COATS EDUCATIONAL CENTER

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The design of a public school is the project vehicle that I have chosen for my fifth year final project. The school will be programmed to accommodate kindergarten, elementary, middle, and high school curriculums. The school system mentioned above is more properly known as a K through 12 system in North Carolina. Very few K through 12 school systems exist today in the state. The site for the proposed school will be located where an existing school of this type exists, which is in the small rural community of Coats, North Carolina. The population within and around this community is relatively small, which suggests that the number of students attending this school would also be relatively small. The scale of the proposed project should be approximately 40,000 sq. ft.

The school now sits adjacent to the only major highway running through the community. The site is also located at the extreme edge of the Coats city limits, therefore the school could be the first or last contact that a visitor would have visually with the small community. Keeping the site location in mind, the building could be used to make an appropriate statement about the community itself. The school’s recreational facilities are now currently used by members of the community, therefore the school might be designed to serve the needs of other members of the area as well as those of the students and instructors who would occupy the school building.

The design of a K through 12 school would introduce opportunities to explore the needs and criteria that might influence the design of an educational facility for the very young. The project chosen could also allow for exploration into the criteria that might govern the design of educational facilities for older students. The location of the site for the proposed school in the community, introduces the problem of how a building might be used to express the true character of a small community.
THE SCHOOL: A BUILDING WITHIN A COMMUNITY
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Coats is a small rural community with a population of approximately 1600. A school, town hall, post office, and Baptist Church make up the major buildings in the community. These are the major buildings that a Coats citizen will most often be in contact with while in the community. Any architectural experience that occurs in the area will most likely occur in response to these buildings. The school may be considered the most important building in the community, since it is now the first and last building that a visitor sees when entering or leaving the community along the area's only major highway.

There seems to be a formal relationship that exists between the major buildings in Coats. The minor, as well as, major buildings in the town may be seen as visual derivatives of each other. If a major building of a different character was placed in the community, it could possibly change the way that architecture was perceived by the people in the town. Future buildings that might be built in the community might use this newer building as a precedent. On the other hand, the newer building could be rejected by the community and be classified as "too different" or "unusual". It must therefore be determined whether or not an attempt should be made to respond to the existing architecture and context within the community, or would it be more appropriate to give the major building placed in the area a character of its own that is not necessarily in positive response to the buildings that now exist in the Coats area.
This question poses an interesting area for exploration in this project. Since the perception of the people in the community would have a vital role in determining whether or not the project was a success, it is necessary to assess the values that the citizens of the community possess that would be of importance in the design of the school. For instance, taking building elements and forms that exist on present Coats' buildings and applying them to the new school building would seem meaningless if this was not a priority of the people within the community, as well as, being a major priority for the designer who designs the new school. If the people living in the area did not particularly care for the physical appearance of the buildings existing in the town, it might seem offensive to the people there that a new building possesses some of the same formal characteristics of the buildings they so despise.

Vernon Shogren has listed four distinct ways of looking at values and evaluating:

A. A direct judgement drawn from the simple existence of a thing, event, or person. This form of value is direct and unsupported, in that it does not rely on other judgements for its authority. (For example: It does not say "most beautiful in show", or "Beautiful to me".) It simply says "That is beautiful" or "of value". This type of evaluating is sometimes called "esthetics".

B. The second approach deals in universals. Some things (they always exist in plural) are of value. For example, "The American way of life", or "Honesty", and the like. These values must appear in specific cases, but the judgement of good or bad always appeals to the universal. When we speak of "cultural values", we are using the word "value" in this sense.
Also they have an "a priori" sense, always existing before the fact of actual occurrence.

C. The third approach is contextual. A thing is of value because of what it does somewhere, or how it relates other things into patterns; in other words like (B) above, its own existence is secondary to its role of manifesting or bearing value. Out of the place or role it has assumed, the thing in question might lose its value; or, more likely, be ignored or cease to exist.

D. The fourth is that of evaluating on the basis of personal needs, desires, affections, requirements, etc. It is usually assumed this is the most common, or dominant; but such is often not the case.

Most evaluating is a mixture of these four modes, often with contradictory results. For example: A thing which has quite a "good" relationship within some context may turn out to be personally ugly or simply repugnant, (a direct judgement of the senses). To avoid such chaos, apriority system must be established, at least while the act of evaluating is taking place; but, in order to do so, each of these evaluating modes must be relatively distinct and clearly understood.

A decision must be made during the design process as to which mode above should have priority over the others and an ordering system of priorities can develop from there. For instance, mode (a) might take priority if the school should above all things evoke a sense of beauty to the visitors of the community as they pass by on highway 55. Mode (b) might take priority if it is felt that certain designs that have been used for precedents as "ideal" schools should have a strong influence on the new school's design. This might involve selecting some "ideal" schools that have been designed in the past which have certain organizational patterns that might be advantageous for any design and applying such an attitude to the new school design.
Mode (c) would become most important if it is felt that the new building should above all else somehow relate visually to the other buildings in the community. Mode (c) need not refer only to the visual appearance of the building but might also respond to certain circulation patterns, or respond in some way more generally to the community environment. For instance, the small community atmosphere of Coats could be reflected by the school in that the school itself could form a small educational community within the larger community of Coats. Mode (d) refers to the expression of a personal viewpoint. A work of art is by definition an expressive statement of personal taste. A work of design is not "art" in that sense, since other forms of evaluation must be considered. Mode (d) must therefore be controlled in the evaluation process since it deals primarily with the prejudice or personal feelings of one individual (most often the designer). However, mode (d) belongs somewhere on the evaluation list since design without personal passion (on the part of the designer or client) is likely to be dull or colorless. Mode (d) might take priority if the design problem concerned only one individual client instead of a group of several hundred clients, then the personal prejudice of a certain individual (the client) might be of primary concern.
THE SCHOOL AS AN EDUCATIONAL CENTER
A K-12 school could be divided or broken down into three educational units. An elementary school (grades K-5), a middle school (grades 6-8), and a high school (grades 9-12) could make up the educational center in Coats. Each of these schools will share common support services. These services will include a common media center, auditorium, cafeteria, gymnasium, and administrative area. These common service areas should be in close proximity to each of the three educational units, since they will be facilitating each of the three schools.

The primary educational objectives for any educational center might be represented in the list below:

- Developing language fluency
- Encouraging Student's Sense of Community Identity
- Reinforcing Sense of Effectiveness of the Individual
- Developing Cognitive Skills
- Developing Motivation for Learning
- Encouraging Self-Expression
- Reinforcing Positive Self-Image
- Developing a Sense of Confidence
- Developing Persistence Toward a Goal
- Developing Concentration
- Developing Self-Regulation
- Developing Communication Skills
- Developing Concept Formation
- Developing Resourcefulness
- Developing Introspective Skills
- Developing Social Competence
- Developing Tolerance of Differences
- Developing a Sense of Responsibility
- Learning by Conditioning
- Encouraging Group Interaction
- Learning Through Execution
- Stimulating Curiosity and Imagination
- Developing Motor Skills
- Developing Memory Skills
- Developing Social Awareness

The responsibility of the K-12 school will be to provide a student or group of students with a program that can fulfill the objectives mentioned above. This responsibility could suffice as a theme in the educational center. As a student leaves the elementary school and enters the middle school, the objectives still exist, and will exist throughout the student's
Spaces To Fulfill the Objectives

The quality of education that an individual receives is largely dependent on the individual herself, as well as the educator who will instruct the individual. The architect's role in the process could be seen as that of providing spaces that are adequate to facilitate the educational process that will take place at the center. One form of space planning that has worked well in some areas toward the fulfillment of the goal above is that of open-classroom planning. The open plan allows for the interaction between groups, since the groups are not separated by physical barriers, (walls, partitions, etc.), it makes such interaction more probable. Educators are fond of this form of planning because it allows for teachers with varying abilities to gather smaller children together for group meetings. For instance, a teacher who is adept at teaching math can gather all students at that grade level together for a particular math lesson. Likewise, a teacher who is more adept at teaching art can gather children together in one space for art instruction. This form of planning could be very helpful for children and instructors of the lower grades where a great deal of instruction and supervision is needed. The open plan may not be as advisable for middle or high school age individuals where less supervision by instructors is needed. It is common practice in most middle and high schools in the state that interchanging of classes occurs daily. For instance, it is common in most upper grade level schools that several instructors are available for the instruction of most course subjects. The individual student is allowed to choose which instructor he or she would like to take for a certain course. This scheduling procedure is in fact used presently at the Coats school.
Above. Open planning where classrooms of the same grade are linked together by a common instructional area.

Below. An example of open planning where common instructional areas are shared by different grades.
Space Requirements (general)

Coats is now occupied by the following number of students at the present community school:

- Kindergarten - 60
- First Grade - 64
- Second Grade - 57
- Third Grade - 73
- Fourth Grade - 67
- Fifth Grade - 46
- Sixth Grade - 55
- Seventh Grade - 69
- Eighth Grade - 62
- Ninth Grade - 60
- Tenth Grade - 71
- Eleventh Gr. - 63
- Twelfth Gr. - 59

Elementary (K-5) - 367 students
Middle (6-8) - 186 students
High School (9-12) - 235 students

Very little growth is expected in the Coats area in the foreseeable future. Since enrollment in public schools has been declining in the past decade, flexibility or expansion will not be a primary concern in this design problem.

The new Coats Educational Center will need space for the following areas:

- Common Auditorium
- Common Cafeteria
- Common Media Center
- Common Gymnasium
- Common Administrative Unit (to house 1-principal, 2- assistant principals, guidance counselor, social worker, reception area/secretary, nurse station, teacher's lounge, conference room).

Elementary:

Open classroom space for grades K-5 to accommodate approx. 367 pupils and 16 teachers.

- Common music room
- Common library
- Toilets
- Janitor
THE SCHOOL AS AN EDUCATIONAL CENTER

Space Requirements (general)

Middle:

Sixth Grade:
Three separate classrooms to accommodate science instruction, math instruction, reading and English instruction, art instruction, and speech.

Seventh Grade:
Four classrooms to provide functions same as those above.

Eighth Grade:
Three classrooms to provide functions same as those above.

Common library
Common reading lab
Common toilets

High School:

Ninth Grade:
Three classrooms for the instruction of science, math, English, art.

Tenth Grade:
Four classrooms for the functions above.

Eleventh Grade:
Three classrooms for the functions above.

Twelfth Grade:
Three classrooms for the above functions.

Common industrial arts shop—(to accommodate carpentry shop, auto-mechanics shop, drafting classroom, metals shop, agriculture shop)
Common library
Common toilets

Calculation of square footage for the above areas will be achieved from the three following pages.
Kinder. classro: 1200', 26 pupils, 46' per child.
Primary classro. (Grades 1-3): 1000', 26 pupils, 38' per child.
Elementary classro. (Grades 4-6): 800', 30 pupils, 27' per child.
Art classro.: 1500', 30 pupils, 50' per child.
Music classro.: 900', 30 pupils, 30' per child.
EMR classro.: 450', 15 pupils, 30' per child.
LD classro.: 450', 15 pupils, 30' per child.
TMR classro.: 120' per child.
Speech room: 100'.
Gifted classro.: same as for grade levels.
Reading lab: 450', 15 pupils, 30' per child.
Math lab: 450', 15 pupils, 30' per child.
Physical education/multi-purpose area: 3000', 30 pupils, 100' per child.
Media Center: 4' times capacity of school for reading area only.
Principal's office: 250'.
Assistant principal's office: 150'.
Guidance office: 150'.
Social worker's office: 125'.
Reception area/secretary: 400'.
Nurse station: 300'.
Teachers lounge: 600'
Teacher's workroom: 400'
Conference room: 300'.
Cafeteria dining area: 10' times 35% of school capacity.
SECONDARY SCHOOLS

- Regular classroom: 660', 30 pupils, 22' per pupil.
- Vocal music classroom: 450', 30 pupils, 15' per pupil.
- Instrumental music classroom: 900', 30 pupils, 30' per pupil.
- Art classroom: 1500', 30 pupils, 50 per pupil.
- Dramatics classroom: 1200', 30 pupils, 40' per pupil.
- Drafting classroom: 1400', 20 pupils, 70' per pupil.
- Typing classroom: 900', 30 pupils, 30' per pupil.
- Science labs: 1500', 30 pupils, 50' per pupil.
- Home Economics lab: 1400', 20 pupils, 70' per pupil.
- Health Occupations lab: 1400', 20 pupils, 70' per pupil.
- Industrial Arts shop: 1800', 20 pupils, 90' per pupil.
- Electricity/Electronics lab: 1800', 20 pupils, 90' per pupil.
- Exploratory Programs lab: 1800', 20 pupils, 90' per pupil.
- Data Processing lab: 2400', 20 pupils, 120' per pupil.
- Graphics lab: 3600', 30 pupils, 120' per pupil.
- Auto mechanics shop: 3000', 25 pupils, 120' per pupil.
- Construction Industry shop: 3000', 25 pupils, 120' per pupil.
- Agriculture shop: 2400', 20 pupils, 120' per pupil.
- Carpentry shop: 4000', 20 pupils, 200' per pupil.
- Metals shop: 2400', 20 pupils, 120' per pupil.
- Physical Education Gymnasium: 15,000', 60 pupils, 250' per pupil. Allows spectator seating.
  - Auxiliary Gymnasium: 6750'.
  - Jr. High Gymnasium: 10,500', 60 pupils, 175' per pupil.

- Media Center: 4 square feet times school capacity for reading area.
Secondary Schools con't.

- Cafeteria: 12 square feet times 35% of school capacity for dining area.
- Teaching theater: 3200', 400 seats, 8' per seat.
  - Lobby: 480', 1.2' per seat.
  - Dressing rooms: 10' per person.
  - Stage: 1000'.
- Principal's office: 250'.
- Assistant principal's office: 150'.
- Guidance office: 150'.
  - Reception/waiting area: 300'.
- Social worker's office: 125'.
- School reception/secretary area: 600'.
- Nurse station: 300'.
- Speech room: 100'.
- Teacher's lounge: 600'.
- Workroom: 400'.
- Conference room: 300'.
- Driver's training classroom: 1000', 30 pupils, 33' per pupil.