THE WORLD CONFERENCE ON
EDUCATIONAL ENVIRONMENTS

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Presenters:

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[www.adec.ac.ae/English/Pages/default.aspx](http://www.adec.ac.ae/English/Pages/default.aspx)

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Director of International Practice  
SHW Group

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Context of the Work:

Abu Dhabi
United Arab Emirates
Achievements since 2009

<table>
<thead>
<tr>
<th>Phase</th>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I</td>
<td>18 CI, CII &amp; CIII</td>
<td>Deliver 2011/12</td>
</tr>
<tr>
<td>Phase II</td>
<td>5 KGs</td>
<td>Deliver 2011 Construction started 2012</td>
</tr>
<tr>
<td>Phase III</td>
<td>15 CI, CII &amp; CIII</td>
<td>Awarded construction</td>
</tr>
<tr>
<td>Phase IV</td>
<td>10 CI, CII &amp; CIII</td>
<td>Design started 2012</td>
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</tbody>
</table>

Transformation of Education in Abu Dhabi: Learning Communities from Concept to Implementation
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Consolidation of Schools Due to Construction Program

Increase in Enrollment Due to New School Model
ADEC
Strategic Plan

Transformation of Education in Abu Dhabi: Learning Communities from Concept to Implementation
Strategic Plan Implications for Design Standards

• “Students receiving more individualized teaching”

• By focusing on individuals, teachers can enhance motivation/satisfaction—and improve learning

• Education should be organized around teaching/learning for individual students vs. classes/groups
Strategic Plan Implications for Design Standards

• “Teachers would be able to adapt their teaching strategies and techniques to the standards and to meet the needs of individual students”

• “Students can enter top universities without a foundation year”

• “Teachers would have more freedom in the classroom”

• Give teachers more freedom to treat each student differently
ADEC priorities to elevate the quality of P-12 education and build internal capabilities (2009-2018)

1. Elevate Schools Quality in Abu Dhabi to International Standards
2. Improve Access to P-12 Education
3. Provide Students with Affordable Options of High Quality Private Education
4. Preserve UAE Culture & Heritage and Develop Successful Careers
5. Build ADEC Capabilities
6. Actively Engage the Stakeholders

Transformation of Education in Abu Dhabi: Learning Communities from Concept to Implementation
ADEC is pursuing a two-pronged strategy addressing the long-term and immediate improvement imperative.

**Overview of ADEC P-12 Strategy**

**Long-term Strategy**
- ADEC will pursue a long-arching strategy to achieve dramatic quality improvements in P-12 education
- The reform will **address every component of the education system**

**Immediate Improvement Imperatives**
- About **67,000 students** are expected to graduate from high-school by the time the reform is fully implemented
- ADEC will pursue an **accelerated improvement program** to ensure graduates are equipped to pursue quality higher education:
The New School Model is a comprehensive blueprint for the targeted state of Abu Dhabi schools.

- **New School Model Framework**
- **Students as Learners**
- **Curriculum, Instruction, Assessment, and Resources**
- **Principals, Teachers and Other School Personnel**
- **Parents and Community**
- **School Compliance and Monitoring**
- **Student Centered Learning Environment**

Students will become knowledgeable, contributing citizens performing at international standards.
Student Centered Learning Environment

- World-class facilities which are educationally effective, sustainable and community centered
- School facility design based upon universal standards
- Technology-rich learning environments
- Proactive approach to ensuring health, safety, and well-being of all students
ADEC’s Approach to School Design

Educationally Effective - provide superior teaching and learning environments that accommodates present and future needs.

Stimulating and Vibrant - provide environments that stimulate creativity and provide vibrancy.

Healthy and Productive - enable students and teachers to achieve maximum potential by providing healthy, safe, and comfortable environments.

Cost Effective - provide facilities that save money over time by being efficient to build, maintain, and operate.

Sustainable - minimize environmental impacts and maximizing the use of non-polluting, renewable resources.

Community Centered - create schools that are integral parts of their surrounding communities.
Developing a Plan:

Selecting The Team
Selecting The Planning Consultants

The goal of the “Development of School Design Standards” Technical Assistance assignment is to develop school design standards for a new generation of world class K-12 school facilities in Abu Dhabi that enhance the learning environment while being energy and cost efficient. These schools are healthy, comfortable, energy and resource efficient, safe, secure, adaptable, and easy to operate and maintain.
Selecting The Planning Consultants

Specific Objectives:

- Establish a vision for the future of educational design in Abu Dhabi, and translate it into specific pattern guidelines for learning environments.
- Develop best practice School Design Standards that are tailored to Abu Dhabi climate specifications.
- Develop tools for measuring school facilities’ relevance to education, and for assessing the compliance of schools with standards and requirements, and provide training to the infrastructure and facilities teams.
Design Standards
School Tours

Consultant Team Observations:
1. Student-Centered Learning Focus
2. 21st Community Learning Centers Instead of 20th Century Schools
3. Consider More Uniformity in School Sizes
4. Consider School Design Standards as a “Kit of Parts”
5. School Design Standards to Mirror Research and Best Practice “Patterns”
6. Integrated PD – Team Teaching and Learning
7. Student Wellbeing Focus
8. Better Support of Information and Communications Technology
Organize school spaces in learning communities that permit/encourage the use of varied modes of instruction with varied size groups with varied schedules - all suited to achieving exceptional results for individual students.
Learning Communities

Getting Started

Learning Studio Model (4)

Learning Suite Model (7)

Student Advisory Model (9)
What is a Learning Community?

Community psychologists McMillan and Chavis (1986) state that there are four key factors that defined a sense of community:

1. Membership
2. Influence
3. Fulfillment of individuals needs
4. Shared events and emotional connections
What is a Learning Community?

The participants of learning community must feel some sense of loyalty and belonging to the group (membership) that drive their desire to keep working and helping others.
What is a Learning Community?

The things that the participant do in must affect what happened in the community, that means, an active and not just a reactive performance (influence).
What is a Learning Community?

Besides a learning community must give the chance to the participants to meet particular needs \((\text{fulfillment})\) by expressing personal opinions, asking for help or specific information.
What is a Learning Community?

Share stories of events with particular issue included *(emotional connections)* emotional experiences.
Learning Communities
How does it look?

Transformation of Education in Abu Dhabi: Learning Communities from Concept to Implementation
Learning Communities
How does it look?
• Schools are divided into small groups/communities of teachers + students—1 grade or several grades
• Teachers and students work together over time—get to know each other well
• Each community at each level, addresses/integrates all of the core disciplines—teachers collaborate re: instructional methods, time and students.
• Student spend most of each day in their community—go out for electives, career, PE/sports, library and food services
An ADEC Learning Community Comprises:

- Four to Five Classrooms
- One Science/Art Room
- A Breakout Space
- Teacher’s Stations
- Storage and Restrooms
Conceptualization of the New Approach:

Giving Definition
Learning Communities
Kindergarten
Learning Communities
Cycles I, II, III

Transformation of Education in Abu Dhabi: Learning Communities from Concept to Implementation
Learning Communities

**Two gender Cycle I (1250 Students) plus KG**

<table>
<thead>
<tr>
<th>PHASE IV SPACE PROGRAMS - CYCLE I PLUS KG OF 160</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total students</strong></td>
</tr>
<tr>
<td><strong>Number of classrooms per Learning Communities</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Unit area in m²</strong></th>
<th><strong>Number</strong></th>
<th><strong>Area in m²</strong></th>
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<tbody>
<tr>
<td>Learning communities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classrooms for 25 students</td>
<td>65</td>
<td>50</td>
</tr>
<tr>
<td>Science/art labs</td>
<td>90</td>
<td>6</td>
</tr>
<tr>
<td>Lab Storage, Prep Room</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>Toilets</td>
<td>6</td>
<td>50</td>
</tr>
<tr>
<td>Breakout space for LC of 5 class</td>
<td>227</td>
<td>10</td>
</tr>
<tr>
<td>Teacher’s workplace</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>Teacher Toilet</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>LC Storage</td>
<td>25</td>
<td>10</td>
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<tr>
<td><strong>Subtotal learning communities</strong></td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Outside learning</th>
</tr>
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<tbody>
<tr>
<td>Shaded area</td>
</tr>
<tr>
<td>Other outside areas</td>
</tr>
<tr>
<td><strong>Subtotal outside learning</strong></td>
</tr>
<tr>
<td><strong>Subtotal net built-up educational spaces</strong></td>
</tr>
<tr>
<td><strong>Subtotal net educational spaces</strong></td>
</tr>
</tbody>
</table>

Transformation of Education in Abu Dhabi: Learning Communities from Concept to Implementation
Learning Communities

The Learning Community is comprised of 4 or 5 Classrooms plus a larger multipurpose room for use as a laboratory, art, science or ICT as per the space program, plus a Teacher's Work Space, Storage and toilets.

Classrooms

- Teaching, learning, in multiple modalities.
- Students, Teachers work in varied-size groups and spaces for varied periods of time each day, 1 Teacher + 1 Aide per classroom in Cycle I.

Spatial Relationships

- Classroom accessible from the Breakout Space within each Learning Community. No direct access from school's general circulation.
- Partition between Classroom and Breakout Space to be approximately 50% clear glass and operable to open/ connect two areas and facilitate movement and visual contact of students and teachers.
- Each Classroom shall be linked to the Breakout space by a transparent solid, sound resistant sliding or folding panel.
- Provide indirect access to Outdoor Learning Areas through the Breakout space in Grades 1 through 12. In Kindergarten classrooms, provide direct access from the Classroom to Outdoor Learning Areas.

Character & Ambiance

- Square or almost-square room proportions.
- High degree of flexibility, fixed case work located along one wall for Kindergarten and Cycle I classrooms. Base cabinet heights to be 65 cm for KG and 70 cm for Cycle I. Spaces within Classroom can be defined by area rugs, furniture that teacher/students can rearrange.
- Natural light, view access to exterior/ Outdoor Learning Area. Natural light must be controlled architecturally (via orientation, overhangs, external shading devices) to minimize heat gain and glare within space. Design for comfort without any shades or blinds within the classroom.
- Must be able to vary artificial light level within room - dimmers and for switching
- Provide two (2) marker boards with interactive whiteboard in the middle.
- Explore options wall surfaces for display of teacher & student materials. Or provide tack boards for display of student work.
- Each Classroom in a Learning Community must meet these criteria, but each can incorporate features to allow the students and teachers to be creative.

Science/Art Storage / Preparation Room

- FLOORS:
  - Ceramic, porcelain or granite tiles.

- WALLS:
  - Block with non-toxic/ low VOC plaster, Ceramic tile 600 mm over counter.

- CEILINGS:
  - Prefer no drop ceiling. Acoustic ceiling, 3 m in height, minimum indirect lighting.

- DOORS / WINDOWS:
  - Door with 30 x 40 cm (min.) view panel. Tinted, Insulated low 'e' glass windows with exterior shading device.

- FURNITURE / MILWORK:
  - Base cabinets with one sink at counter height with epoxy resin tops, sink, wall mounted upper cabinets (all cabinets lockable) along one wall and open shelving.
  - Provide flat file storage for student art work, in storage rooms designated for art storage.

Breakout Space

- FLOORS:
  - Non-slip PVC or Linoleum resilient flooring for Cycle I, Ceramic/ Porcelain/ terrazzo tiles for Cycle II, III. Area rugs in KG.

- WALLS:
  - Block with non-toxic/ low VOC plaster, with transparent walls/ folding/ sliding partitions between break-out and classrooms.

- CEILINGS:
  - Prefer no drop ceiling. Acoustic ceiling, 3 m in height, minimum. Direct/ Indirect lighting.

- DOORS / WINDOWS:
  - If provided, tinted, insulated glazing with exterior shading device.

- FURNITURE / MILWORK:
  - Tables, chairs, some soft lounge seating. Some male/ seating groups. No fixed casework.
Learning Communities:
Stand alone Kindergarten aerial view
Design Model: Stand alone Kindergarten learning community floor plan
Design Model: Stand alone kindergarten
Classroom, outside learning
Design Model: Stand alone Kindergarten
main entrance, breakout space, outdoor learning

8 KGs
completed in
2011/2012.
5 more under
construction
Design Model: Cycle I with Kindergarten

aerial view
Design Model: Cycle I w/ Kindergarten
floor plan, learning community
Design Model: Cycle I w/ Kindergarten
breakout space
Design Model: Cycle I w/ Kindergarten
outdoor learning
Design Model: Cycle I w/ Kindergarten

10 Cycle I completed in 2011/2012. 6 more under construction

Transformation of Education in Abu Dhabi: Learning Communities from Concept to Implementation
Design Model: Cycle II, III
aerial view
Design Model: Cycle II, III
breakout space
Design Model: Cycle II, III
outdoor learning
Design Model: Cycle II, III

8 Cycle II, III completed in 2011/2012.
4 more under construction
Executing the Plan:

Setting Standards
Transformation of Education in Abu Dhabi: Learning Communities from Concept to Implementation
School Type and Size

<table>
<thead>
<tr>
<th>Cycle</th>
<th>Cycle I</th>
<th>Cycle I + KG</th>
<th>Cycle II and III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of students</td>
<td>625</td>
<td>1250</td>
<td>240</td>
</tr>
<tr>
<td>Gross area</td>
<td>9,900</td>
<td>18,000</td>
<td>12,500</td>
</tr>
<tr>
<td>Site area</td>
<td>20,400</td>
<td>30,400</td>
<td>23,800</td>
</tr>
<tr>
<td>Minimum site dimensions</td>
<td>170 x 120</td>
<td>190 x 160</td>
<td>170 x 140</td>
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Parking and Drop Off
Educational Program analysis

<table>
<thead>
<tr>
<th>Subject</th>
<th>Grade 1.2.3.4.5</th>
<th>Grade 4.5.6</th>
<th>Total spaces provided</th>
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<tbody>
<tr>
<td>Islamic Studies</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Arabic Language</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>English Language</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Social Studies/History</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Math</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total hrs in classrooms per grade per group</td>
<td>24</td>
<td>26</td>
<td>56 Classrooms</td>
</tr>
<tr>
<td>Science</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Art</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ICT</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PE</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Music</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Availability per week</td>
<td>36</td>
<td>36</td>
<td>0</td>
</tr>
</tbody>
</table>

Apply 90% utilization factor only for ICT, PE and Music in single gender schools and 80% in two gender schools.

Learning Community: Functional Requirements

- Teaching/learning employs multiple modes of learning.
- 4 or 5 Classrooms + 1 Science/Art Lab in Cycle I and 1 Science Lab in Cycle II and III per Learning Community.
- Teacher stations in Teacher Workspace inside Learning Community.
- Students, Teachers work in varied-size groups and spaces for varied periods of time each day. 1 Teacher + 1 Aide per Instructional Space.

Learning Community: Interior Standards

- Floors: Non-slip PVC or Linoleum resilient flooring. Area rugs in KG
- Walls: Block with non-toxic/low VOC plaster, paint with tack board on two walls. Opaque operable walls to be vinyl. Double pane, transparent glass operable walls with metal frames in certain options.
- Ceilings: Prefer no drop ceiling. Acoustic ceiling, 3m in height, minimum. Indirect lighting.
Performance Standards

- Water, sewer, electrical service
- Lighting
- Thermal comfort and ventilation
- Acoustics
- Information and communications technology
- Fire alarm system
- Public address system
- Building automation system
- Landscape and outside areas
- Roofing and walls
- Doors, windows and glazing
- Cafeteria and kitchen
- Signage
Design Strategies and Processes

- Sustainability
- Accessibility
- Constructability and durability
- Aesthetic design quality
- Integrated design approach
- Building information modeling
- Process description and deliverables

23% energy reduction
- Passive systems
- All classrooms lit with PV panels

30% water savings
- Water saving devises
- Water re-use

Recycling
- Construction process
- Operations and maintenance

Transformation of Education in Abu Dhabi: Learning Communities from Concept to Implementation
The Results:

Transformation of Education
Transformation of Education in Abu Dhabi: Learning Communities from Concept to Implementation

3-Year average for each EMSA subject

<table>
<thead>
<tr>
<th>EMSA Subject</th>
<th>2009-10</th>
<th>2010-11</th>
<th>2011-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic Reading</td>
<td>500.37</td>
<td>509.9</td>
<td>510.04</td>
</tr>
<tr>
<td>Arabic Writing</td>
<td>498.18</td>
<td>502.75</td>
<td>503.73</td>
</tr>
<tr>
<td>English Reading</td>
<td>526.06</td>
<td>534.47</td>
<td>537.98</td>
</tr>
<tr>
<td>English Writing</td>
<td>526.29</td>
<td>534.27</td>
<td>533.97</td>
</tr>
<tr>
<td>Mathematics</td>
<td>509.27</td>
<td>517.71</td>
<td>519.17</td>
</tr>
<tr>
<td>Science</td>
<td>520.98</td>
<td>530.29</td>
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</table>
Recently completed projects:
Al Hosn
Recently completed projects:
Al Khatem
Recently completed projects:
Al Khatem
Recently completed projects:
Al Khatem
Recently completed projects:
Al Khazna
Recently completed projects:

Al Goua
Recently completed projects:
Abu Dhabi West
Recently completed projects:

Al Touaya
Recently completed projects:
Mezyad
Recently completed projects:

Al Ain
Thank You!

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