This paper was written by a senior in a *Composition II* (ENG 314) course which the author took to satisfy a requirement of the Liberal Arts and Sciences core curriculum at Truman. The assignment was simply to "write a term paper discussing architecture." In reviewing the paper, the author writes, "The paper discusses aspects of school buildings such as psychological impact on students and teachers, economics, and teaching philosophy. ... I evaluated the buildings stylistically. I also interviewed some teachers and researched typical school building styles. All this I tried to synthesize into a cohesive and informative paper."

Schools play a vital role in any community. The need to educate our children to become productive members of society is universally recognized. More so than any other public institution, education hits close to home. Accordingly, the public is more likely to provide funding and express an interest in the planning of a school.

Designing and planning an educational facility is an extremely comprehensive task for the school board and architects involved. A variety of factors can play key roles. One major issue facing a planning committee is economic. The costs of siting, developing, and building the facility can vary greatly and reach astronomical amounts. Therefore, the most important economic concern facing a planning committee is to make the most complete educational resource possible within the confines of a budget.

A second concern of a school planning committee is social. The way students interact with each other, with the building, and with teachers must be taken into account in order to create a comfortable learning environment. High school students do not relate the same way that primary school students do. Different associations are required for different learning tasks.

One of the most important ideas that needs to be addressed when designing a school is function (Guide, 73). The types of learning and teaching to be done must be assisted by the school design. Unfortunately, these concepts were largely ignored before the teaching revolution in the 1950s. As elaborated by Ellis, at the beginning of this century the two dominant schools of thought were Perennialism and Essentialism. Both of these philosophies incorporate aspects of older schools of thought such as Realism and Neo-Thomism. Realism dates back to the time of Aristotle and is concerned with a world

of material things. Neo-Thomism, also called Scholasticism, was developed by Saint Thomas Aquinas in the thirteenth century. It attempted to unite the ideas of spiritual reality and the material world.

Perennialism and Essentialism are very similar philosophies. The stress of Perennialism is on learning constant and universal truths. The curriculum is subject-based, focusing on mathematics, science, language, and literature. The teacher is the authority of the subject and his ideas and methods are unquestioned. Essentialism is concerned with the transmission of cultural and historical heritage to each new generation of learners (Ellis, 118). The curriculum focuses on a mastery of the basic disciplines, such as mathematics and humanities, in order to prepare the student to live a fulfilling life. The teacher is very much like a Perennialist teacher, respected, unquestioned, and in control of the classroom.

As indicated by these traditional approaches, in the early to mid 1900s, teaching consisted of a single teacher lecturing 20 to 30 students (Gross, 20). Students were seated in methodical rows and tried to soak up as much information as possible. The exchange of information was one way only, with no chance for students to receive individual instruction, feedback, or interaction with the teacher or other students. Learning consisted of rote memorization of facts handed down by the instructor, with little or no chance for experimentation or activity-based learning.

During the 1950s, people began to ask questions about school systems and teaching methods that were previously unexamined. This transformation in educational philosophy ultimately led to the development of new teaching styles that would slowly begin to replace the traditional approaches of Perennialism and Essentialism.

Some of the new ideas that came to the forefront included: "Humanism", "Progressivism", and "Discovery Learning" or "Activity Programs". The humanistic approach is a more general concept concerned mainly with the treatment of each pupil as an individual. Each has strong and weak points, and each responds differently to a variety of teaching techniques. Students have different ideas about what they want to get out of school and different career goals. Some students want to go to college while others may not. Everyone is given individual, or small group, instruction and allowed to learn at his own pace. Students are also encouraged to interact and learn from each other in discussion groups. A humanistic approach could be employed with traditional teaching methods, but is more applicable to more contemporary ideas.

Progressivism was introduced by John Dewey in the early 1900s, but it did not begin to be significantly implemented until the '50s. The central dogma of this philosophy is to teach students how to think as opposed to teaching them what to think. Books are seen as a tool of discovery, rather than as ultimate knowledge to be mastered. The teacher's role is to serve as a guide in allowing the students to learn for themselves. This school of thought led to concepts such as discovery learning, or activity programs.

Discovery learning and activity programs are two names for the same basic idea. A variety of activities are employed which induce the pupil to think for himself in discovering the concepts involved. The idea is that this type of learning is more easily understood initially and retained more readily. In its simplest form, these ideas are represented by classes that have a laboratory component.

As these new ideas were being expressed, so the implications on school design were being realized. The purpose of school buildings, the education of the students, was

finally becoming the major concern to designers. The type of student was acknowledged and a building designed accordingly. The target audience of each school, whether primary, middle, or secondary, became a more influential factor. Also considered were the types of social interactions at those different levels. The type of teaching to be done there was also taken into account, whether it was a traditional approach or a more contemporary one.

Historically, school buildings have been designed based on a tradition of community pride reflected in civic buildings. Concomitantly, or consequently, the instruction was also an unquestioned, classic approach. Huge, gothic buildings were considered appropriate, looking more like fortresses than schools. These types of schools were important in demonstrating the pride of the community. A large brick or stone structure with large windows and multiple stories gives the impression that the building is old and stable; the building itself and the ideas it contains are not to be trifled with. However, a school that looks like something else can hardly be the ideal building for educating students.

After this educational reform began to set in, in the mid 1950s, school design changed drastically. The idea of traditional gothic was abandoned. Schools were designed to be flexible; classrooms could be arranged in different ways to suit a variety of teaching styles. New methods could be implemented in the future. Learning environments were designed to be comfortable and cheerful in order to be conducive to learning. The potential for integrating instructional modern technology, such as movie projectors or computers, into the curriculum was also a consideration for planners.

While the newer schools were designed with revolutionary teaching styles in mind, that does not necessarily mean that only new types of teaching will go on there. The implications for these types of schools are essentially threefold. A modern facility may not be able to induce new types of pedagogy by itself; teachers may continue to instruct by traditional methods. Teachers may be sticklers for lecture, too stubborn to try new methods, or their subjects may not need a new approach. A new building may influence a change in teaching strategy by its very characteristics. Teachers who are open to new ideas and motivated would find that these ideas are easily integrated into the curriculum in the new building. A third hypothesis is that a new school may not be enough to induce a change in pedagogy, but that its characteristics may facilitate a change over the course of time. In this scenario, the change would occur gradually as new ideas diffuse into the curriculum over time. These changes would inevitably occur at some time, but a more modern school may accelerate their acceptance. In addition to inducing teaching change, a building may also present the students with a more effective learning environment.

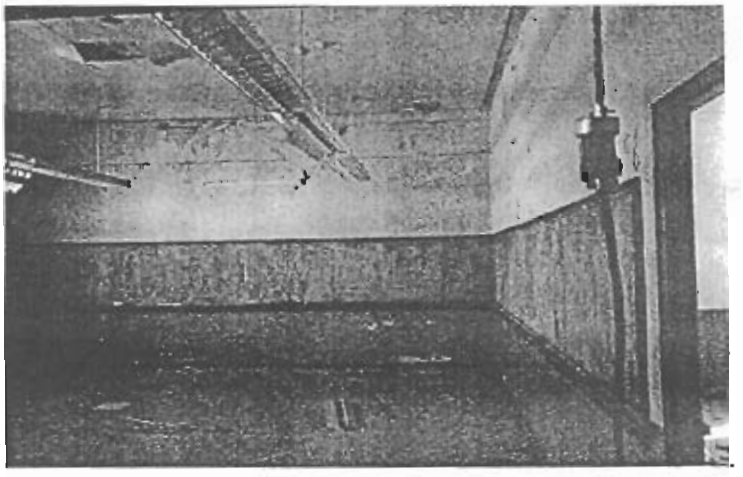
This paper will attempt to examine how teaching philosophy may influence the design of a school, and how the design may affect teaching styles in the future. The old high school here in Kirksville is a prime example of a traditional gothic design. The new high school, in contrast, is a fairly modern facility. It resembles other schools built at the time which were supposed to be ideal for new teaching ideas. Hopefully, an examination of the two schools will reveal ways in which the new school attempts to implement new teaching models from an architectural standpoint. Interviews with teachers and other

school officials will illustrate the type of teaching at the schools and how styles have changed as a consequence of architecture or time.

The old high school was constructed in 1914. It resides on McPherson Street a few blocks from downtown and occupies half of a city block. The exterior of the building is a classic example of a traditional Gothic schoolhouse from that time period. The foundation of the building is slightly elevated, making the building seem all the more imposing. It is three stories of red brick with giant windows frequently and evenly spaced on every floor. The main entrance is a large double doorway flanked on either side by towers that extend above the roofline. The towers and windows frames are highly decorated with stonework. Quoins add more apparent stability on every corner. In some places, even the brickwork is laid to form a pattern. A decorative keystone puts the finishing design touches on this flamboyant school building.

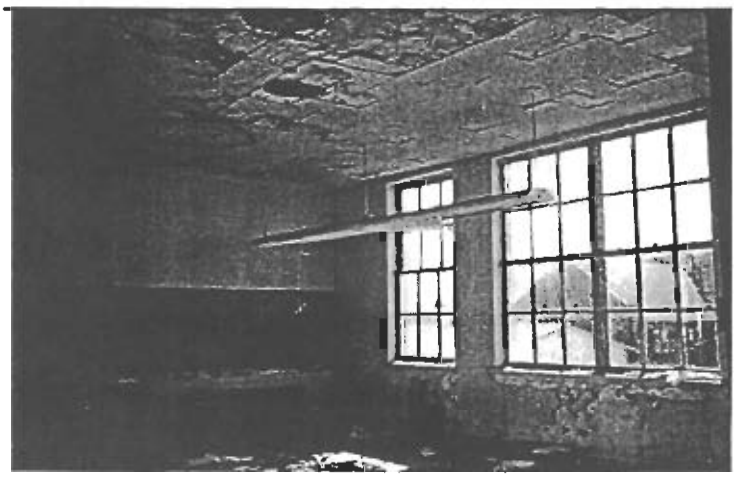
Inside the building is more of what people picture as the original classroom. While the interior is in some deal of disrepair, it is still possible to get a feel for the atmosphere of forty years ago. The ceilings are twelve feet high with lights hanging down. The walls are either off-white or some pastel. At least one wall, and sometimes

two, in every classroom is dominated by the huge windows that nearly reach the ceiling. Most of the rooms are rather large, approximately 25 to 30 feet on a side. The building has been in disuse for some forty years now, so it is impossible to tell how many desks may have been in each of these rooms. The location of the chalkboard remains obvious in some of the classrooms. Some rooms had two walls covered with chalkboard, but one is obviously the main wall in each room. The location of the windows and the chalkboards places tremendous restrictions on the behavioral space of the building. Most classrooms were obviously arranged in one particular way for probably the life of the school. Desks were probably neatly arranged in rows facing the blackboard where a teacher would stand and hand down instruction.



Geraldine Bartlett taught at the old high school for six years before its use was discontinued in 1959. The Business and English teacher said in an interview that her classrooms consisted of rows of desks, or tables for her typing classes. Her typing classes would have up to 40 students. This is a lot of students for one teacher to handle, but keep in mind that different subjects have different requirements for teachers and students. Typing is one class where one-on-one instruction and understanding are not needed. It is also a subject that is very allowing of unchanging spatial arrangements.

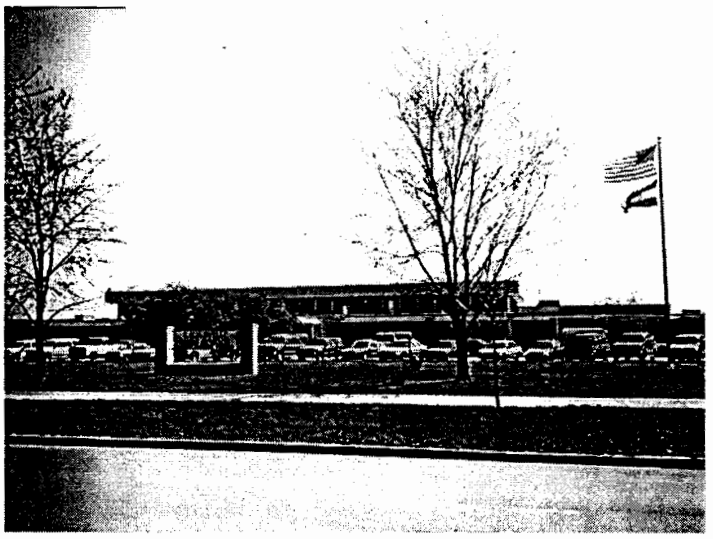
When asked why the new school was built, her main considerations were growth of the student body and deterioration of the old school. She said that the old school had an old and dreary atmosphere; it was 45 years old when its use was discontinued. It also didn't have a cafeteria; students either went home or brought their lunches and presumably ate in the classrooms. Adequate sporting facilities were also lacking. The basketball gym was not large enough to play games in, and there were no facilities for outdoor sports.



Another teacher who taught at both schools was Ms. Virginia Durden. She believes that the old high school was still adequate, though not ideal, when its use was discontinued. "It was more a case of keeping up with the Joneses than anything else" she says of the decision to build a new high school. She did admit that the school was becoming crowded. Ms. Durden's position is that teaching is really about relating to the students, not about where. "I could've taught in an outhouse." The idea that students appreciate a modern building that they can feel good about, that raises their self-esteem, can make teaching an easier task, was also expressed by Ms. Durden.

The new high school is a one-story facility built in 1960, with further additions in 1964 and 1993. It is located on the eastern edge of town on a large plot that also contains football and soccer fields. A vocational school was also built as part of the high school

program in 1968, but resides in its own building behind the high school. This is one area where we can already see that the individual desires and needs of students are being used in designing the curriculum.

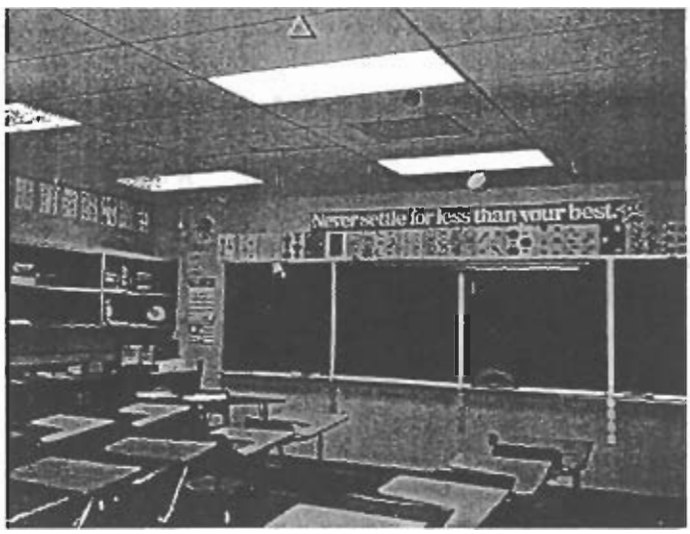


The main entrance to the school is a gate that leads into a courtyard with two trees and a fountain. The courtyard is surrounded by windows on the other three sides. The north wall is adjacent to the cafeteria, which allows a more outdoorsy atmosphere while eating. The eastern wall lines a hallway connecting the two halves of the building separated by the courtyard. The northern half consists of the kitchen, locker rooms, and a few classrooms surrounding the cafeteria and gymnasium. In contrast to the dungeon of a gym in the basement of the old high school, this one is a modern, full-sized basketball court complete with adequate bleacher seating. The cafeteria and gymnasium allow the students to interact socially with each other.

Most of the classrooms in the school are in the southern half. Some are as new as the 1990s because of the additions, but all are very comfortable classes. The ceilings are only nine feet high, which may make the rooms seem smaller than the ones in the old school with twelve-foot ceilings, but also makes them feel cozier. The majority of

classrooms do not have windows, which eliminates that potential distraction, but the artificial lighting is exceptional.

I examined two classrooms, an original one and one from the 1993 addition, in order to further examine if technology or teaching ideas were incorporated later on.

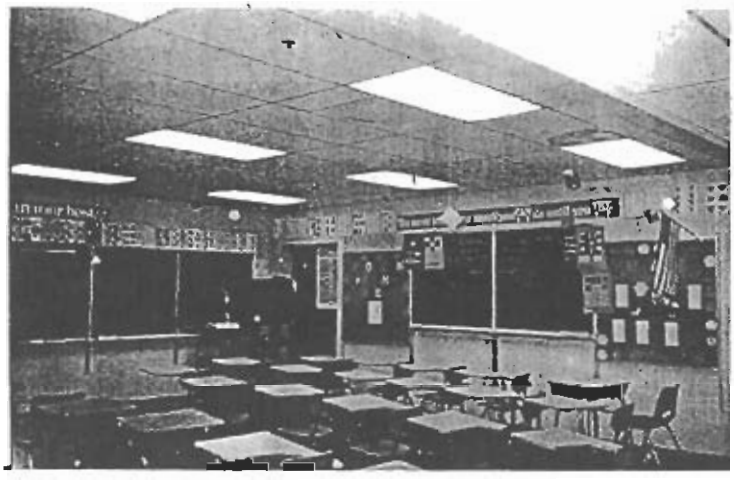


The newer classroom belongs to Ms. Molly Nahm, a math teacher. The room is a 24 by 30 foot rectangle. The carpet is blue-gray industrial pile. The desks are the one-piece kind with plastic orange seats. There is one small window in the corner of the room. Two opposite walls are covered with chalkboard. A third wall has some blackboard space and a bulletin board. The final wall is lined with a waist high cabinet and eye-high bookshelves. The cabinets and shelves are painted in a royal blue. A power strip with about ten outlets runs along the wall right over the cabinets. This would be an ideal place to perform some type of experiment, especially if it required electricity. However, Ms. Nahm, a first year teacher, says she is yet to use it for such a purpose.

The room as a whole is very bright and colorful. The walls are off-white, but there is little wall space left uncovered by colorful posters or student projects. These types of decoration serve to keep a good mood in the classes and discourage lethargy. By keeping the mood upbeat with bright colors, learning becomes an easier task for the

students. When I asked Ms. Nahm if the decorations can be distracting, she said that it may be initially, but the students quickly get used to it and begin to overlook it so that it is not a problem.

While an uplifting atmosphere is certainly valuable for a good learning environment, there are also other considerations. Ms. Nahm's room could easily be rearranged for different seating that would be necessary for small group discussions or other non-lecture type instruction. The available instructional technology also supports the classroom's versatility and effectiveness. Ms. Nahm's room has an overhead



projector and a TV/VCR cart. These are normally checked out from the library, but many teachers have them constantly in their rooms. Ms. Nahm uses both daily in teaching her geometry classes. Some students like her PowerPoint presentations and others do not, but they do take less time than her normal lectures because she doesn't have to write everything on the board. This frees up more time for the students to work on homework in class and receive individual attention. This is one example where we can see that technology is helping to educate, even if it is only because of time conserved for one-on-one instruction.

Her biggest class has 28 students; the smallest is 13. In his book, *Toward Better School Design*, William Caudill states that at least 35 ft^2 of classroom space per pupil is needed for an effective activity program. This figure may be an excessive ideal and not

feasible by most standards, but it offers an estimate of classroom effectiveness. By this figure, this classroom could support 20 students at most with an activity program. Ms. Nahm is regularly trying new ways to entertain her students with activities and concomitantly help them to remember the concepts. These activities help to create interest in the subject matter and avoids the monotony or apathy that so often accompanies endless lecture.

While mathematics and geometry may be fields where technology can be helpful teaching aids, other areas may not be so well suited. Ms. Bartlett said that she didn't feel her approach to teaching or her style of teaching changed when she moved into the new building in 1960, but she also felt that business and English classes could only be taught more or less one way. She did however, begin using an overhead projector and she had a few electric typewriters and a bookkeeping machine. She also stated that the new building felt more light and airy than its predecessor. Ms. Durden, although she thought the new school was unnecessary, did say that she appreciated some amenities offered by the new school. As a one-story building, it is easier to get around in. The modern facility gives students something to be proud of, which is advantageous in a teaching situation. This bright atmosphere, worthy of pride for the students, may in itself have a positive influence on the children's learning abilities, even with the same instruction.

Another room that was part of the original building belongs to Ms. Kristin Juul. It measured 24 by 34 feet. It also was carpeted, this time with kelly green. The desks in this class were teal. Again, there were numerous posters and student works on the walls. This room has no windows, but is well lit and colorful. Blackboards are on two adjacent walls. The rectangular shape of the room limits the possible layouts. The rows of desks

are essentially condemned to constantly facing the longer blackboard wall in order that pupils in the back row can still see the instructor. Ms. Juul stated that her classes range from 12 to 22 students, with the average being about 18. The large physical size and fairly small classes allows Ms. Juul to implement a number of non-traditional teaching techniques such as small or large group discussion, independent study or activity learning by rearranging the desks. Ms. Juul teaches Spanish and student to student interaction and conversation are important parts of her class. She also implements some degree of discovery learning by having students work on different projects where they must compose Spanish sentences on their own. There is a computer in this classroom, but it is not often used for instruction. Spanish is a discipline that has no real need for computers.

The new high school also has a better library than the old school did. It also has three science classrooms equipped with lab tables with sinks and running water, a luxury not possessed by the old high school building. This greatly improves the ability to perform science and chemistry experiments, thus helping to teach students in a hands-on manner that helps in understanding as well as retention of the subject matter.

The wide hallways are lined with bright orange lockers, which the students share. The students have five minutes between classes that allows them a chance to socialize with friends and take a break from studies. This helps to create a positive social atmosphere. The cafeteria is very bright and cozy with its supply of natural light, increasing social interaction among students. By contrast, the old high school had no cafeteria where students could interact with each other in a social setting. A comfortable social atmosphere can be an invaluable aspect of a learning environment.

There is definitely an extensive use of technology and some use of discovery learning and personal instruction at the new high school, which is more than can be said of the old high school. Can this change in teaching style be directly attributed to the architecture of the building? That is a difficult question to answer.

Some things to look for in a building designed with effective teaching in mind are flexibility and versatility of classroom and social space. In teaching, as in most things, the only constant is change. Classrooms must be able to adapt to different teaching styles, through rearrangement of furniture, implementation of technology, or a variety of other means. Permanent placement of furniture or permanently fixed wall features, such as chalkboards and windows, will always place restrictions on the potential use of space. These features must be minimized, transient, or capable of multiple functions in order to provide the kind of versatility necessary for the most effective teaching.

We have seen Ms. Nahm using the available technology, but she is also a young teacher, raised in the information age. Her consequent familiarity with the technology may play a vital role in her use of it. Then again, we have also seen how Ms. Bartlett, even though she claims that her teaching style did not change, began to use an overhead projector when she moved to the new school. Could the modern school be responsible for this change? I believe that the answer is maybe. The implementation of new techniques and resources could be the eventual diffusion of these ideas into the school district over time, regardless of the building. I believe that the atmosphere of the building has encouraged this diffusion. While the psychologically uplifting effect, both for students and teachers, provided by the bright new school is one obvious and noticeable effect, there could be other factors which are being introduced subconsciously. The fact

that Ms Bartlett and Ms. Durden both stated that their teaching styles didn't change, yet they both appreciated certain modern amenities may be one example of this. This lively atmosphere would certainly increase motivation and overall mood. The idea of being on the frontier of modern teaching philosophy and school design would promote the usage and examination of new methods, including the technology. Therefore, while I believe that these ideas would have eventually infiltrated the school district regardless, a modern building would facilitate the earlier realization of these ideas.