysis of accumulated student injury data will yield useful outcomes to indicate how and where the students get hurt (Schneider, Walker, & Sprague, 2002). Student injury data have become an important source of information to trace the origin and development of certain building problems to ensure student safety and healthfulness.

Another set of school building data that could impact student safety and healthfulness is the student enrollment and building capacity figures. Most school buildings are not designed for expansion and placement of portable classrooms. The core facilities including the office complex, media center, cafeteria, gymnasium, restrooms, and major hallways are usually designed to comply with minimum standards to stay within the construction budget. When student enrollment grows out of school building capacity, temporary portable classrooms need to be brought in to house the students. Eventually, a new addition of permanent classrooms will be constructed to meet the projected growth. Projected student enrollment and building capacity data could be employed as useful references to upgrade the core facilities to meet the safety and health standards (Georgia Department of Education, 1996).

In addition, periodically scheduled testing of water and air quality is a needed procedure to ensure that water and air in school are kept up to the approved national health standards. Historical data need to be well maintained to provide a continued record of environmental conditions (Shaw, 2000). In this way, any discrepancy of testing results can be easily detected. A well maintained dataset will help develop drastic measures to address critical health conditions at school in a timely manner.

Finally, the U.S. Department of Education (2010b) also recommends the use of school climate surveys to determine the nature of specific needs in schools. With data generated from the surveys, determination can be made to allocate resources to meet the health and safety needs.

Conclusion

President Obama's Blueprint of increasing flexibility and use of data to target health and safety needs of schools calls national attention to the importance of creating a safe and healthy school environment for learning. This is echoing school leadership responsibilities as outlined in Standard 3 of the Educational Leadership Constituent Council (ELCC) Standards that highlights the promotion of creating safe and healthy learning environments in schools (National Policy Board for Educational Administration, 2002). Additionally, the Blueprint clearly provides two directions (increasing flexibility and use of data) school leaders could pursue in achieving the goal of maintaining safe and healthy school environments. What is really needed at this time is to follow Obama's directions by seeking sufficient resources to develop and implement practical plans to protect our children from unsafe conditions and unhealthy environments at school. Almost all the school districts nationwide require their schools to develop emergency plans to deal with possible risks that threaten student safety and healthfulness. In developing school emergency plans, school leaders are reminded to seriously consider implementing the two strategies directed by President Obama. School safety and environment specialists have also prompted school administrators to take a data-driven practical approach to prepare for incidents that endanger the safe and healthy conditions for learning (Berry, 2002; Schiffbauer, 2000).

In his Education Blueprint, President Obama also calls upon American communities to exercise their commitment in support of education. School communities, including school partners, social leaders, parents, and public agencies can draw great resources to build a strong

hold for safety and health conditions at school (Chan, 2002; Marx & Northrop, 2000). Educators cannot afford school disasters of any magnitude at any time. In implementing their "flexibility and use of data" strategies, school leaders may find school communities most reliable in achieving their school goal of maintaining a safe and healthy environment for learning.

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