The L-Shaped Classroom

The L-Shaped Classroom: A Pattern for Promoting Learning
by Peter C. Lippman

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Introduction

In November of 1994, James A. Dyck published an article, "A Case for the L-Shape Classroom: Does the shape of a classroom affect the quality of the learning that goes inside it?" in Principle Magazine. Unlike many articles and books that describe school settings, this article was grounded in research. With the understanding that schools are learning centers for development, and building on his research findings, Dyck proposed the layout of the 'Fat L' as a design pattern that offers teachers options in how they might organize their classrooms to facilitate the development of their students in various learning activities. Since this article was written, there has been little analysis of how the 'L' Shape design pattern might influence learning as well as be incorporated into the design of new school facilities. The purpose of this article will be to:

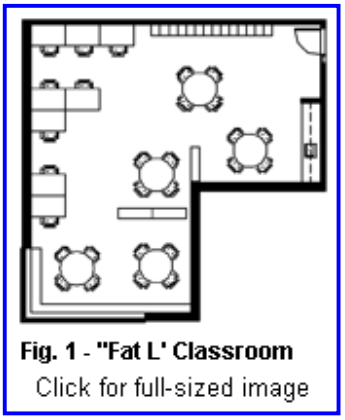

Fig. 1 - "Fat L' Classroom
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1. Re-examine the 'Fat L' (Dyck, 1994) Classroom as a design pattern which supports a range of activity settings;
2. Define activity settings;
3. Describe the 'Fat L' Classroom as supporting flexible, integrated, and variable activity settings;
4. Examine the 'Fat L' Shape Classroom in practice;
5. Evaluate examples of other types of L-Shape Classrooms in the United States and the Netherlands;
6. Consider how the L-Shape design might influence the learning activities throughout the school environment.

Fat L Shape as a Pattern for Classroom Design

For Dyck, The concept for the L-Shaped Classroom evolved from his Master's Research Project, "A Study of Spatial Experience with Preschool-Aged Children in a Designed Environment." This was a qualitative research study that allowed Dyck to observe that:

> "the environmental qualities of classrooms—high/low, open/closed, big/little, vertical/horizontal—do indeed affect the learning process in young children" (Dyck, 1994, p. 43).

Building on the awareness of how the physical environment affects the social environment, how teachers facilitate learning activities, and how students learn, he continued to question the assembly line approach to education where school buildings were fashioned like the factory model. This model organized the school through its horizontal and vertical circulation routes. Students moved along these routes to instructional spaces to acquire knowledge. Within the assembly line approach to learning, students were likened to containers ready to be filled with new information. Furthermore, they were advanced each year according to the amount of information they had retained.

Whereas learning within the traditional industrial model of education is viewed as passive activity in which students obtain information, for Dyck learning is an activity which involves the:

> "…continual negotiation of people with each other and with the resources of the environment." (Greeno, 1998, p. 9).

This perspective recognizes that non-traditional modern learning environments encourage students to fully participate in activities with others as they acquire knowledge for themselves. With this understanding, he developed the following criteria for the modern classroom:

- It has to accommodate the formation and functioning of small learning groups while providing a sense of separation, because groups working together will experience distractions and non-productive interaction.
- It has to be flexible enough to allow the continual reorganization of the whole class into various sizes and number of small learning groups. This means the space must be as free as possible of permanent obstructions.
- It has to be manageable by a single teacher who has command of the entire space. This means the space must be compact and open (Dyck, 1994, p. 44).

These criteria reflect Dyck's understanding that learning environments must be viewed as dynamic places and complex systems where numerous activities may be occurring at any moment (Greeno, 1998). This article is grounded in research from observational studies, which uncovered the possible patterns of phenomena that may occur within the non-traditional classroom setting. From the research, criteria was developed which describes the possible phenomena that might occur within the setting, and how the concept that the classroom is flexible and integrated supports these phenomena. He proposed a design pattern that embraces the established criteria, the 'Fat L' Shape Classroom which takes on the form of the capital letter 'L', in which both legs are nearly of equal length and depth

In addition this design pattern:

> "…provides a sense of separation, an easing of the perception of crowding,.. [Furthermore] As long as there are no permanent barriers, the L-shaped classroom can be reorganized to permit a wide variety of student groupings and activities" (Dyck, 1994, p. 44).

Finally, this form can be integrated into other socio-physical environments.

The classroom may be understood as a behavior setting (Barker, 1968, 1969; Wicker 1979), an entity in and of itself, within the context of the school environment. This entity has been conventionally designed in the shape of a square or a rectangle. These shapes create spaces that may be "characterized by an excess of the uniform…and the contained…. " (Kennedy & Moore, 1998). While furniture and furnishings may be rearranged, these conventional shapes limit what can occur within the layout. Desks maybe arranged in clusters so that collaborative learning activities are encouraged. Although these arrangements afford small group learning, the layout of the classroom does not provide defined areas in which activities separate from, yet part of the class, might occur simultaneously without disrupting the flow of learning between groups. In addition, depending on how the classroom is arranged, these areas may afford individual, one-to-one, and small group learning. On the contrary, the 'Fat L' classroom design facilitates:

> "…good separation by maximizing the distance in each leg, has a long diagonal measurement, …an interior corner to serve as a visual barrier,"good visibility and ease of movement for the teacher. It also has excellent nesting qualities and can be easily grouped into pods, clusters or wings…" (Dyck, 1994, p. 45).

Activity Settings

Unlike a traditional square shape classroom, the L-Shape may be understood as a learning center that has been designed to support multiple activity settings. The learning center "… contains a variety of materials and is identified by its physical boundaries…" [and] "…are specific places where activities and experiments occur" (1996, 13). While the learning center affords the opportunity for transactions to occur, "Contexts in which collaborative interaction, intersubjectivity, and assisted performance occur—in which teaching occurs—are referred to as activity settings" (Tharp & Gallimore, 1997, p. 72). They are places that promote project-based learning to occur in the classroom so that students with varying educational skills and intelligences may work collaboratively sharing their understandings as they solve problems (Lippman, 1997).

Not only does the L-Shape Classroom allow teachers to have their class meet as an entire group to review and discuss projects, but also, the physical layout of the space includes five corner zones which may be used as five unique activity settings in which small groups of four and five students can work simultaneously on similar as well as different projects. Corners afford students both prospect and refuge (Hildebrand, 1991).

The corner is a permanent feature open to the setting as well as contained. It is a circumscribed place where two walls come together perpendicularly. Within this activity setting, students may view others and at the same time are afforded a place in which they can perform

the task-at-hand. Since this is a circumscribed place within the physical environment, it provides for the students a sense of place where interactions are allowed to occur with fewer distractions.

While a corner is a permanent feature that can be used as an activity setting within the physical environment, activity settings may also be understood as temporary. Temporary activity settings result from the arrangement and re-arrangement of the furnishings and furniture in the classroom by the teachers and their students for the purpose of working on the task at hand. Regardless, activity settings within the classroom are circumscribed zones that afford:

1. Access to peers of greater, equal, and lesser ability;
2. Transactions between students and teachers, verbal and otherwise, that occur in the daily routine;
3. Opportunities to investigate an array of activities permitted within the settings;
4. Opportunities to design, redesign, and react to self-generated changes as they work through their goal-directed activities;
5. Low levels of adult guidance, supervision, and considerable freedom for what students accomplish and how they accomplish it (Tharp & Gallimore, 1997).

Furthermore, activity settings may be described as the physical zones for proximal development (Vygotsky, 1978) to occur. These zones afford students the opportunity to work individually while sharing their tools and materials, to work collaboratively guiding one another in the use of the tools and materials as they solve a particular problem, and may be understood as places where tools and materials may be brought from other settings and used for working out the task-at-hand (Keller & Keller, 1996). Even though the time for completing a task may have concluded, during another period during the day, week or month, the tools and materials may be brought to another activity setting within the classroom where the individual, individuals, or small group may proceed to re-engage in that activity begun in another location.

Activity Settings—Integrated, Flexible, and Variable

As described, the intention for the design of the 'Fat L' Shaped Classroom is to promote opportunities for Project-Based-Learning. From my experiences teaching, Project-Based-Learning might comprise the following:

1. The class meeting in its entirety as an introduction or re-introduction to a particular lesson;
2. The formation of groups to work on the lesson;
3. The allocation of zones in the classroom where each group can work collaboratively on the problem;
4. As the students are engaged, the teacher will move about the room, observing and guiding the groups as they work through their activities;
5. When the lesson has been completed, the entire class will meet as a large group to discuss and review what they had accomplished and how they accomplished it.

The L-Shape provides permanent zones for small groups to work. Furthermore, since the furnishings and furniture in the classroom can be organized and reorganized for individual, one-to-one, small group, and large group activities, teachers have the opportunity to create additional, although temporary, activity settings. Activity Settings may be understood as integrated, flexible and variable systems.

Integrated Settings

While activity settings are permanent physical elements, temporary physical elements or combination of both within a given classroom, they may also be understood as separate areas within that same space. In addition, they must be understood as related systems that facilitate learning. The permanent zones are the corner areas which are bounded on two sides, whereas the temporary zones may or may not be bounded depending on which furnishings are located and used to define these areas. A table three feet in diameter is used with movable chairs and placed along a wall and is bounded on one side. The same table and chairs located where two four-foot long and three-foot high bookcases form a corner is bounded on two sides. In addition, three four-foot long and three-foot high bookcases arranged in a U-Shape define an activity setting bounded on three sides. Whether the activity setting is permanent or temporary, these zones provide students with the opportunity:

1. To be peripherally engaged with their project at hand [one side];
2. To be partially engaged with their project at hand [two sides];
3. To be completely engaged in their project at hand [three sides].

Since these zones are opened to view on one, two, or three sides, students have the opportunity to be peripherally engaged with projects occurring around them. The opportunity to view how others identify their constraints, attune to them and find the affordances reflects the integrated nature of activity settings. Since they are defined zones, they allow students to focus on their projects, yet allow them the opportunity to participate with others, although peripherally, to understand how similar problems may be resolved. The integrated nature of activity settings affords learning to extend beyond a specific zone into another or other settings (Lave & Wenger, 1996; Tharp & Gallimore, 1997).

Flexible Settings

In addition to providing for an integrated system, the physical layout of the 'Fat L' Shaped Classroom affords flexibility. While one leg is used for a particular activity the other leg may be used for another activity or activities. Furthermore, the class might meet in large group , while an individual and small group may work through an unfinished task or prepare for a presentation. Different activities may occur simultaneously without being a distraction to one another.

The 'Fat L' may be understood as a layered system. Within the behavior setting, the private and semi-private zones occur along the perimeter of the space, while the settings organized away from the perimeter are open areas for movement and are considered the common areas. Activity settings organized around the corner features or where furnishings have been arranged to create a corner condition tend to afford private zones, whereas furnishings and furniture arranged along a wall support semi-private zones. Both conditions provide a sense of place so that students may be engaged in their tasks. In addition, these conditions allow students to be engaged peripherally with other projects without having to leave their defined workspace.

While these settings promote goal-directed and formal transactions, activity settings unbounded and organized to create a common area of the classroom may be considered semi-public zones where students meet informally. Flexibility within activity settings promote goal-directed behaviors as well as informal behaviors. This is afforded, since:

> " … the social environment [may] arrange and re-arrange semi-fixed furnishings… within the environment to support individual, one-to-one, small group, and large group activities" (Lippman, 2002, October, p. 3).

The physical environment may be reorganized by relocating the furnishings in the room to create sociopetal and sociofugal activity settings (Osmond, 1966). Sociopetal settings encourage social activity. This may be achieved by clustering tables with chairs so that a group of four or five students can come together, share their understandings of how to solve particular problems, and mentor one another in the use of specific tools and materials. Sociofugal settings discourage social activity. This can be accomplished by arranging desks in series of rows so that when seated students all face in one direction or by placing a desk and chair in front of a wall away from others and away from the use of tools and materials. As indicated above, flexibility can either afford or constrain the shared flow of activity in the production of knowledge.

Variable Settings

The design concept for the 'Fat L' originated from an understanding of the possible transactions that occur from the interactions in the socio-physical environment and the situated nature of learning. Because people learn in diverse ways, the environment should be designed to promote the various ways in which people acquire knowledge.

As described above, the layout of this classroom affords the opportunity to create settings for individual, one-to-one, small group, and large group activities. Within an activity setting, interactions occur as students share their understandings of the problem at hand. The situated nature of learning for individuals reflects how they each work through the problem within the socio-physical context of the activity setting. While the activity setting may have been organized to support one-to-one or small group participation, after sharing their understanding with others, students may choose to work out the task at hand by themselves. While working out the problem, each encounters the constraints of the environment and makes attunements to the constraints so that the environment may provide them with affordances (Greeno, 1998). This may occur by moving away from the table and working on the floor or turning away from the group.

While the social environment is allowed to redefine the individual's sense of place, the activity setting remains intact, affording individuals as part of a grouping the choice of being fully engaged with their own specific tasks, as well as allowing them to be peripherally engaged in the tasks of others. Within the activity setting students are able to define their zones so that they are able to acquire knowledge. Furthermore, these zones afford students an opportunity to choose a level of comfort in which they may appropriate knowledge for themselves.

The 'Fat L' Classroom in Practice

Building on the Concepts of the 'Fat L' Shaped Classroom

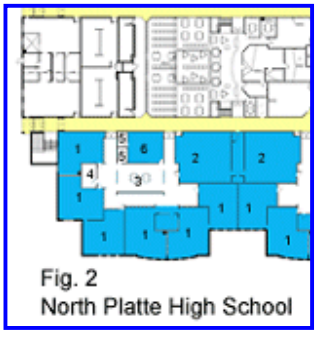


Fig. 2
North Platte High School

Since the article was written in 1994, a number of school projects that incorporated the 'Fat L' Classroom have been constructed. These projects include four Lincoln Nebraska Public Elementary Schools, the Prairie Hill

Learning Center in Lincoln, Nebraska, North Platte High School in North Platte, Nebraska (See Fig. 2), and Waverly High School in Waverly, Nebraska (See Fig. 3). James A. Dyck's architectural firm, The Architectural Partnership (TAP), in Nebraska has been responsible for these designs, with the design for the Lincoln Nebraska Public Elementary Schools receiving in 1998 The Impact in Learning Award for designs that enhance learning. This award was presented to TAP by The School Planning and Management Magazine and the Council of Educational Facility Planners International (CEFPI).

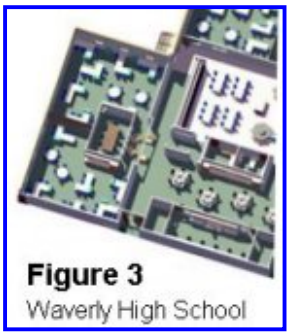


Figure 3
Waverly High School

The Maxi, Cavett, Campbell, and Roper Elementary School
While each of the school projects indicated above is unique, the Four Public Elementary Schools and the Prairie Hill Learning Center, all, in Lincoln Nebraska will be examined. These projects are most notable for how TAP arranged the plans to create integrated, flexible and variable learning environments. The Maxey, Cavett, Campbell, and Roper Elementary Schools in Lincoln, Nebraska were the projects that received the award for designs that enhance learning (See Fig. 4). The designs of each are basically the same where the 'Fat L' Shaped Classrooms are stepped along the corridor. This arrangement affords small group activity settings outside the classrooms. TAP has created a layered system so that learning may be perceived as extending beyond the behavior setting.

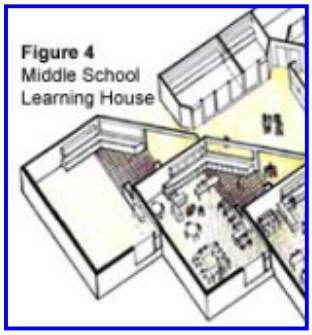


Figure 4
Middle School
Learning House

Another element that TAP incorporated into the design is an entry portal to each classroom. It is approximately twelve feet wide and encourages unobstructed movement between the classrooms and the corridor space. Although this design feature may not be appropriate for every learning environment, it reflects an understanding that learning does not begin and end in the classroom setting. The intention of this design was to create an integrated setting so that the flow of activities may be understood as connected from the classroom into the corridor and possibly throughout the entire socio-physical environment.

The design affords a variable and integrated setting. It is a layered system in which the public and private zones have been defined in relationship to the corridor. The most public zones occur around the portal, whereas the more private zones occur in the leg of the 'L' furthest away from the portal. Yet, each of the zones may be understood as flexible, since each may be arranged to afford individual, one-to-one, small group, and large group activities.

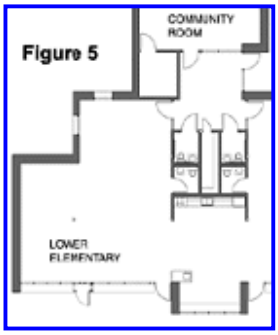


Figure 5

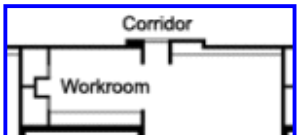
Prairie Hill Learning Center: The Prairie Hill Learning Center (See Fig. 5) is an elementary school in which the 'Fat L' classrooms are book-matched. The demising spaces that separate the classrooms house a pair of toilet rooms for each and a kitchen area. The kitchen is a circumscribed area, yet it is not an enclosed room. While specific activities for the kitchen may occur within it, activities between classrooms may transpire through this space bridging the behavior settings.

This area integrates the classrooms and the design reflects an understanding that learning is not defined to an area, but rather occurs between settings. In addition, the structural column located approximately in the center of each classroom assists in defining areas in which different activity settings may be organized. Yet, they don't disrupt the flow of activity within the classroom. The Prairie Hill Learning Center within its simplicity is a rather complex design. Not only do the physical elements afford flexibility and variability in the creation of the activity settings, they also afford an integrated learning environment within the classroom as well as between the classrooms where students may always be engaged in the activities of others as they work on their tasks-at-hand.

Examples of the L-Shaped Classroom
While Dyck was the first to propose the 'Fat L' Shaped Classroom, the concept of the L-Shaped Classroom has been incorporated in numerous school projects. The Crow Island School in Winnetka, Illinois by Perkins, Wheeler, & Will and Saarineen, the Montessori School in Delft in the Netherlands by Hertzberger, and the Newark Eastside High School, Newark, New Jersey by Fielding/Nair International, are examples of schools where a type of L-Shape has been used. Each of these projects integrates the L-Shape in a unique manner with the overall layout of the school environment. In addition, each project reflects an approach and understanding of how the physical layout of the classroom setting as a learning center might afford the learning. Even though the settings of each are unique, they are similar in that they evolved from a collaborative process between the architect, the administrators, and the people who would inhabit the school once it was constructed.

The Crow Island School: The Crow Island School (See Fig. 6) which opened its doors in 1940 was an:

> "… outgrowth of … a plan by Winnetka's businessmen to create a public school whose philosophy and facility would rival its private counterpart" (Newton, April 1990, p. 2).



Carleton Washbourne, the School Superintendent, envisioned a child-centered learning environment. The result was an elementary school with three classroom wings arranged around common spaces that included a play room, stage, art room and library. The classrooms were organized along horizontal corridors. In addition, an L-Shape Classroom design was integrated into the overall scheme.

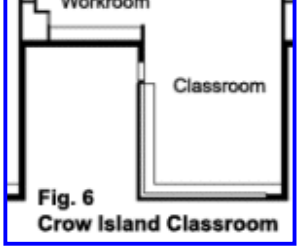


Fig. 6
Crow Island Classroom

The L-shaped layout used for the Crow Island School was not the 'Fat L'. The legs are not of equal size. In addition, each leg was designed as two spaces. The smaller and narrower leg is the workroom that contains a sink, counters with windows above, washroom and drinking fountain. This room was considered the space where the students would work on specific projects. In addition, this room may have been designed for either individual or one-to-one activities. Connected to the workroom is the classroom area that is the wider and longer leg. This space was designed with a bay window to define a large group meeting area. In addition, the space was to be flexible and was provided with age appropriate furniture so that it could be arranged in a variety of small group activities.

The Crow Island School is an architectural precedent, and is an example of how the physical environment was created to afford learning. The participatory process in which the architects met with the staff and students was invaluable in creating this setting. While the L-Shape plan used by Perkins Wheeler & Will and Saarinen embraces the notion of the behavior setting and aspects of variability and flexibility, the plan does not embrace the concept for the flow of activity between the two legs of the 'L' shape. This L-shaped classroom is not an integrated plan, since the legs of the 'L' are understood as two separate spaces where different types of activities are intended to occur. While the furniture can be arranged numerous ways to support learning, the layout of the plan is not flexible since each leg of the 'L' is intended to be used for specific activities.

The Montessori School in Delft

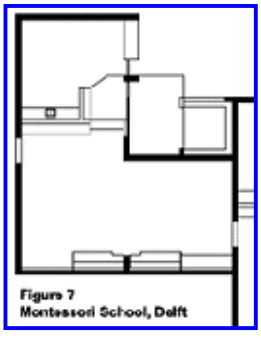


Figure 7
Montessori School, Delft

The Montessori School in Delft was designed by Herman Hertzberger (See Fig. 7), and was originally built in 1960 with subsequent additions that were completed in 1981. Similarly to the Crow Island School, this is an elementary school that uses a variation on the 'Fat L' design pattern. In addition, the Montessori School in Delft was conceived as a learning environment where all the places in the school afford learning. The classrooms were not organized along a horizontal corridor, but rather as dwellings arranged around a central avenue. Whereas the classrooms provided for more focused activities, the notion of the central avenue reflects an understanding that learning extends beyond the limits of the classroom behavior setting.

For Hertzberger, who worked directly with the Principal and the teachers of this school, the L-Shape Classroom evolved from his notion that students are involved with formal (intellectual), informal (practical) and creative activities. Intellectual activities maybe understood as math, science and language, while practical activities might involve the more social transactions where students work on projects together. Creative activities might involve individuals painting and drawing. While these activities are not incompatible, they involve different intelligences and types of concentration.

Building on these concepts, the L-shaped plan evolved where three defined activity settings were introduced. The settings are in each of the legs of the 'L' shape and the corner where the legs come together along the exterior perimeter wall. In addition, this version of the L-shape includes one narrow leg that is of the same length as the wider classroom area. The narrower leg is defined as a separate space with steps leading into it and base cabinets built in the shape of an 'L'. While each of the four sides of the base cabinets are used for storage, incorporated with the base cabinets in the narrower leg is a sink.

This version of the L-shaped classroom affords flexibility, variability, and is an integrated learning setting that provides opportunities for activity settings. Within the classroom, each setting can be organized to support individual, one-to-one, and small group activities. Additionally, this layout enables individuals to work on one side of the classroom without distracting the activities occurring in the other settings. While the fixed base cabinets divide the classroom physically, they afford students working in the other settings and as they walk through the space the opportunity to participate, though from a peripheral position, in the activity.

Newark East Side High School

The Communications Suite for Newark East Side High School (See Fig. 8) that features two 900-square foot Project Based Learning Classrooms was designed by Fielding/Nair International, LLC 2003. This project reflects another version of how the L-Shaped Classroom may be integrated. Unlike the previous classrooms described above, this project is for a High School. Furthermore, this project is over twenty years later than the Montessori School in Delft and reflects the current concepts for learning in which the physical environment is designed for the engagement of students.

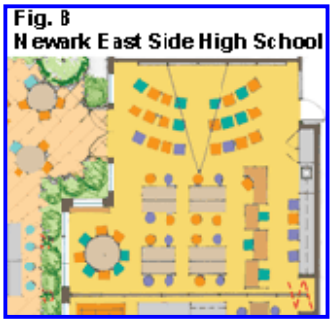


Fig. 8
Newark East Side High School

Unlike the elementary school, the high school setting may necessitate greater flexibility; for, activity settings may need to change not only from day to day, but from hour to hour depending on the intended activities.

Taking this into consideration, Fielding and Nair have proposed an L-Shape Classroom that provides flexibility and variability as well as an integrated behavior setting. The 'L' shape chosen for this behavior setting is a twenty-seven foot wide by thirty-two foot deep leg connected to a seven-foot wide by thirteen-foot deep leg. This L-shaped layout may be understood as an alcove space attached to the overall classroom space. The alcove is intended to support individual, one-to-one, and small group learning activities.

The overall space is open with built-in cabinetry with a sink, countertop for computer stations and coat closet for the teacher adjacent to the entrance at the North wall. This layout affords students the opportunity for the creation of various activity settings for individual, one-to-one, small group, and large activities. Students may work individually at the computer stations while others work in small groups in the alcove space and the overall classroom. Students may be fully engaged in their own projects while they are simultaneously and peripherally engaged in the work of others. Another feature that Fielding and Nair have incorporated is a folding partition that can either separate two classrooms or allow them to come together for large group meeting between the classes. As each classroom may be understood as affording the flow of activity, the feature of the folding partition extends the flow of activity and learning from one classroom to another.

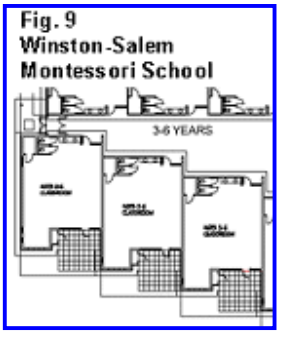
Conclusion

While this exploration into the question of the L-Shape Classroom as a design pattern has not been an exhaustive study, this article highlights aspects of the 'Fat L' and describes examples of variations on the L-Shape as a design pattern. The 'Fat L' proposed by Dyck reflects an understanding that the learning environment not only affords multiple activity settings, but also is an integrated, flexible and variable environment. Furthermore, each leg of the 'Fat L' maybe used to create activity settings for individual, one-to-one, small group, and large group activities. The 'Fat L' layout evolved from an understanding that the classroom should provide individuals with places where they have the opportunity to learn from their engagements in the physical environment.

While the 'Fat L' has not been integrated within The Crow Island School, The Montessori School in Delft, and the Newark East Side High School, and while each is unique, the design patterns have qualities that are similar. The settings were designed to be flexible and variable and afford the opportunity to create various activity settings. Another aspect incorporated was that each was designed with a classroom leg and a smaller leg attached to it. The classroom leg was intended to afford opportunities for individual, one-to-one, small group activities, and large group activities, whereas the smaller leg was intended for individual, one-to-one or small group activities.

While there are similarities between them, they differ in how the activity settings are integrated. While the Montessori School Delft allows for peripheral participation into the narrower leg of the 'L', like the Crow Island School, the physical design is treated as a separate activity setting. However, as separate settings, they afford individuals the opportunity to be engaged in activities with fewer distractions from the overall classroom environment. Though the Crow Island School and the Montessori School in Delft use the narrower leg of the 'L' to create distinct activity settings, Newark East Side High School provides an alcove area. Since this leg is squatter and is not separated from the overall classroom space by a physical barrier, the overall space may not only be understood as interconnected, but also affords individuals greater flexibility and variability in how the activity settings may be arranged.

In addition, the L-Shaped Classroom for Newark East Side High School has not only been designed as a behavior setting, but also as a large group meeting space. With the introduction of a folding partition, two classes may come together for large group activities. The idea of integration is treated differently in the Montessori School in Delft. In this learning environment the areas outside the classrooms, because of the L-Shape and the manner in which they have been arranged, afford places for students to work. The areas closest to the classrooms were intended for individual and one-to-one activities, whereas the centralized spaces were conceived for small group and large group activities as well as where classes might come together.



Other examples of where the L-shaped pattern has been integrated with circulation spaces that provide individuals with places to extend learning outside the classroom are the De Evenaar School and the Apollo Schools in Amsterdam by Hertzberger (1991 & 1986), the Mills Road Elementary School Jamestown, North Carolina by the Adams Group Inc. and Sanoff [Jamestown - Adams], and the Winston-Salem Montessori School by TAP (See Fig. 9). These schools integrate the circulation spaces as learning paths which:

> " …provide additional space in front of the classrooms to display student work… allowing for a variety of activities…" (Lippman, 2003, September)

Adaptations of the L-Shaped Classroom

This article has described the concept of the 'Fat L' Classroom as well as evaluated variations on the 'Fat L' as a behavior setting that affords multiple activity settings. When the activity settings are organized as flexible, integrated, and variable, the physical environment affords individuals the opportunity to become engaged in activities so that they may appropriate knowledge for themselves. While the 'Fat L' may be understood as the ideal, variations as indicated, as well as adaptations may be considered. The adaptations of the 'Fat L' may result from the site conditions. These conditions may result from the constraints for a renovation, an addition to an existing school, as well as the lot size for a new school.

Advanced Learning Environment Solution

Examples of these adaptations are projects by **Fielding/Nair International, LLC**:

The Advanced Learning Environment Solution, Jacksonville, Florida (Fig. 10)

GOA International School (Fig. 11)

While these adaptations may not be viewed as L-Shaped Classrooms, each layout incorporates qualities similar to the L-Shape that afford learning.

Considerations for L-Shaped Classroom as a Design Pattern

Even though the L-shaped Classroom is a viable plan and attempts to promote a theoretical framework in the design of learning environments, there are concerns about this layout that relate to the teacher's control of the environment. When the learning environment is understood as teacher-directed and where information is distributed unidirectionally, the outside corner where the L-Shape is formed may be thought to hamper the view the teacher may have over the classroom.

Having worked in school environments that are child-centered where learning occurs through full participation in activities, and where the teacher's role is as a facilitator guiding students' participation in the tasks at hand, I do not believe this concern to be valid. In child-centered environment, the culture of the setting is one in which activities are structured by the teacher and students work collaboratively solving the problems. In this setting the teacher is never in one place, but rather is moving about the setting always in view of what is occurring.

Another concern is with the creation of activity settings outside of the classroom. These activity settings take on the form of niches, hubs, alcoves, and nodes and are integrated onto the overall environment to support the extension of learning from the classroom into the circulation spaces (Lippman, 2003, September). From conversations with a few teachers and principals, these spaces outside the classrooms are perceived as places where children can hide and be disruptive to the learning that is occurring in the classrooms. However, based on research (Lippman, 1993; Rivlin & Wolfe), this concern may not be valid. When these spaces are understood as places for connecting the learning activities, then they may be perceived as an extension of the classroom environment. Additionally, with these features learning may be understood as the flowing of activity throughout the school setting rather than as a series of spaces for separating and containing activities.

As described, this pattern is not arbitrary, and no matter what manifestation the L-shape Classroom takes, it is a learning environment that may be understood as a flexible, variable, and integrated setting. In addition, the design seems to support the diverse modalities in which people acquire knowledge. While the notion of the L-Shaped Classroom as a design pattern is grounded in concepts from educational and developmental theories, there are considerations that should be examined more completely through research design such as Post Occupancy Evaluations.

Post Occupancy Evaluations (POE) offer diagnostic and prognostic research, which focuses on the needs and interests of the building occupants (Preiser, 1988). Furthermore, this approach can provide researchers with the means to evaluate environmental aesthetics, students' participation in activities, and their spatial behavior (Winkel, 1993). The POE can contribute to the design of the 'Fat L', variations on the L-Shaped Classroom, and adaptations of the L-Shaped Classroom in the following ways:

1. Consider the different manifestations of how the L-Shape Classroom has been integrated in the overall school environment;
2. Identify the similarities and difference between these separate designs;
3. Examine the L-Shaped Classroom in relationship to conventional classrooms;
4. Examine how the layouts afford behavior for elementary, middle school and high school students;
5. Investigate how activity settings become organized and re-organized for the elementary, middle school or high schools;
6. Study students and teachers experiences in the space;
7. Examine how the different variations of the L-Shape afford peripheral, guided, and full participation in the acquisition of knowledge;
8. Understanding what aspects of the L-Shaped Classroom might afford or constrain teacher mobility;
9. Examine what aspects of the L-Shaped Classroom might afford or constrain students' ability to appropriate knowledge for themselves;
10. Study how activity settings outside the classroom afford or constrain behavior in the corridor spaces.

Building on the knowledge that can be discovered and uncovered from POES, much can be learned about the L-Shaped Classroom. More importantly, this type of research can establish the groundwork and serve as a guide for creating learning environments that are constructed as places where people are encouraged to develop.

See also Results of 2004 DesignShare POE Program by Jeffrey Lackney.

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