

# TEACHERS' CONSTRUCTION AND USE OF SPACE

**Janice M. Bissell, Ph.D.**

Embedded in the public mind and school architectural design is a deeply rooted image of teaching. This traditional image, established well over a century ago, persists despite a continued interest and repeated efforts on the part of educators to change the every day experiences of teachers and students. Indeed, examinations of teacher practices and beliefs (Bussis et. al., 1976; Conners, 1978; Duffy, 1977; Marland, 1977) demonstrate that teachers' conceptions of their work do not fall into neatly defined categories. Rather, teachers' role conceptions are more varied, and are comprised of several different dimensions within and beyond the classroom (Bartlett, 2001). Furthermore, teachers whose role conceptions are more complex are often unable to fully realize, experience, or implement all desired aspects of their work due to a number of factors. Clark and Peterson (1986) emphasize this issue in their review of Duffy's (1977) study of teachers' conceptions of teaching reading. They state that his work "portrays a flexible and complex relationship between teachers' implicit theories and their classroom behavior. The results suggest that constraints on teacher behavior such as mandated curriculum materials, resources, time available, habits, and student abilities may interpose between theory and action and account for observed discrepancies [between teachers' stated role conceptions and their actual classroom practices]" (p. 289). External factors such as home life and state and organizational politics also contribute to teachers' ability to fully actuate their ideal image of effective teaching (Bartlett, 2001). Such factors require teachers to establish priorities and boundaries in their classroom practices,

interactions with students and colleagues, and the types of leadership roles they take on outside the classroom.

In this paper I describe how school architectural design also plays a role as a context of teachers' work in high schools. My purpose is to explore more fully how school architectural design supports or constrains teachers' activity in the classroom and in other workspaces in the school, and to gauge the fit between the physical environment and teachers' conceptions of their work. Specifically, this paper investigates several questions that consider the variety of activities and interactions that comprise teachers' daily work lives and how teachers construct and use space as part of that process: (1) How do teachers actually use their work environment? (2) How do teachers' real use of the school facility compare with expectations about what their experiences should be? and (3) How does school architectural design support or constrain teachers' execution of current images of teaching and schooling?

## **RESEARCH DESIGN AND METHODS**

This study utilizes a combination of qualitative research methods that permit the documentation and analysis of the situations that define secondary school teachers' daily work lives, teachers' use and construction of space and place as related to the activities and interactions that define these situations, and the meanings that these activities, interactions, and places have for teachers. Data was collected from seventeen teachers in two Northern California high schools and includes detailed field notes and an extensive photographic record of my observations of the teachers' activities and interactions. These primary data sources are supported by mapping of the participants' movements

throughout the school, extended open interviews, and material documents related to the schools' architectural designs.

The selection of the two high schools for this study was based primarily on the educational visions prevalent at the time each was constructed with the understanding that these visions provided the underlying basis for the schools' original designs. Furthermore, these schools were selected because they are both typical of schools designed in the periods in which they were built. Both schools are large, comprehensive high schools located in suburban middle class communities. Neither of the two schools is associated with outside school reform networks or programs. However, several teachers in both schools are actively involved in outside professional organizations or programs.

### **Data Sources and Evidence**

Data collected each first of two days of observation consisted of photographs of the participant's classroom and other spaces in the school that they visited, and copious handwritten field notes of my observations of the teachers' activities and interactions, including a diagram of the teacher's classroom and their path of travel throughout the school. At the end of the first day, each teacher was asked to describe their day as a series of photographs. The intent was to gain the teacher's perspective on the things that make up their workday prior to the second day of observation.

Data collected each second day consisted primarily of photographs and a photo log that describes the context and action of each photograph taken. The photographs provide a visual form of field notes of my observations of the teachers. With few exceptions, photographs were taken every five minutes. The exceptions were:

- 1) When a quick sequence of activities occurred or an activity involved several steps more photographs were taken.

- 2) When the participant teacher engaged in a single activity for a long period of time, such as grading papers during their prep period, photographs were then taken every ten minutes.
- 3) No photographs were taken during moments of a sensitive nature, such as when a teacher entered a restroom, a student was reprimanded in front of the class, a teacher was assisting a physically deformed student, when students were taking exams, and when the students in two teachers' classes became disruptive when the camera was present.

Detailed field notes were taken to record all of these instances where use of the camera became too obtrusive.

Photographs were chosen as the primary data format to serve two purposes. First, visual data captures more information about an object or event than could ever be described in words. The minute details captured in a single image opens the possibility for a deeper analysis of emerging themes or patterns. Second, photographs have been used successfully in interviews to extract the meanings and interpretation of objects, places, people and activities as ascribed by the individual being interviewed (Harper, 1987; Becker, 1981 and 1974; Collier, 1967), giving researchers the ability to explore “the ways in which individuals...use artifacts to assemble and ‘distribute’ the meaning(s) of particular features of the physical environment” (Hindmarsh and Heath, 1998).

Usually within a week after completing the observations of each focus teacher, an extended open interview was scheduled at the teacher's convenience. Interviews lasted from as short as fifteen minutes to as long as 2-1/2 hours. However, most of the interviews took about forty-five to sixty minutes. These interviews focused on each participant's conception of teachers' work and how that relates to their use of their work environment.

## **TEACHERS' WORK PATTERNS**

The seventeen teachers who participated in this study all differ in the orientations and priorities that shape their daily work lives. Nevertheless, patterns emerged from their own accounts and my observations that highlight similarities and differences among these teachers. Specifically, similarities and differences center on the teachers' classroom practices including development of curriculum and instructional materials, relationships with students and teacher colleagues, and involvement in student activities, leadership roles, and outside professional organizations.

### **Traditional Work Patterns**

Ten of the seventeen teachers in this study sustain practices within traditional boundaries with remarkable consistency between them. Every teacher's pattern of classroom instruction is didactic, centering on the teacher as he or she dispenses knowledge to students seated at individual desks arranged in rows and columns facing the front of the room. The teacher's voice and actions dominate. In fact, students factor very little into these teachers' work routines. Teacher-student interactions are highly controlled by the teacher and are usually restricted to classroom instruction. Similarly, teachers' interactions with teacher colleagues are also highly controlled, although here they are restricted to social chitchat and gossip, and occasionally, issues of school management and administration.

There are few variations between these teachers' work patterns, though those that do exist are slight but remarkable; for example, Mr. Aster (social studies), Mr. King (business), and Mrs. Reed (biology) all include a "project" assignment in their curriculum each semester. Of special interest is the variation in Mr. Ernst's patterns of interactions with his students and his recent movement away from the innovative CPM algebra

curriculum and a supportive team of colleagues, and Mrs. Reed's teaching partnership. These slight variations are all of particular interest because they each are indicative of a non-traditional conception of teaching in at least one aspect of their work leading to an expectation that these teachers may also exhibit variations in their use of space.

### **Non-Traditional Work Patterns**

Eight of the teachers in this study have work patterns that extend the traditional boundaries of teachers' work in at least one direction. Classroom instruction is typically a mixed pattern of student and teacher centered activities. Just as significantly, these teachers' work frequently takes them out of the classroom and even the department in their endeavors to engage colleagues and students in ways that are intended to improve the culture of the whole school and students' success and well being. Despite the overall similarities in these individuals' conceptions of their role as teachers, there are significant differences that affect their work. Strong collaborative ties to colleagues differentiate three of these teachers. Four teachers' work patterns are dominated by their desire to address the, often overwhelming, needs of the students. And one teacher, Mr. Bentley, is remarkable in the activities and connections beyond traditional boundaries of the school that expand most aspects of his work and are also sources for improving his classroom instruction.

### **THE CLASSROOM**

On the surface it appears that the seventeen teachers in this study arrange and use their classrooms virtually identically. And in fact, there are many similarities, mostly in terms of the arrangement of the classroom and the addition of storage. However, upon further observation one begins to notice subtle, but important differences. A few of the

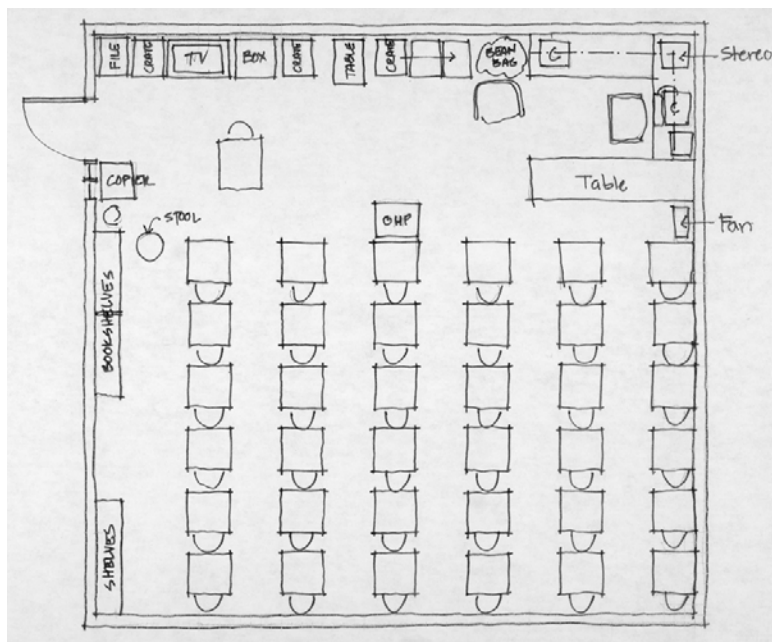
teachers either teach in an irregular space or have made substantial modifications to their classrooms. Some teachers make adjustments daily depending on the activities they have planned while other teachers never make changes. Furthermore, differences in teachers' arrangement and use of classroom space appear to be related more to teachers' conceptions of their work and what they wish to achieve or communicate to their students rather than due to other factors such as gender, subject area, years of experience or even, but especially, school design. However, the similarities in these teachers' arrangement of classroom space are directly attributable to classroom design.

### **Classroom Arrangement**

The classrooms provided in both schools in this study are indistinguishable with some exceptions in the specialized spaces. Each of the classroom's square footage is within California State Department of Education recommended standards. Also, each classroom is fitted with at least one large writing surface (markerboard or chalkboard), a built-in storage cabinet and bookcase, a desk and chair for the teacher, and enough moveable desks with attached seats for 32 to 36 students. The classrooms all embody traditional images of teaching and learning.

With few exceptions, the teachers in this study arrange their classrooms in traditional patterns. Regardless of their orientation toward teaching and learning, fourteen (82%) of the teachers place the student desks in one of three patterns. Of the sixteen teachers who teach in classrooms, seven teachers use the most familiar pattern of student desks in orderly rows and columns facing the front of the classroom (see Figure 1). Five teachers use a similar pattern that places two sections of rows and columns of student desks facing each other across a three to six foot wide divide that reaches from the back of the

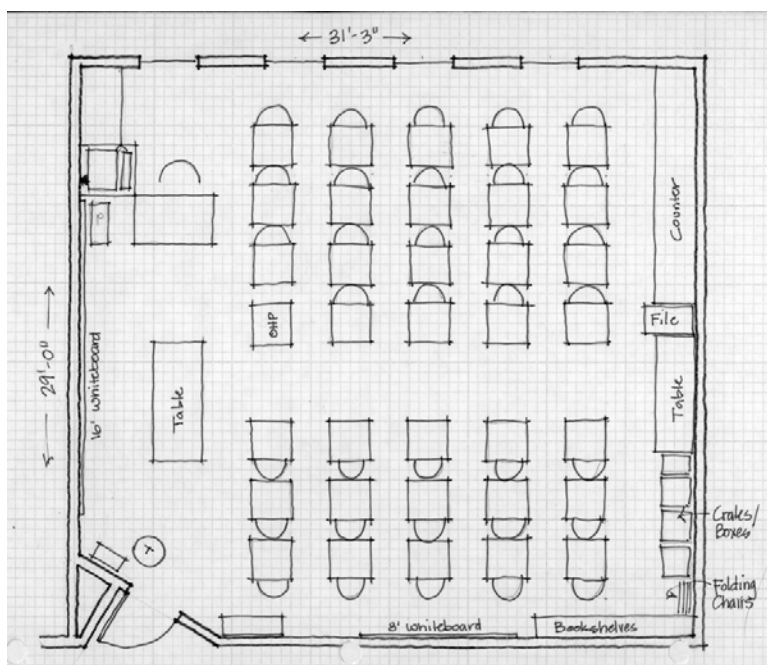
classroom to the front (see Figure 2). And in an effort to do “something, anything different,” Ms. Amond, an English teacher at Nathan High whose classroom instruction is more student oriented, places the student desks in three sections of rows and columns facing the center front of the room (see Figure 3).



**Figure 1 and Photo 1:** An example of a typical classroom with rows and columns of student desks facing the front of the room. At 684 S.F., Mrs. Booker's (Spanish) classroom is the smallest of the classrooms observed in this study.

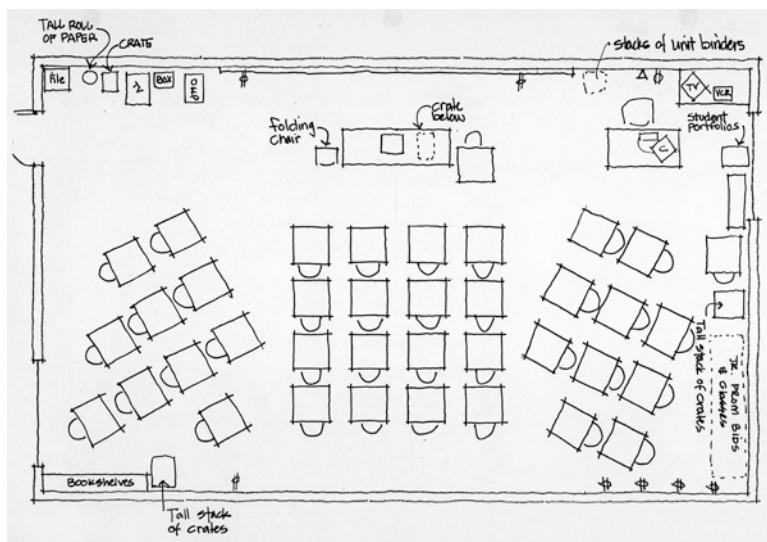






**Figure 2 and Photo 2:** Ms. Lange's (French) classroom is one example of two sections of student desks facing each other across a wide central aisle.

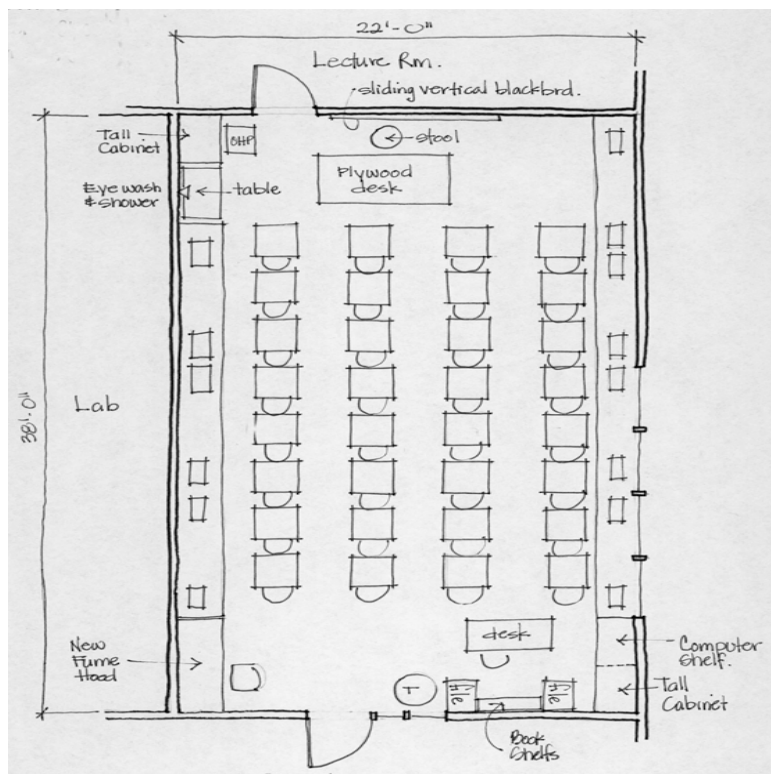




**Figure 3 and Photo 3:** An alternative to the two more traditional arrangements. However, the student desks are still in rows and columns facing the front of the room.

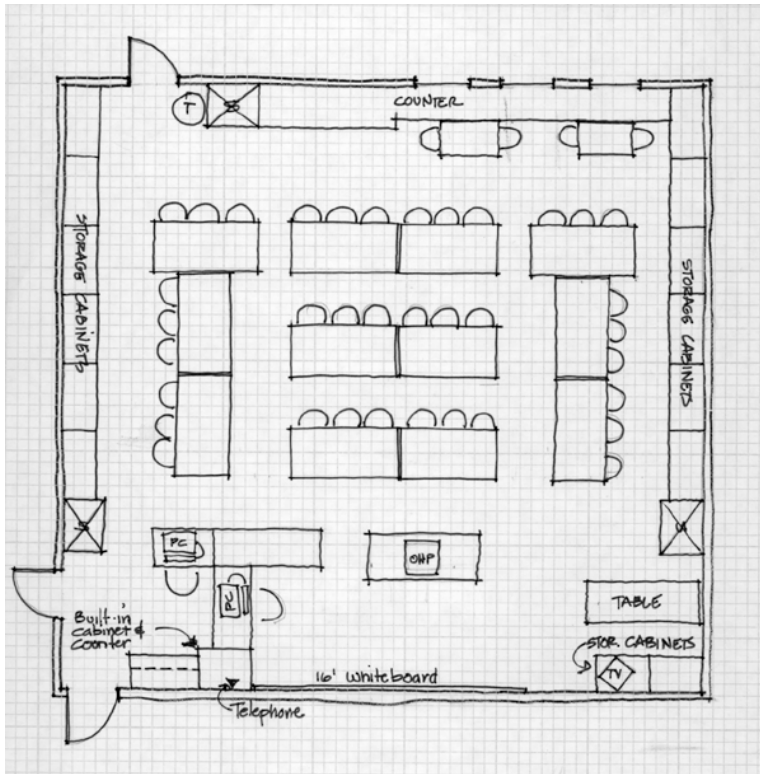


*Activity Oriented Classrooms.* Traditional classroom arrangements are also most common in the more activity-oriented instructional spaces such as art, drama, laboratory science, and business technology. All but one of these nine teachers arranged student desks or tables in some form of rows and columns (see Figures 4 and 5).



**Figure 4 and Photo 4:** Mr. Bentley's chemistry classroom is long and narrow with barely enough space to arrange four long columns of student desks facing the chalkboard at one end of the room.





**Figure 5 and Photo 5:** Except for the tables along the sides of the room, Ms. Tickers, the art teacher at Nathan, has arranged the tables in traditional rows and columns with chairs on just one side of the tables facing the front of the room. The tables are arranged to seat 2-3 students per table working on their individual projects. Shortly after this study was completed, Ms. Tickers changed the tables so that all the students face the chalkboard.



*Non-Traditional Classroom Arrangements.* Just two teachers, Mr. Kamp (English, WHS) and Mr. Embers (Drama and Speech, NHS), do not arrange their classrooms in traditional patterns of rows and columns; and Mrs. Abbott who teaches both English and Drama has elected to teach all of her classes in the school's theater. Mr. Kamp prefers to place his students' desks in a circle, while Mr. Embers has eliminated the student desks altogether, replacing them with folding chairs on a riser.



**Photo 6:** Mr. Kamp's classroom arrangement is a mix of traditional and non-traditional images. He has arranged the students' desks in a circle to facilitate class discussions and student interaction, while maintaining a front of classroom as defined by the chalkboard and the placement of his desk, the overhead projector, etc.



**Photo 7:** Mr. Embers stating that "We don't like desks, we despise all desks".has eliminated most of the student desks from his classroom to create a more flexible space suitable to his teaching methods.



**Photos 8 and 9:** Mrs. Abbott chooses to teach all of her classes in the theater because of the flexibility it provides for different activities.



### **Teachers' Classroom Workspace**

In all cases, the teachers have established a front of classroom using the location of fixed features such as the chalkboard, built-in storage cabinet, and television to determine where and how they should locate their personal workspace and how they should orient the students' desks.

*I'm kind of tied into where the physical things are. I have to have my computer where the computer plug is. I kind of have to be up at this part of the room to do lecture because that's where the white boards are and where my overhead screen is, so that I'm kind of tied to. There's not a lot of flexibility in those kinds of things. (J. Aster, Social Studies; NHS)*

*The way that the classroom was originally designed is it's got a built-in cabinet, built-in shelves for books, so I felt that my best position for my teacher desk was going to be over in that area. (D. Goffman, Business Technology; WHS)*

Regardless of how a teacher arranges the student desks, all sixteen of the teachers working in classrooms use architectural indicators such as the telephone and storage cabinet to locate their personal workspace. This is almost always at the front of the classroom, usually to one side or the other of the chalkboard facing outward toward the students or toward the door.

In addition, the position of the teacher's desk often has the effect of creating an office space in one corner of the room. While there are no actual walls or doors, the placement of the desk, storage cabinet and other furniture create invisible barriers that serve the same purpose. With few exceptions, students and teacher colleagues respect this demarcation of private space staying just outside the "open door."



**Photo 10:** A female student stands at the edge of Ms. Amond's workspace as they talk.



**Photo 11:** A Spanish language teacher has stopped in before school to get the latest scoop concerning senior project evaluations. As she waits for Ms. Lange to check for updates on email, the teacher stands just outside of the imaginary boundary created by the placement of Ms. Lange's desk.



**Photo 12:** One exception is Mrs. Booker, whose workspace is constantly invaded by students, but not by teacher colleagues. If she is not sitting in her chair, a student is.



**Photo 13:** Although Mr. Kamp has also placed his desk at the front of the room in a manner that creates an "office," he rarely uses his desk. However, it is a space favored by his student TAs.

## Teachers' Use of Classroom Space

Despite varying work patterns, all but two of the teachers arrange their classroom in traditional patterns with student desks in rows and columns and their own workspace placed at the front of the room, usually in one corner. However, teachers' actual use of



classroom space is much more varied and related to their individual work patterns.

Teachers with more traditional instructional patterns and relationships with students modify and use their classrooms more conservatively than those teachers whose work patterns are non-traditional. For most of these teachers, their movements within the room are usually limited to the front of the room with occasional trips down the central aisle or around the perimeter of the room as they lecture. Once they finish lecturing and have students working quietly at their individual desks, those teachers who do not interact with individual students spend a significant amount of time seated at their own desk at the front of the room completing administrative tasks or grading papers.



**Photo 14:** Mrs. Reed grades papers while her biology students watch a film.



**Photo 15:** Mr. Aster resumes filling out requisition forms as a student leaves for the counseling office. The rest of his students finish an assignment or sit quietly at their desks.

In contrast, teachers whose instructional patterns are non-traditional do not exhibit a set pattern of movement. They tend to use the whole classroom and are most often found among the students. Only one teacher, Ms. Amond, was observed working at her desk while students worked in small groups, on projects, or wrote in their journals or engaged in other individual work. The remaining six teachers with non-traditional work patterns were rarely observed at their desks during class time and usually only for purposes of taking attendance or to retrieve and return marker pens, paper clips and other objects to a drawer.

A similar difference in patterns of classroom use was observed during teachers' prep periods. Teachers with traditional work patterns are much more consistent in their use of classroom space. After straightening the rows of student desks, they spend most of their non-instructional time working at their desk, occasionally getting up to retrieve stacks of student papers that need to be graded or master copies of worksheets. On the other hand, teachers with non-traditional work patterns are less consistent in their prep activities. They work at their desk attending to administrative matters or grading papers. At other times they buzz around the room preparing instructional materials and the classroom itself for the next class or day. Or, just as often they take time to talk with students.



**Photo 16:** Mr. Bentley grades exams during his prep period.



**Photo 17:** Mr. Bentley getting things ready for the students' lab experiments.



**Photo 18:** Mr. Bentley takes time to talk with a student.

For teachers with traditional work patterns and conservative use of space, the standard classroom provides a satisfactory work environment. Storage, higher chalkboards, more windows, and better lighting and ventilation comprised their lists of complaints and were often a reason for modifying their classrooms. A few, such as Mr. Ernst who spends a significant amount of instructional time working with individual students, expressed a desire for more space overall to better facilitate movement around the room:

*I would like to have a little bit more room in here. I would like to have them spread out enough to where I could get around between the desks...If we were to get down to a decent size class of about twenty to twenty-five students, this room would be perfect... Anything more than that the room gets too tight. (D. Ernst, Math; WHS)*

However, teachers whose work patterns are less traditional expressed less satisfaction with their classrooms and were more likely to have made significant modifications.

### **Teachers' Modifications to Classroom Space**

Almost all of the teachers in this study have modified their classroom to some extent. The exceptions are those teachers who share a classroom and are not the primary occupant (the ramifications of which are discussed later in this section).<sup>1</sup> The most common form of modification is the addition of tables, file cabinets, bookshelves, crates

and boxes needed to store various, but necessary, teaching materials, textbooks, reference books, supplies and equipment, student assignments, projects, and portfolios. Using Ms. Lange as an example, even the teachers whose work patterns are more traditional often have a larger amount and variety of materials to store than what can be accommodated by the single bookcase and cabinet generally supplied in each classroom.

*I have just so many things and they're not things like books that we could do it if we had more bookshelves. It's boxes of plastic fruit and boxes of clothing and objects and art supplies and so on that I have to run my classes... (C. Lange, French; NHS)*



**Photo 19:** Ms. Lange has brought in an additional table, file cabinet, and numerous crates to store papers and other instructional materials and supplies.



**Photo 20:** Teachers frequently use plastic milk crates to store instructional materials, files, and student work. Like many of the teachers, Mrs. Goffman has a stack of crates she uses to store student work files for each class.

**Photo 21:** Bookcases are another addition typically found in most teachers' classrooms.





**Photo 22:** The PE department at Williams has built several of these plywood crates to serve as teacher workspace in the two gyms.

Nonetheless, the seven teachers with non-traditional work patterns have brought in significantly more additional storage and furniture. In addition, two teachers have substantially modified their classrooms to fit their non-traditional work patterns. For Mr. Bentley, the chemistry teacher at Williams, his classroom is an expression of his professional identity and relationship with his students:

*For one thing, you kind of, your room and your personality start becoming linked in some inexplicable way. But you look on it as your room and this is where you're going to practice your craft and it's where you're going to be, and so there's that personal thing.*

The modifications he has made to his room are designed to not only make the space more functional to suit his needs, but are also intended to send a message to his students about his expectations for how they will interact with one another and with what they are learning. He wants his students to know that they will be active participants in their education.



**Photo 23:** *The way I have my room now with the equipment out? That's on racks? I really like that because you can see everything. Kids, when kids come in they know they are going to be doing stuff, because they see the equipment right there, and it's not hidden...*

In addition to permanent or fixed modifications, Mr. Bentley also makes daily adjustments to his classroom. These take the form of moving furniture, or using a part of the classroom in different ways to accommodate different needs. One example is the staging area that he arranges for the student experiments. In order to alleviate his having to spend a significant amount of time measuring and distributing chemicals, equipment, and other materials Mr. Bentley pulls out a small table that is stored in the area reserved for the emergency shower and eye wash. He places this table next to the large counter he made himself and uses the surfaces of both to set out the materials and supplies that will be required. The students then come up and get what they need.





**Photo 24:** The emergency shower and eye-wash space also serves as a storage space for some supplies and a table.



**Photo 25:** Mr. Bentley moves the table so that he can use it as a place for students to pick up the materials they need for their lab experiments.



**Photo 26:** He sets up the table next to this plywood demonstration counter he built himself.

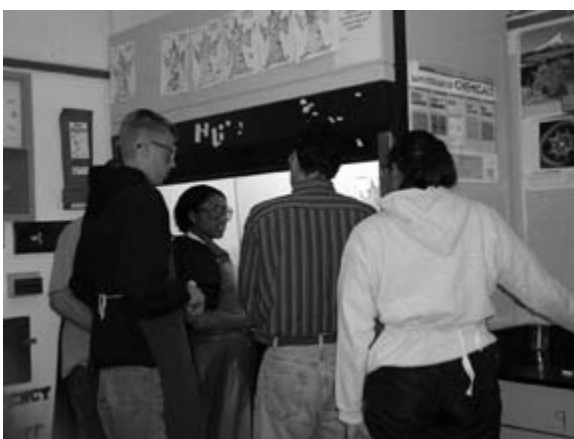


**Photo 27:** Together with the small table, Mr. Bentley's workspace becomes student workspace as needed.

A second example is the fume hood that has been added in the back corner of the classroom, displacing about a six-foot segment of counter. Mr. Bentley uses the fume hood to mix and neutralize chemicals for demonstrations and the students' lab experiments. However, during instructional time the fume hood becomes a student workspace for two pairs of students.



**Photo 28:** Mr. Bentley uses the hood to prep chemicals for his students' lab experiments...



**Photo 29:** The fume hood also doubles as a student workstation as his four Honors classes are over enrolled and he lacks sufficient workspace for the students.

Talking about his workspace, Mr. Bentley is cognizant that the classroom limits what he can do or how he does things. He had to build a counter space at the front of the room so that he has a place to demonstrate experiments where all the students can see what he is doing (see photo 26).

*I'd like water and gas and electricity right up front there, so that we could, when we start taking about a chemical reaction we could actually just do it right then. And we do that sometimes...*

In addition to this workspace at the front of the room, Mr. Bentley also has another workspace at the back of the room. Here too, he has made modifications to the semi-fixed features of the room. In order to create a place for his computer, he has cannibalized one of the large cabinets in the back corner, taking off the doors and adding

a shelf. However, when he does work on the computer he has to sit with the keyboard in his lap.

**Photo 30:** *We've had to make tradeoffs and we've had to kind of jerry rig the technology end. And you can see that it's not a computer desk, it's a cabinet or shelf that I built myself that we had to take something out of the room so there was a definite tradeoff for getting... I lost storage space for equipment, to get a computer place in there because there was literally no other place to put it. And I know other teachers, like right across the hall, Barbara has done the same thing, but then she's also used up more space for her personal desk and things like that. So student space gets smaller, and so there seems like there's always a trade off.*



The other teacher who has made substantial modifications to his classroom is Mr. Embers, who teaches drama and speech at Nathan. He has transformed his standard classroom into a space that can be used for teaching, rehearsals or for performances as a black box theater even though he has access to the main theater to use as he sees fit.

*I feel you need to have both, personally. They're two totally different dramatic styles. Out there is the main stage and musicals. Four hundred and fifty seats and to laugh or smile on stage you have to smile with your whole body and you have to cry with your whole body. In the black box, you're so close to the audience that it's a different style of acting... You can act quietly and people can hear you... It's almost more of a realistic style of acting. It's more like TV acting, because when you watch TV they can focus the camera right in your face and a tear drop can fall across the whole television screen. But you can't do that in that big theater out there, because you have to have that tear drop fall across your whole body so people in the seventeenth row can see it. And in here though, we go back to television style where when the tear drop falls, the audience is close enough to feel that tear drop and so I think it's a very valid place to build within your school. And then what's nice is your black box doubles nicely as a classroom.*



**Photo 31:** Mr. Embers taking his beginning drama students through a series of pantomime exercises. At the beginning of the year, the classroom is used primarily for instructional purposes.



**Photo 32:** Mr. Embers giving feedback to his advanced drama students during a dress rehearsal for an upcoming performance in the black box theater.



**Photo 33:** Mr. Embers telling the audience about what they are about to see and instructing them on good manners during the performance in the black box theater.

The modifications Mr. Embers has made to his classroom that allow him to transform it from an instructional space to a black box theater also gives him the flexibility to engage his students in a variety of activities from whole class instruction to small group activities.



**Photo 34:** Mr. Embers periodically brings his students together during class for whole group instruction. This is easily achieved by having them sit in the risers that also serve as audience seating during performances.



**Photo 35:** Mr. Embers' students frequently work in small groups. The absence of desks makes this activity more feasible.

For many of the teachers whose work patterns are non-traditional, more extensive modifications such as those made by Mr. Bentley and Mr. Embers are not physically or financially viable. These teachers settle for what they have and make compromises in terms of what and how they teach. For example, Mrs. Booker, the Spanish language teacher at Williams, finds putting students in small groups in her classroom is impossible, much less having them work on extended or large projects. As a compromise, she assigns

small, individual projects and includes small group conversational activities when the weather is pleasant enough for them to work outdoors.

In addition to the physical modifications that teachers make to the classroom a more effective workspace, teachers also make modifications and use other features of the classroom, principally wall space, to make the classroom a more effective learning environment for their students.

### **Teachers' Use of Wall Space**

For some teachers, the classroom walls are merely a container for the space they work in. The walls remain unadorned and bulletin boards are used for purely utilitarian purposes, such as posting the class schedule, lunch menu, and school announcements. For other teachers, such as Mr. Ernst, the walls present an opportunity to “personalize” their workspace:



*My hero picture. My photos up there? All of the little things that remind me of my first career in the Air Force. It's nice to be able to personalize a little area.*

**Photo 36:** Mr. Ernst's “hero pictures.”

For other teachers, mostly those teachers whose work patterns expand traditional boundaries, classroom walls serve as a means for making a connection with the students.

*...I think a teacher needs to be able to, I mean I know some of these teachers decorate their rooms unbelievably, and I'm not creative along those lines, but something to say "This is our room together and these are the things that we're going to spend our time looking at." (L. Abbott, English/Drama; WHS)*

They accomplish this in several ways best demonstrated through the following series of photographs.

**Photo 37:** Four of the teachers in this study who place an especially high priority on connecting with their students have murals of student photos that grow continually.



**Photo 38:** Mr. Kamp's (WHS English teacher) walls are covered with student projects, surfing posters, and posters of American authors of different racial and ethnic backgrounds. Mr. Kamp grew up in Hawaii and remains an avid surfer, an element of his personal life he uses to connect with his students. *And this, this Afghanistan [poster], that's one of my proudest possessions. It was done by two students [for] our cultural diversity fair that the API club puts on...I'm the advisor. Although I'm white the,y figure since I grew up in Hawaii, I'm cool.*



**Photo 39:** Mr. Embers has pinned up posters and other items, such as a banner from the previous year's school play, that have meaning for both him and his students.







**Photo 40:** In addition to student work and movie posters, Mr. Embers displays “awards” such as this T-shirt that he received from his students.

Wall space (or more accurately display space), particularly as used by teachers with non-traditional work patterns who place a high priority on connecting with students, is a vital communication medium. The content of the displays serve three purposes: first, to communicate something about themselves – their personal life, their passions - to the students in an effort to serve as adult role models and to connect with students on a more personal level. Second, to claim the classroom, “to make a space feel like it was mine, and therefore theirs” (L. Abbott, English/Drama; WHS). And third, to communicate to the students the role the teacher expects the students to take in their own learning. These displays are both an integral part of the process of making deeper connections with students as well as a manifestation of the importance that teachers place on that aspect of their work; both of which are critical in understanding the role of the classroom in that process and the importance of the physical classroom as a context of teachers’ work.

## Sharing Classrooms

Teachers' ability to modify their classrooms and to make use of the walls is contingent upon whether they have their own classroom. Those who share a classroom and are not the primary occupant of that classroom typically feel they are visitors.

*I was thinking about it this morning, it's weird because I feel at home in [my own] room and I feel like a total visitor in Charlie's room. I don't even feel...I like it okay, but it's just not me at all. So it's kind of like I'm using his space. It's just kind of weird...I mean being in here I feel okay, I feel at home here, and so I feel totally comfortable being with [my students].* (G. Kamp, English; WHS)

And as a visitor, teachers feel they must receive permission from the primary occupant to make even the most temporary of adjustments necessary to teach, such as erasing part of the chalkboard. For teachers who have no classroom to claim as their own, there are often no opportunities to create a sense of place for themselves and their students. In addition, there is the inconvenience of not having one place, if any at all, to keep instructional materials and personal items.

*I always had this fear that I was going to lose somebody's something. When I was moving from class to class was when I decided that I wasn't going to take papers home to grade. I was going to grade them while I was in school. If I was in the health room, I was going to grade the papers there, and if I was going to read English essays, I was going to read them there so that I didn't have this sense of shuffling, papers coming everywhere. But it was so hard. You didn't have time to talk to kids after class, because you were on your way to the next class, and odds were that you were not going in the same direction. There was no real sense of ownership of the space...* (L. Abbott, English/Drama; WHS)

*By the end of the year last year, things were getting pretty spread out. I had stuff on floppies and on three different hard drives and I don't know what else.* (M. Reed, Biology; NHS)



**Photo 41:** Mr. Cerrano packs his belongings back into his backpack before heading off to teach his next class.

The difficulties are different for the teachers who must share their classroom. The most tangible problem is a teacher's loss of workspace and access to resources during their prep period as many teachers feel uncomfortable not just in "borrowing" space, but also in having another teacher in the classroom while they teach. Both teachers often find the activities of the other distracting.

*[Robin] was in here for two periods of algebra and aside from the inconvenience of me being able to do things in here - and Robin was very accommodating in that - it was an inconvenience on her class when I had to do things in here, because students naturally want to know what am I doing, if I'm mixing a chemical or preparing for a lab or something. It would impact her educational time. (A. Bentley, Chemistry; WHS)*

Less tangible is the sense of invasion of their personal space. This is particularly a problem for teachers who have developed a strong identity with their classrooms.

*I have it share [my classroom] this year and that bothers me... I have made that place, like I told you, my place and to have somebody else in there is very difficult. He finds it really difficult too I think, because it's me and I kind of like that, and he respects that. So he's kind of backed off and kind of... So he kind of borrows my room is what it is, and I think I'm going to leave it like that. I don't think I'm going to offer any space anywhere. Unless he really needs it then I will. Otherwise that's going to continue to be my room. (G. Kamp, English; WHS)*

Teachers often expressed a sense of protectiveness and attachment to their classrooms, a need to preserve what they have created for themselves and their students, and hence their identity.

Nonetheless, some teachers found sharing their classroom to be beneficial to their own teaching. When permitted to stay and work in their classroom, several teachers noted that they enjoyed the camaraderie and fellowship of the other teacher. And for teachers such as Mr. Ernst, the math teacher at Williams who has struggled with implementing more learning centered activities in his classroom instruction, sharing his classroom has provided an opportunity to observe other teachers' practices.

*And it also, since it's mostly algebra teachers and math teachers that come in here, it's nice, I can sit and observe a geometry class and listen to things that they're asking and say, "Okay, am I preparing my algebra students for this?" because I don't teach geometry. (D. Ernst, Math; WHS)*

Despite differences in work patterns, the majority of the teachers in this study arrange their classrooms in a traditional pattern of rows and columns facing a front of room where they have placed their personal workspace. For teachers with traditional work patterns, the standard classroom provides a consistent and satisfactory work environment requiring few adjustments. For teachers whose work patterns are non-traditional, the standard classroom makes it difficult for them to provide learning and student-centered instruction and to interact with their students at a satisfactory level. These teachers spend large amounts of time and personal resources adjusting their work environment to fit their needs, often with less than ideal results.

Regardless of the extent of the modifications that teachers make to their classrooms, these modifications result in "tradeoffs" that improve teacher workspace and storage but reduce student and instructional space inhibiting teachers' ability to engage students in small groups and learning centered activities. However, teachers view these tradeoffs as

necessary to accommodate their need for more effective workspace within the standard classroom.

The classroom is more than a space in which teachers instruct students. For many teachers, the classroom is a tool, a place to “practice their craft.” Not only is the classroom the teacher’s workspace, it is also a mechanism for connecting and communicating with students. This is a process that is made especially difficult, it not impossible, for teachers who must teach in other teachers’ classrooms. However, the standard classroom size with its fixed features creating a predefined front of room presents a challenge to teachers whose work patterns are non-traditional.

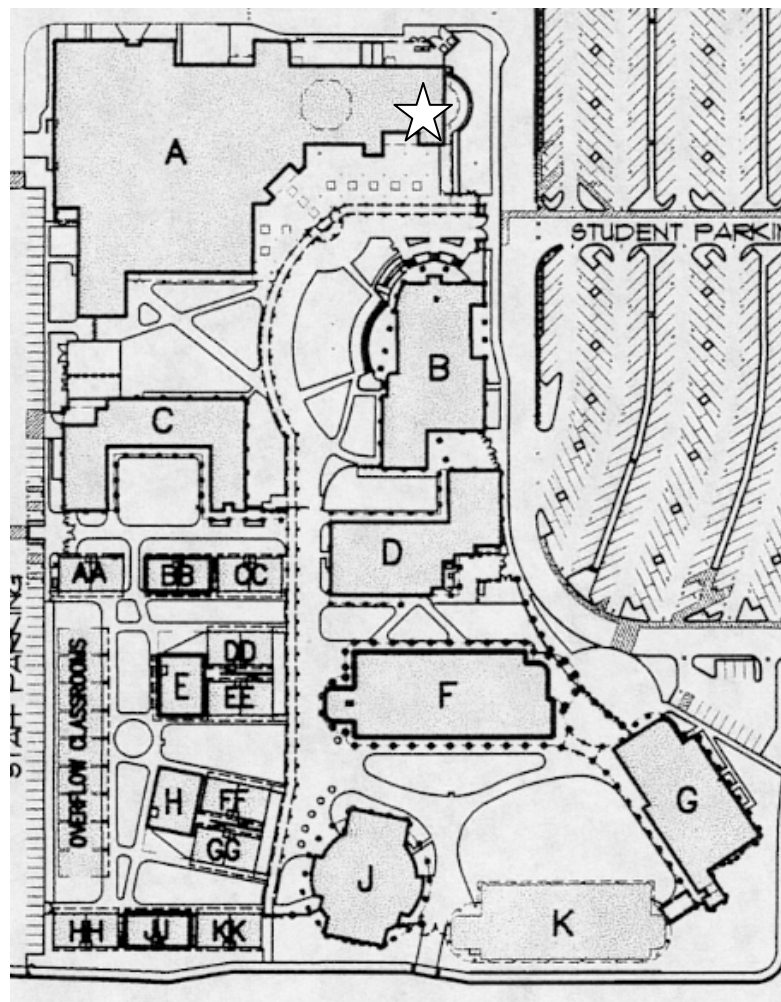
### **TEACHERS’ USE OF WORKSPACES AND SOCIAL SPACES**

Teachers’ work is not limited to the classroom. Teachers often leave their classrooms to procure shared equipment, supplies, resources, and colleagues as part of preparing instructional materials and carrying out other tasks related to classroom instruction or leadership duties. In both schools, decentralized workrooms have been provided in each academic department. This is consistent with an image of teachers’ work common to the original educational visions of both schools and the resultant expectation that teachers use these spaces to obtain and prepare instructional materials, grade papers, or to meet to plan and coordinate curriculum. In addition to these decentralized workspaces, teachers in both schools have access to traditional workspaces located in the administration building (workroom, lounge, and a copy room), as well as a lunchroom located in the multipurpose building adjacent to the kitchen.

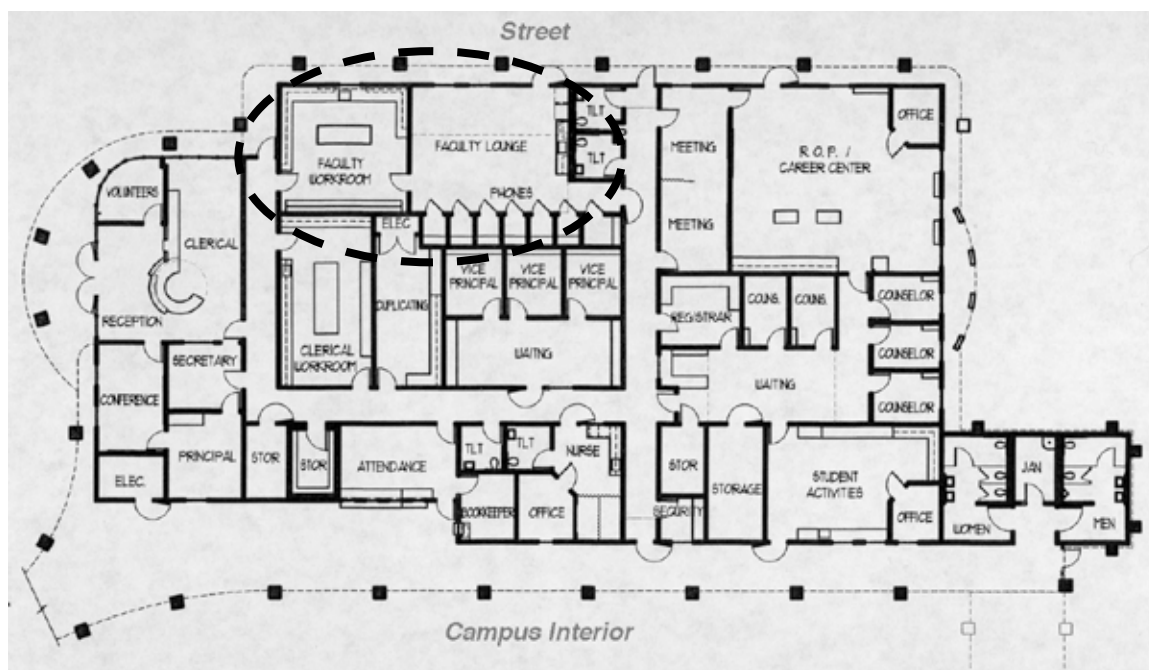
Though both schools provide spaces that are intended to support teachers' classroom work by making material and human resources readily accessible, teachers' uses of these spaces varies depending on the location of the space and the resources available, teachers' individual work patterns, and certain aspects of the schools' organizations. Decentralized teacher workspaces, such as department workrooms, are not inherently supportive of non-traditional images of teachers' work. How teachers make use of these spaces is dependent upon the types of equipment and other resources available. Use of these spaces is also dependent upon their location in relation to the teacher's classroom. Another factor in a teacher's use of workspaces beyond the classroom is their work patterns. Whether they have traditional or non-traditional work patterns and whether they have taken on a leadership role appears to be related to how often a teacher leaves their classroom and what other places they use or visit in the school. How often a teacher leaves their classroom is also related to the school's time schedule.

### **Workroom Location and Resources**

Although both schools provide similar teacher workspaces in each department and in the administration buildings, the location and arrangement of these spaces is very different. At Nathan, the administration building is located on the periphery of the campus and is quite some distance from most classrooms (see Figure 6). Furthermore, placed between the two ends of the U-shaped corridor that cuts through the building the teachers' workroom and lounge are effectively removed from the busiest part of the circulation route, reducing the amount of traffic through those spaces (see Figure7). Similarly, the department workrooms are at the end of the corridor or at the end of a row of relocatable classrooms.



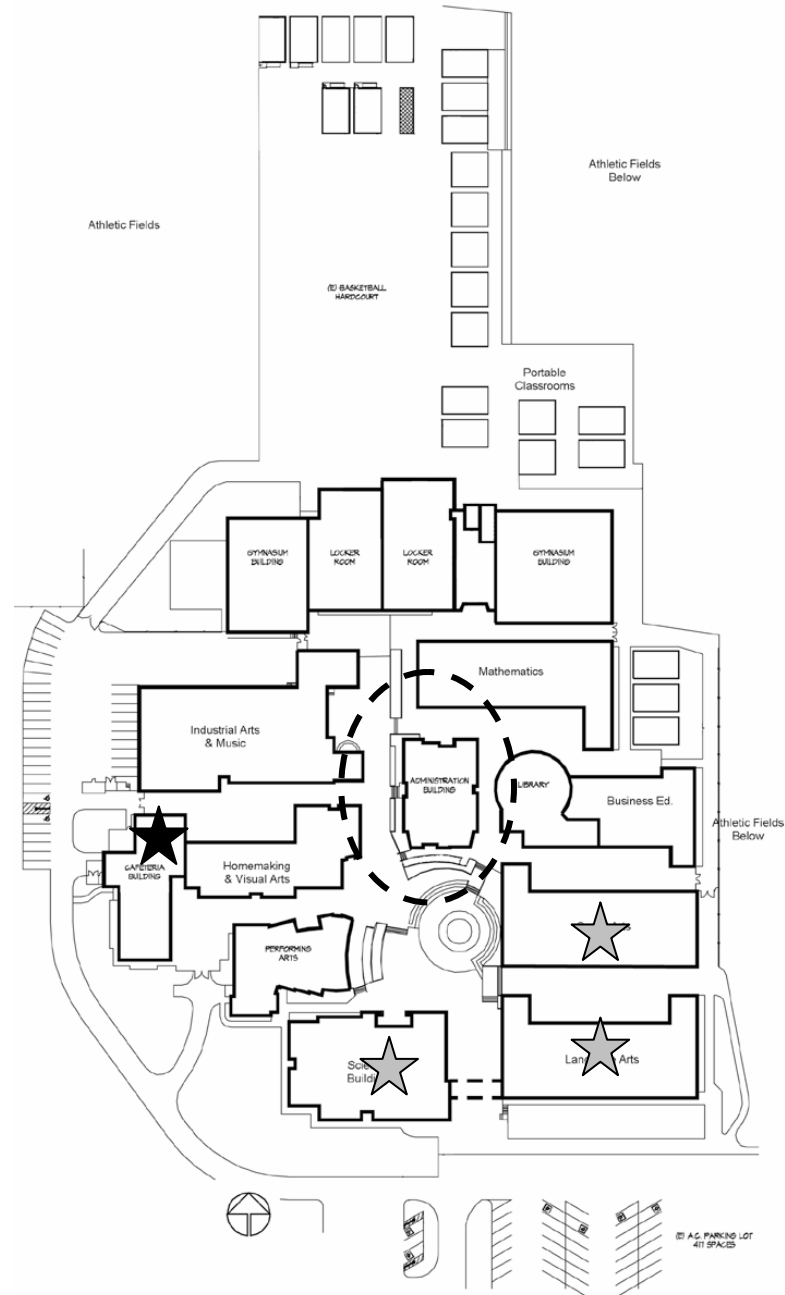
**Figure 6.** Placed at the edge of the campus, the Nathan High School administration building (designated “G”) and its workrooms are inconveniently located for most teachers. Buildings “E” and “H” are department workrooms, and buildings “F” and “K” have department workrooms on each floor. All department workrooms are kept locked and are accessible only to teachers from that department. Even more remote than the administration building is the teachers’ lunchroom (star).



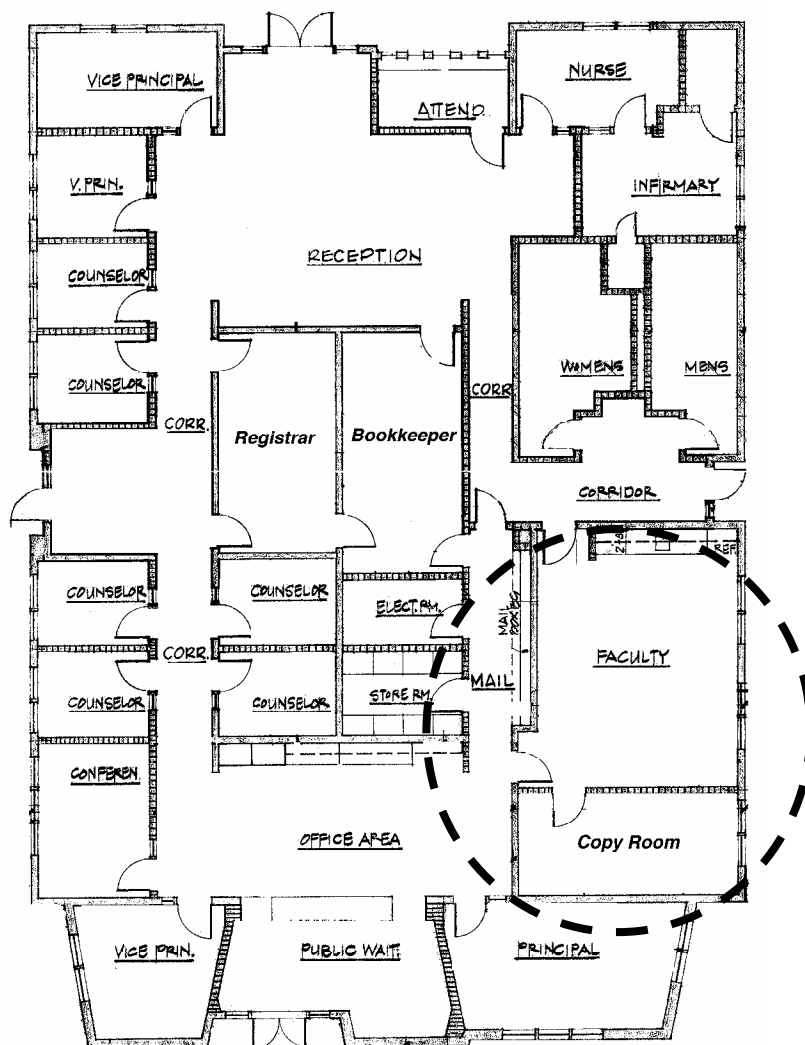
**Figure 7.** Nathan High School Administration Building. The teachers' workroom and lounge (circled) are located where they receive the least amount of traffic.

In contrast, the administration building at Williams is at the center of the campus and only out of reach of the portables at the back of the school (see Figure 8). Inside, the workroom and copy room are just off the main corridor where the mailboxes and restrooms are located and one of the entrances to the building. Teachers and staff are able to walk past the workroom, but still see who is in the space and what is going on before deciding to move on (see Figure 9). The department workrooms are similarly placed in the middle of the classroom buildings. However, these workspaces are more physically and visually cut off from the surrounding environment (see Figure 10).

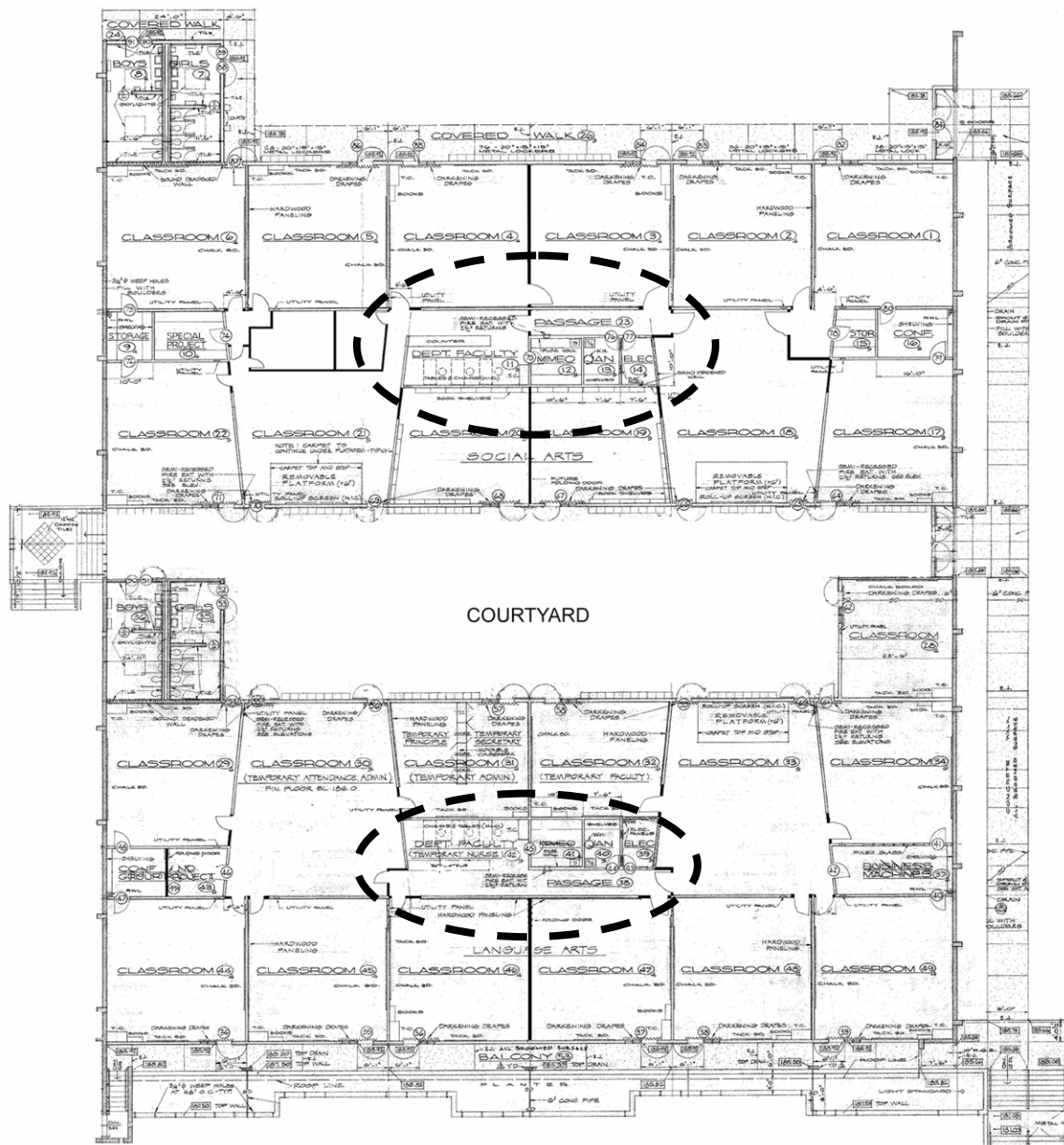




**Figure 8.** The administration building at Williams (circled) is located in the center of the campus where it is equally accessible from all classroom buildings except the portables. Department workrooms are located in each of the original core academic buildings (gray stars). Less centrally located is the teachers' lunchroom (black star).



**Figure 9:** The faculty workroom (circled) in the administration building at Williams is more accessible and open to the circulation route and the campus. Unlike the doors at Nathan, the doors in the administration building at Williams are not on closers and remain open all the time. Teachers and staff can see and hear what is going on in this space without having to physically enter the room.



**Figure 10.** The department workrooms (circled) are more physically and visually cut off than the workroom in the administration building. The other small rooms that were originally intended to be project and small group rooms are now used for book and curriculum material storage.

*Nathan High School Workrooms and Resources.* The department workrooms at Nathan are intended to supplant rather than supplement the individual classroom as the teacher's primary workspace. That all teachers at Nathan currently have their own classroom is a contributing factor in how teachers use these and other available workspaces. In the current situation, decentralization of equipment and supplies and other resources to the department workspaces eliminates the need for teachers to use or visit the workspaces in the administration building other than to collect their mail or make master copies. In addition, the peripheral locations of the department workrooms are inconvenient for more than a quick visit to use the copier, restroom or refrigerator, or to get water. Consequently, all workspaces at Nathan are underutilized with teachers rarely encountering teacher colleagues when they leave their classrooms. Teachers' isolation and lack of social contact is compounded by the workrooms being physically and visually separated from each other, as well as from classrooms and the campus. Teachers cannot see or hear who is in the workroom or lounge just by passing by. They must first physically enter the room by opening the door and possibly interrupt ongoing conversations. Having to perform this physical act reduces the chances of informal social interaction occurring.

*Williams High School Workrooms and Resources.* In contrast, most teachers at Williams must share or move between classrooms. Even though teachers are increasingly tolerant of having other teachers working in the classroom while they teach, teachers who continue to be displaced during their prep and/or lunch periods or who do not have their own classroom make regular use of the various workrooms available in the school.

While the department workrooms at Williams are centrally located within each department, they are used by just a few teachers or have been co-opted for other uses for several reasons. First, other than textbooks and curriculum materials (and a single computer and printer in the English department workroom), most supplies and equipment as well as a water source, refrigerator and restrooms are located in one central workroom within the school rather than allocated to the different departments. Without these resources being available in the department workrooms reduces the need for teachers to use these spaces. Second, many of the department workrooms are inaccessible to teachers within the department who do not work in the building. Furthermore, these teachers are reluctant to cut through other teachers' classrooms to use the department workrooms. The few teachers who teach in classrooms in that building, but are displaced from their classrooms, are the ones most likely to use the department workrooms. Finally, these workrooms, while being centrally located within a cluster of classrooms are visually and socially isolated. Consequently, department workspaces at Williams remain mostly unclaimed spaces used as repositories for outdated equipment and broken furniture.



**Photos 42 and 43:** English department workroom at Williams is used as workspace more than other department workrooms in the school. Other department workrooms, for example the science department in the photo above, are used for storage.



Conversely, the workroom in the administration building, which is located in the center of the campus, is frequently overcrowded. The workroom is adjacent to the copy room with its equipment and supplies, the mailboxes, and the restrooms and is visually accessible from two directions. The advantage here is that teacher's opportunities for informal social contact with teacher colleagues across all departments is greatly

increased. Whether teachers take advantage of this opportunity depends on their work patterns and the places they make use of.

### **Teachers' Use of Department Workrooms**

Teachers in both schools, regardless of their work patterns, rarely use the department workrooms and usually only to operate the Risograph or to access a water source at Nathan, or to enter adjacent classrooms at Williams. Despite the expectation that department workrooms provide an alternative to the individual classroom as a place for



teachers to prep, grade papers, or to meet to plan and coordinate curriculum, few teachers use these spaces for those purposes. Curriculum planning and prep work remains an activity that is carried out alone in individual classrooms or at home.

**Photo 44:** Typical use of department workrooms at Nathan.

Teachers explained that part of the persistence in their isolation in their individual classrooms is due to the nature of teachers' work and the inconvenience of the department workspaces. The classroom is the primary workspace for teachers. It is where they "practice their craft." As such, the classroom is where teachers keep essential resources that must be at their fingertips, not just when preparing for their classes, but

during instructional time. The sheer amounts of these resources, the need for keeping them within reach throughout the workday and to be sure “they don’t wander off” precludes the use of department workrooms for storage and as office space for teachers to plan and prepare for classes. For teachers with a high priority for maintaining contact with students, the department workrooms have the added disadvantage of making teachers inaccessible to their students as these spaces, in both schools, are kept locked and off limits to students.

*Nathan High School Science Department.* Other than the inaccessibility issue just described, a pattern of isolation was not evident within the science department at Nathan. The long central prep area connecting all of the science classrooms supports the department culture of collaboration and sharing. This space serves as the chemical, specimen, and equipment storage area for all of the science classes. In addition, there are several spaces along the corridor for teachers to work at a computer, grade papers, create instructional materials, etc. And in fact, because she shares her classroom for one period, this is precisely how Mrs. Reed uses this space when her classroom is not available. She works at a desk space just outside her classroom where she can easily obtain materials in her classroom and in her teaching partner’s classroom next door.



**Photo 45:** Mrs. Reed typically works in the science corridor outside her classroom during her prep period.



Nonetheless, the department workrooms and teacher offices located at one end of the building are not used in this way. They also are inconvenient and too distant from the classrooms. In addition, the planning room, which is used daily as the lunchroom, is too small to accommodate the entire science staff preventing the use of this space for department meetings. Therefore, they usually meet in the Department Chair's classroom.

### **Teachers' Use of Other Workspaces and Social Spaces**

Although both schools provide the requisite faculty lunchroom, workroom, mailboxes, and copy room found in every modern high school, the location of these spaces is quite different. Williams' administration building housing these spaces is centrally located and readily accessible except by teachers who teach out in the portables. At Nathan, the administration building is located at the periphery of the campus and is a long walk from all but the two multi-storied classroom buildings, thus the staff workspaces are out of reach for most teachers. This distance was not considered to be an issue by the school planners (architects and district administrators) given that department workspaces have been provided in various locations, however, it does have consequences for how teachers use these spaces. At both schools, the faculty lunchroom is located adjacent to the kitchen in the multipurpose building where it is most convenient for the kitchen staff, but not the faculty.

*Workspaces at Williams.* The workspaces in the administration building at Williams are used less frequently, but for longer periods than those at Nathan. Of course, part of this is due to Williams being overcrowded, and some teachers needing a space to work when they are displaced from their classroom. However, other teachers can often be found in these spaces engaged in conversations with teacher colleagues.



**Photo 46:** Several teachers (seated right front) meet regularly in the staff workroom at Williams before school to talk about work and to socialize. The workroom and adjacent copy room are busy places throughout most of the workday.



**Photo 47:** The copy room at Williams is also a very busy place. Teachers often have to wait in line to use one of the machines. The topic of conversations is usually social, but varies depending on the teachers present.

*Workspaces at Nathan.* In contrast, the workroom and lounge at Nathan remain empty most of the time. Teachers visit only briefly to check their mailbox, to make copies, or most likely, to visit a school administrator or staff member. Extended stays are rare. Chances are that a visit to these places will not produce opportunities to engage in conversations with teacher colleagues.



**Photo 48:** The copy room located in the administration building at Nathan, is used throughout the day. However, there is rarely a line of teachers or staff waiting to use the machines.

*Social Spaces at Nathan.* Teachers' opportunities for informal socialization is limited more by available time than space. Officially, the only social space for teachers at Williams is the faculty lunchroom located off of the kitchen. Because this space is little more than a box and has been usurped by the kitchen staff for storage, the faculty workroom in the administration building has assumed the additional function of teachers' lounge. However, most teachers with traditional work patterns eat their lunch alone in their classrooms, while teachers with non-traditional work patterns eat surrounded by students or in a colleague's classroom.



**Photo 49:** The faculty lunchroom at Williams provides few amenities. Mostly it is used for dry food storage by the kitchen staff.

This pattern of use is not much different at Nathan where the faculty lunchroom has large windows facing out onto a nicely landscaped covered patio with tables and chairs. It is the sheer distance that teachers must travel to reach the lunchroom that discourages most from using this pleasant space.



**Photo 50:** The faculty lunchroom at Nathan is well appointed, but too distant to be of much use to teachers whose time is short. It takes over five minutes to walk from building K at the far end of the campus.

Teachers' use of the faculty lounge in the administration building at Nathan is also related to time and distance. Even though it is adjacent to the faculty workroom, few teachers use the lounge to eat lunch, much less for a moment of peace and quiet or to socialize between classes.



**Photo 51:** The faculty lounge at Nathan is usually empty throughout the work day. Only a few teachers and staff members eat lunch here. These two teachers, Ms. Lange and Ms. Tickers met through their roles as department chairs and now get together to eat lunch in the lounge almost every workday.

Depending on the school, teachers use workspaces located in administration buildings more often than department workspaces. The centrality of the location of the workspaces at Williams makes them more accessible to a larger number of teachers and is consequently occupied by at least one teacher or staff member throughout the day. In contrast, the location of the workspaces at Nathan in conjunction with the provision of departmental workspaces has reduced the number and frequency of visits that teachers make to these spaces. Lounges and lunchrooms at both schools are vastly underutilized. Teachers do not have the time to travel long distances to make use of these spaces. Although the frequency with which workspaces and social spaces are used appear to be related to their location in the school, teachers' work patterns also play a significant role in who uses the spaces and for what purposes.

### **TEACHERS' WORK PATTERNS AND USE OF WORKSPACES**

Teachers' use of administrative offices, staff workrooms, copy rooms, mailrooms, etc. is much more varied than their use of department workrooms. Nonetheless, there are patterns in the variations. Use of these spaces can be divided into three categories of teachers: teachers with traditional work patterns who have a leadership role, teachers with

traditional patterns who do not have a leadership role, and teachers whose work patterns are non-traditional.

An expectation consistent with the two broad categories of work patterns would be that teachers whose patterns are non-traditional leave their classrooms more often to use equipment or to meet with teacher colleagues. But in fact, the six teachers whose work patterns are predominantly traditional and hold leadership positions leave their classrooms just as frequently. However, the length and purpose of these absences are quite different, as is where they go and whom they interact with. Teachers whose work patterns are traditional and include a leadership role make brief ventures from their classrooms to use the restroom, check their mailbox, and to accomplish administrative tasks such as turning in attendance forms to the registrar or requisition forms to the bookkeeper. Although most of these teachers used the copiers in the department offices or staff copy room at least once during the time I observed them, none of them made use of the staff workroom at either school. Indeed, these teachers are more likely to visit the vice principals' offices, the bookkeeper, or school secretary:

*I don't ever come down to the workroom...Our office staff, it just depends on what kinds of things I need to be doing, working on a lot of the department chair stuff there'll be more staff I have to turn to, both secretarial and others and it just depends on where I am with that kind of work. (D. Goffman, Business Technology; WHS)*

Consequently, these teachers interact most often with support staff and administrators rather than teacher colleagues. Interactions with teacher colleagues are typically limited to casual greetings in passing. However, interactions with administrative staff are also quite short, usually lasting less than a minute or two. Extended interactions are reserved for formal meetings.



**Photo 52:** Mr. Aster visits the school bookkeeper's office at Nathan to pick up additional requisition forms for ordering department supplies.

And while teachers whose work patterns are non-traditional leave their classrooms just as frequently, their forays from their classrooms are more extended, include a wider range of spaces, and occur for different purposes. These teachers tend to leave their classrooms for longer periods of time, usually at the beginning of school and during their lunch and prep periods. They spend less time visiting administrative staff and more time in the staff workroom, copy room, and colleagues' classrooms assembling student assignment protocols, socializing, or talking about teaching and students. Not only do these teachers spend longer periods away from their classrooms each interaction is also more extended than those of the other teachers.



**Photo 53:** At Williams, Mr. Bentley joins in a lunchtime conversation about school issues with a number of teacher colleagues including an art teacher.



**Photo 54:** Mrs. Abbott and Mrs. Asaka sit in the staff workroom at Williams and engage in a lengthy conversation about how their junior Honors English students have responded to reading Steinbeck's novel *The Grapes of Wrath*.

As for the few teachers whose work patterns are traditional and do not hold a leadership position, they rarely leave their classrooms and usually only for purposes of collecting their mail, using the restroom, and to purchase their lunch in the cafeteria before returning to their classroom. They are least likely to engage in conversations with teacher colleagues or administrative staff other than to say hello in passing.

### **Organizational Factors Affecting Teachers' Use of Workspaces**

The frequency with which teachers use available workspaces is also affected by the time schedule and leadership structure of the school. Overall, teachers at Nathan left their classrooms to use workrooms or visit administrators almost twice as often as Williams teachers. By taking into account that Nathan is on a ninety-minute block schedule and that most of the teachers who participated at this school are department chairs or sit on one of the school's governance committees, this disparity is easily reconciled. The longer periods provide teachers at Nathan more prep time as well as instructional time. In addition, department chairs are given an extra prep period and teachers who sit on governance committees are given release time from their classes to attend meetings. Consequently, teachers at Nathan left their classrooms more frequently to attend to administrative matters, but they also seemed to be less organized in their trips away from



the classroom. Rather than the one trip that teachers at Williams typically make to accomplish a number of tasks, teachers at Nathan often made several trips. For example, Mrs. Reed, the biology teacher, began one prep period by visiting the library then returning to her classroom. She then made several trips to the administration building and then the department workroom to use the various copiers in constructing a worksheet for her students. On the other hand, Mr. Bentley, the chemistry teacher at Williams, made one trip to the copy room in the administration building using the computer and supplies in the adjacent workroom to construct and copy a test for his chemistry students. When the number of trips teachers at Nathan make to other workspaces is consolidated into one per prep period consistent with the frequency at Williams and release time for meetings is eliminated, the average number of trips is similar between the two schools and within but not across categories of work patterns. Taking these factors into account, teachers with non-traditional work patterns in both schools leave their classrooms in search of resources, equipment, and teacher colleagues more frequently than teachers whose work patterns are non-traditional.

All seventeen teachers' use of space outside of the classroom is consistent with their individual orientations and priorities toward students, teacher colleagues, leadership roles, and classroom instruction. The few "traditional" teachers who have not taken on leadership roles rarely leave their classrooms, effectively controlling interactions with colleagues and students. The six teachers who hold leadership roles have expanded their range of movement, but in ways that maintain their roles within a well-established traditional construction and that limit the possibility for extended interaction with teacher

colleagues. The teachers who have expanded their work roles beyond traditional boundaries also make efforts to expand their range of movement beyond the classroom. These teachers differ from the other in that they have included spaces, such as teachers' workrooms and colleagues' classrooms, where they can engage in activities and interactions that support their work in the classroom.

Also important in understanding teachers' use of department and other workspaces outside the classroom is the location of the workspace and available resources. Centrally located workspaces supplied with adequate resources are more likely to be used by a larger number of teachers, increasing opportunities for formal and informal social interaction and the development of constructive professional relationships and norms of sharing and cooperation. This was particularly evident in the science department at Nathan where the classrooms open onto a shared corridor-like space that contains workspaces and storage for shared supplies and materials. This was also evident to a lesser degree at Williams in teachers' use of the faculty workroom in the administration building.

## **CONCLUSION**

Teachers' work patterns are a strong factor in how they make use of classrooms. For teachers with non-traditional work patterns, particularly in relation to classroom instruction and student relationships, the classroom is more than a container for instructional activities. Teachers use the classroom to make a place through which they can communicate to students about themselves and their passion for the subject they teach. They use their classroom space to reach out to their students to create places where students can feel a sense of ownership and belonging - not just of the classroom, but also

of their learning. However, the standard classroom presents many obstacles often requiring substantial modifications that take away from teachers' limited time and resources.

Conversely, for teachers with traditional work patterns the standard classroom presents an almost ideal work environment. The classroom allows teachers to easily control students' movements within the classroom. These teachers also use the classroom as a means of controlling informal interaction with students and teacher colleagues.

Despite these differences in work patterns and use of classroom space, most teachers arrange their classrooms in traditional ways. In many respects, classroom features dictate the arrangement of student and teacher workspaces. However, teachers' efforts to improve their workspace by adding storage and display space effectively reduces the amount of instructional space they have to work with further limiting teachers' options as to how they arrange their classroom and the instructional activities they use.

Although both schools provide department workrooms, the location and features of these spaces indicate different expectations about how teachers use them. Williams' centrally located workrooms are intended to support teachers' work and the classroom work as supplemental workspace. On the other hand, Nathan's workrooms are intended to be a substitute for the classroom as the teachers' primary workspace. In both instances, teachers are expected to use the workrooms to engage in constructive conversations and activities that improve classroom instruction. Most teachers' use of the workrooms in both schools is more limited and confined to activities and interactions that fall within traditional boundaries. Few teachers use these public spaces to engage in constructive

collegial conversations and activities. Where these types of activities and conversations do take place are in workrooms that are more centrally located and visually accessible, and provide a major source of material resources.

### **IMPLICATIONS FOR SCHOOL PLANNING**

In addition to providing a more definitive portrayal of the activities and interactions that comprise teachers' daily work and how teachers' orientations and priorities affect or determine the activities and interactions they engage in, this study also indicates the ways in which school architectural design supports and constrains teachers' work in and beyond the classroom by demonstrating how teachers construct and use space in their efforts to create effective and efficient workspaces and learning environments. These observations point to several elements of school planners' thinking and in school architectural design that require greater consideration.

#### **The School as Teachers' Workspace**

Student learning does not occur in a vacuum. Teachers are responsible for planning and directing the learning activities that students engage in. To eliminate or reduce the importance of the teacher's role creates a skewed or unbalanced vision of the types of spaces needed and how teachers and students use those spaces. Throughout the planning and design process, school planners must remain cognizant of the relationship between the physical environment and teachers' work. They must always consider how the spaces and infrastructure they are providing affect teachers and preferred work patterns.

#### **The Complexities of Teachers' Work**

School planners must understand that teaching is a complex interconnection of interactions and activities that revolve around improving instructional practices, the

classroom environment, and student learning. These interconnections are often made more difficult as a consequence of school architectural design, especially for teachers' whose orientations and priorities expand the traditional boundaries of their work.

### **The Significance of the Classroom**

The classroom is a vital tool that many teachers use in their work, particularly those teachers whose work patterns are non-traditional. Very rarely is the classroom an anonymous, interchangeable space – even for the most traditionally oriented teachers. The significance of the classroom for teachers is an important factor to consider given the current trend toward shared, or universal, classrooms.

### **Teacher Workspace Beyond the Classroom**

School planners' unawareness of the complexities of teachers' work and the increasing expectation that teachers expand the boundaries of their work is nowhere more evident than in the types of teacher workspaces provided outside the classroom. To fully support expanded conceptions of teachers' work, workspaces must be designed with consideration of how to support teachers' activities and interactions in and beyond the classroom, within and across subject boundaries.

### **Support Spaces Designed for Teachers**

In addition to teacher workspaces, the services, equipment and spaces typically accorded teachers (such as teacher mailboxes, copiers, professional libraries, the staff lunchroom, and even restrooms) are generally located where they are most convenient for those individuals who maintain them (cafeteria workers, janitors, librarians, administrative staff), but are least convenient for teachers such that they rarely have the time or opportunity to make full use of them. The school as an organization and a place is

provided to support teachers' and students' work and must be designed accordingly.

Mailbox areas, lunchrooms and copy rooms as currently designed and located in most schools are lost opportunities to create spaces for teachers to build social and professional relationships with teacher colleagues based on trust and cooperation.

### **Creating Effective Environments**

Finally, architects and others involved in the planning and design of school buildings do not create learning environments. Teachers create learning environments. School planners are responsible for providing a space from which teachers can create effective and efficient workspaces and learning environments.

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<sup>1</sup> While most of the teachers have shared a classroom at one time or another, at the time of this study eight of the seventeen teachers shared classrooms with other teachers. Of these eight teachers, five are the primary occupant of the room they share and are displaced only during their prep period. Two have their own classroom but use another teacher's classroom for at least one period, and one teacher, Mr. Cerrano who is new at Williams, uses two classrooms "owned" by part time teachers.