Age Appropriate Schools: How Should Schools be Organized?

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Age appropriate schools discussions usually center on the issue of grade configuration. What is the ideal grade configuration? Should 6th grade be in the elementary schools or in the middle schools? What about 9th grade centers? How about K-8 or K-12 schools? Should pre-school be in the elementary school or in their own facility? What are the facility requirements of different level schools? These are among the many questions communities contemplate when planning new or renovated schools.

There has been a great deal of passionate debate regarding this issue. Many communities have very strong opinions, but the research is less clear as to which is the most appropriate.

Central Ohio provides a microcosm of this question. The city school district, like many large urban districts, has a wide range of grade groupings. The suburban district to the north has a K-6, 7-8, 9-12 configuration and they believe this is most appropriate. However the next district over to the northwest has K-5, 6-8, 9-12. The adjacent district to the west has K-5, 7-8, 9-12 and a separate 6th grade building. The adjacent district to the southwest has a K-4, 5-6, 7-8, 9-12. They all believe they had the "correct" configuration. So who's right?

From a planner's point of view, the decision of grade configuration has a great impact on the number and size of elementary, middle and high schools that are needed. Answering this question is a must in developing and implementing a facility plan.

The research on the other hand is more evasive. There is no clear indication that one configuration over another is more appropriate when it comes to results on test scores.

At times the decision is driven by strong academic arguments; at other times it is based on demographics and current inventory of facilities

Prior to 1970, the dominant grade configuration was K-6, 7-9, 10-12. It is clear that the dominant configuration today is PreK-5, 6-8, 9-12.

Middle School Grade Organization
1971-2000

Grade Configuration	1971	% 1971	2000	% 2000	1971-2000 Change	1971-200 % Change
5-8	772	7%	1,379	10%	+607	+79
6-8	1,662	16%	8,371	59%	+6,709	+404
7-8	2,450	24%	2,390	17%	-60	-2%
7-9	4,711	45%	689	5%	-4,022	-85%
Other	850	8%	1,278	9%	+428	+50%
Total	10,445	100%	14,107	100%	+3,662	+35%
Source: Middle Level Leadership Center, July 2000						

Placement of 6th Grade and 9th Grade

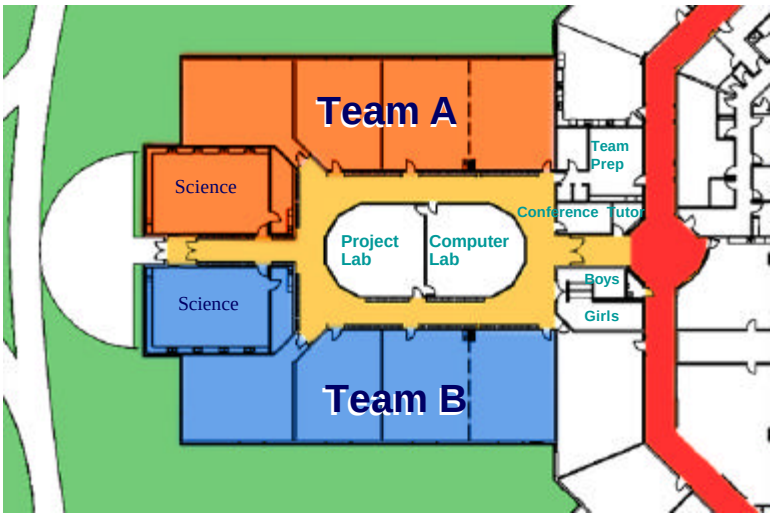
The discussion of age appropriate schools often comes down to where the 6th grade belongs and where the 9th grade belongs.

Research has demonstrated that over the past 40 years there has been a change in the physiological make-up of young adolescents. Children are physically maturing more rapidly. Sixth graders today are experiencing hormonal and physical changes comparable to those of 7th graders forty years ago. As any middle school educator knows well, there is a tremendous difference between a 12 year old and a 14 year old. It isn't uncommon for a 12 year old to be five foot tall and weigh 100 pounds, and in two years be six foot tall, weigh 150 pounds and have become a physically mature 14 year old.

While many elementary schools are organized based on a self-contained classroom environment, middle schools are typically organized based on a team and exploratory arrangement. Many educators argue that 6th grade students are best served in the middle school environment. The landmark study, Turning Points, commissioned by the Carnegie Foundation, provides a clear framework for how middle schools should be organized.

However, many middle schools are middle schools in name only. They are called middle schools but operate based on the junior high school concept. There is a clear distinction between the two concepts and they have significant facility differences. Junior high schools are organized based on a departmental model and middle schools, as stated above, are based on a team model.

Illustration of a team model:



Source: Voorhis, Slone, Welsh, Crossland – Architects, Inc.

There are also a number of social issues associated with the placement of the 6th grade. Elementary parents often raise the argument the 6th graders are not ready for the "less structured" environment, going to dances, and hanging out with 8th graders of the opposite sex. On the other hand, many middle school parents feel the opposite.

The bottom line is: whether 6th graders are in the elementary school or if they are in the middle school, their needs need to be met. We would suggest more of a teamed program or facility, whether that is in the elementary school or middle school.

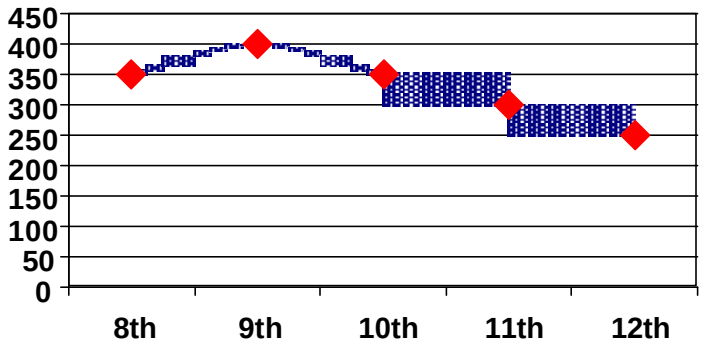
9th Grade

The debate is over: most school districts have chosen to include the 9th grade in the high school rather than the junior high school. However a new debate is looming.

Most educators argue that 9th grade belongs in the high school building since for all practical purposes 9th graders are considered high schoolers. Academic standards such as graduation requirements begin at the 9th grade level. High school sport programs are also structured with the inclusion of 9th graders. There are very few 10-12 high schools remaining. Most of these are a result of demographics and not having large enough high school facilities to accommodate the 9th grade.

The new debate is associated with what is statistically happening to the 9th graders. Below is a typical chart of students as they move from Grade 8 through high school. In many districts you will find a significantly higher [10% or more] number of 9th graders than 8th graders or 10th graders.

Typical District Enrollment by Grade



Source: DeJong & Associates, Inc.

Students move from 8th grade to 9th grade and often are counted in 9th grade for a second year since they have not completed the number of credits required to move to the 10th grade. Some educators believe that the middle school is not appropriately preparing students for high school. Others believe that the high schools are not addressing the needs of students at that level.

This discussion, along with demographic issues and communities wanting to maintain a single high school, has fueled the movement toward 9th grade centers. The idea is to develop a building just for 9th grade students or developing a 9th grade school-within-a-school concept. These ninth grade centers are also focusing on teaming and transition to high school concepts. Currently there are over a hundred 9th grade centers in places like Des Moines, Iowa; Kentwood, Michigan; Alexandria, Virginia; and three more evolving in the Indianapolis area [Carmel, Warren, and Wayne]. Many of these have evolved out of the desire to retain a single high school while not exceeding 3,000 students in the facility.

Pedagogical Shift

It is interesting to note the pedagogical and program delivery changes which have occurred at the middle school level during the past thirty years. Middle school shifted from departmental arrangement to team arrangement. Initially, science departments deviated from this arrangement. If you were to look at a middle school constructed in the 1970's you would find the core academic classes of language arts [English and reading], math, and social studies teamed [housed in pods] and science classes departmentalized. Today, in most cases, science is integrated in the teams at the middle schools level. Thirty years later, high schools are going through the same debate.

If you are trying to figure out where facilities are heading, follow the middle school concepts. Elementary schools are adopting middle school facility concepts [pods] and high schools are beginning to embrace middle school concepts [houses, clusters, academies and schools-within-schools]. The reason? These facilities are more flexible. You can deliver a departmental program as well as various forms of interdisciplinary learning systems in a teamed building, but it is difficult to deliver a teamed or interdisciplinary program in a building which is organized departmentally.

"Think Middle Schools – build High Schools"

In the 1960's the paradigm was "think high schools build junior high schools". Today the paradigm is "think middle schools and build elementary and high schools".

Preschool & Early Childhood Centers

Districts around the country are beginning to look at constructing facilities to house Pre-Kindergarten and Kindergarten programs separate from older elementary students. In some districts, this decision is made as a solution to overcrowding problems at the elementary level. A new Early Childhood Center is built rather than a new elementary. The pre-K and Kindergarten students are then relocated to the new Early Childhood Center. Some districts are fortunate enough to have adequate site size and can even place the new Early Childhood Center on the same campus. Other districts are realizing the advantages of housing children of similar ages in the same facility regardless of space concerns at the elementary level.

There are advantages for housing pre-K and Kindergarten students in one facility:

- ***Staffing***: There is an increased opportunity for shared resources, collaboration, multi-age and thematic teaming
- ***Flexibility of space***: Pre-K and Kindergarten rooms are typically about 1,100-1,200 square feet and can be used interchangeably from year to year to fit the needs of the program. These rooms also have restrooms either inside or adjacent to the classroom. If these students were housed in a regular elementary school, there would be less flexibility; elementary classrooms are smaller than pre-K or Kindergarten rooms and do not often include a restroom.
- ***Appropriate furniture and equipment***: Children in an early childhood program need both indoor and outdoor furnishings that are appropriate to their height and their activities. A child in an Early Childhood Center can go from the classroom to an art or music room to the playground and find that "everything fits". This is not true in an elementary school where cafeteria and library media furnishings might be purchased to fit older children. This can be also be partly accomplished by ceiling height. A small child does not need to attend a physical education class in a large elementary gym. In fact this could be overwhelming. A smaller "activity" room would feel more comfortable and still provide sufficient space for movement and group activities. Children in an Early Childhood Center need specific spaces for large group, small group, and individual learning. Classrooms typically include areas for "centers". Space needs to be provided for exploring, for problem solving, for projects, for quiet and noisy times. These should all be in close proximity and easily accessible.

Two approaches to educating preprimary students, both originating in Italy, have had an impact on the way Early Childhood Centers are organized in the United States.

- ***Reggio Emilia***
- ***Montessori***

Reggio Emilia is a pre-primary approach developed in the city of Reggio Emilia, Italy in the early 1960's. The curriculum is "child originated and teacher framed", with many ideas for projects and topics of study stemming from students' interests. The learning environment is the "third teacher". The spaces are aesthetically pleasing and spaces for display of student work are abundant. Close relationships between home, school and the community are nurtured. Documentation of children's work and progress is done through videos, digital cameras, and portfolios. This approach is used throughout the United States in public and private schools.

The Montessori approach emerged from Dr. Maria Montessori's formation of "Children's House" in Rome in 1906. She observed that these sixty children absorbed knowledge from their surroundings. She developed her equipment, methods, manipulatives, and exercises on the premise that "children teach themselves". Children in a Montessori classroom learn through a discovery process and engage in learning activities of their own choices. Manipulative materials encourage children to choose their learning activities. There are over 4,000 private Montessori Schools and more than 200 public schools with Montessori-style programs in the United States.

Resurgence of the K-8 and K-12 Models

Many urban districts are embracing the K-8 model. The billion dollar plus Facilities Master Plans for the modernization of the Cleveland and Cincinnati schools call for a shift to the K-8 model. This will require a major realignment of their facilities. Elementary schools typically do not have middle school spaces such as science and tech labs, and often have smaller gyms. Middle schools typically do not include pre-school and kindergarten spaces as well as toilets, sinks, cabinets, furniture and playground equipment that meet the needs of this age group. Conversion from the current system to a K-8 arrangement will require major renovations of existing structures or the creation of new ones to take the place of facilities that are in poor condition. K-8 schools are evolving in Philadelphia, Baltimore, and Oklahoma City as well.

The primary reasons for embracing the K-8 arrangement are: to foster greater articulation of curriculum from grades PreK thru 8; to cause fewer transitions for students throughout their total education; and to keep students in the neighborhood schools, thus reducing transportation and improving safety. In some cases this is also a matter of demographics. With the number of school-age children per household at an all-time low, there are fewer neighborhood children. Often, there are not enough students for separate elementary and middle schools, but combining the grades in one facility works.

PreK-8 schools are typically larger than K-5 elementary schools and some times smaller than middle schools. They often require a larger site than an elementary school which can be difficult in urban areas where sites are limited.

There has also been a resurgence of the K-12 school, especially in rural areas. Many rural areas are finding that with limited enrollment it is difficult to justify the cost of multiple gyms, cafeterias, libraries, food service and auditoriums.

In both the K-8 and K-12 models, there typically are attempts to organize the building around age groupings as schools-within-schools with shared common facilities.

Age Appropriate Classrooms

It is amazing how much discussion we have regarding the need to make kindergarten classrooms larger than other elementary, middle, and high school grades. Typically a kindergarten classroom is 1200 s.f. and other classrooms are less than 900 s.f. and often less than 800 s.f. The reason is that kindergarten students engage in many different activities. They are in reading groups, individualized projects, small groups, large groups, and in many situations there are special furnishings and equipment to meet their needs.

"... we need to think kindergarten"

Research is clear that students learn best through multi-sensory and experiential learning. When we build classrooms for older children, we need to think kindergarten. For years we have been advocating a more hands-on project-based curriculum. Physically, a high school student is 2-3 times the size of a kindergarten student and if we are going to embrace project-based curricula, the classroom needs to get larger.

What do Students Need to be Successful?

As we think about the future, we need to stretch beyond the grade configuration question. Regardless of age, we need to think about what students need. Even though this plays out differently for each child at various ages and development patterns, the following is a sample list of the skills we want students to have:

- Strong Foundation of Basic Skills
- Ability to Work in Teams
- Can Manage Information
- Can Solve Problems
- Good Communication Skills
- Can Get Along with Others
- Can "Make Their Way out of a Wet Paper Bag"

It is most interesting to see what students need in order to accomplish this. Consider this list.

- Access to Information
- A Place to Work [office]
- A Coach
- A Team of Colleagues to Collaborate With
- Equipment to Produce
- A Way of Presenting Their Work

For a young child, a place to work might be a sandbox, an older child an office. For a young person, a team of colleagues may be playmates, an older student a team of 4-5 other students.
Consider developing age-appropriate learning environment around the principles listed above. What would an age appropriate learning environment look like? If you are an architect, it might look more like your office.

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