DESIGNING for the everyday

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Places Created for Learning: We Bring Your Schools to Life

Peter Lippman is an advisor to Sebel Furniture, helping us design pieces that help educators. We asked Peter to share his thoughts of designing learning spaces that can be used everyday.

Recently, I visited a public school in Australia. It reminded me of the public schools in New York City on which I worked. While the classrooms all meet the required floor area, the rooms have their limitations.

These limitations are a result of the built-in cabinetry that lined the walls of the rooms; for, these arrangements force all activity to the center of the spaces which restrains the choreography within these spaces. Identifying the affordances and constraints of the space is enlightening, but not enough to support the education of the child. Rather than merely identifying the constraints, they must be understood. Only by understanding them and how each affects the learners can the affordances of the spaces be uncovered. By uncovering the affordances, the design professional can transform the space to create environments that enable learners to acquire knowledge and master skills. Given this, the premise of this article is to examine the classrooms and how furniture can be arranged to positively and negatively affect the healthy development of the whole child.

TRADITION

The history for the spatial design of schools in the 20th and 21st century, generally, is fixed within an industrial revolution mindset of reproducing spaces that reinforces a teacher-centric learning environment. Generally, the spatial design treats the teacher as if s/he is the most vulnerable person in the room.
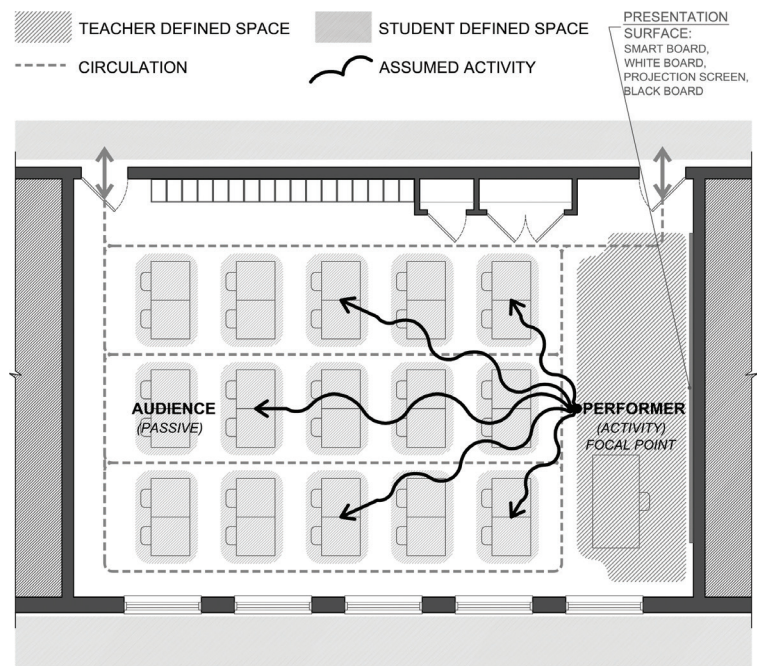
TEACHER'S WORK AREA

Generally, the spatial design of the classroom is organized to support the activities of the teacher. A possible reason for this is that the electrical outlets along with the lighting, projector, and mechanical system controls are located in one corner of the classroom. Adjacent to these controls and outlets is where the smart board is placed. Hence, the teachers' desk and filing equipment are usually placed in this corner location (Fig. 1).

Not only is the teacher given a corner area where they can do their work, but also their desk is used as a barrier to separate them from their students. Within this scenario, teachers, who already have ownership of the space, are also provided with an area of safety, whereas learners are confined to an area defined by their desk and are completely exposed on all sides as they work through their tasks-at-hand.

BUILT-IN CABINETRY

While cabinetry provides needed storage, when it is built-in and/or placed along the walls of the classroom, it reduces usable floor area. Furthermore, as indicated above, students shared work area is limited to center of the classroom. The inflexible choreography of the space can lead to increased stress; for, the only areas to afford movement in the classroom are between the desks and alongside the built-in cabinets. In addition, this layout reduces the area for the spaces-in-between. When designed responsively, the spaces-in-between afford learners the opportunity to move throughout the room in numerous ways and allows them the opportunity to become peripherally engaged with others (Mathews & Lippman, 2015). When the spaces-in-between are contracted, the learners' movements are confined to their own work areas. Furthermore, the lack of space creates a sense of crowding, a concern that supports the notions that any and all interactions between learners is disruptive. Thus, the sense of crowding reinforces anxieties, constrains the choreography of the space, and limits opportunities for learners to move, engage, and share with one another.

▲ FIGURE 1 | Typical Classroom Organization (Image by Marius Calin)

LEARNERS' WORK AREA

Furthermore, when the classroom is organized with rows of desks facing a specific wall, the area of activity is reserved for the teacher's performance (Barker & Gump, 1964). In these settings, typically, every day and in everyplace, teachers will stand for the entire class period supplying information to learners who are expected to passively sit and hear the discourse. Even though the premise of the U-Shape arrangement organizes students so that they can see one another, this arrangement also confines each learner to sit at a desk where s/he is peripherally engaged with his/her classmates. Furthermore, this organization reinforces the teachers' role as the giver of information by extending their work area. Not only do they have an area at the front of the room, with this configuration, they can enter into the U-Shape area. Additionally, this configuration provides them with a T-Shaped area in which to perform. Hence, both arrangements alienate the learner from others as well as being fully engaged with acquiring knowledge. These arrangements reinforce a hierarchical structure of how learning occurs. It is a place where the teacher performs and learners are expected to passively sit, but actively absorb information. Furthermore, these arrangements disconnect students from:

- their teachers;
- meaningful activities with other students; and
- their built environments

By disconnecting the learners, they are unable to develop dependable relationships with their caregivers, sense-of-belonging, an identity of themselves, and social awareness (Brizzard, 2016). Disconnecting the learner negates transactions that transform them. Observing the activities of others, means the learner is not fully engaged in resolving the task-at-hand. When the learner is not fully engaged in activities and not directly engaged with others, their development is being inhibited and sometimes forgone; for, it will require more time for them to recognize and understand how to develop strategies for working through situations. Furthermore, knowing how to deal with situations allows them to develop identities of themselves (Lippman, 2010; Wenger, 1998). However, when learners are unable to work through these situations, this not only hinders their development, but also means they are unable to experience the development of their colleagues emerging identities (Brizzard, 2016).

Since learners develop knowledge about their peers from their engagements with them, the development of their social awareness is encumbered (Lippman, 1995). Hence, the standard classroom settings described above alienate learners from their learning process by limiting and, generally, negating their actions and operations from authentic experiences (Lippman, 2010). Unfortunately, this design approach is typically reproduced for all the instructional spaces throughout the school. This standardization of space can adversely affect the everyday lives of learners; for, in these settings, learning is not personalized nor do learners have autonomy. By institutionalizing these arrangements, schools become stressful environments and limit the learners' healthy development and appreciation of education (Brizzard, 2016; Lippman, 2016).

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CRAFTING SPACES
FOR STUDENT-CENTERED LEARNING

Learning is neither passive, nor does it occur in isolation from others (Lippman, 2010). Thinking that people can be deskbound for hours at a time is the antithesis of what the research in neuroscience (Cozolino, 2013), developmental psychology (Vygotsky, 1978), and environmental psychology (PEHKA, 2012) indicate. Grounding the concept of learning as active is situated learning theory. Situated learning theory characterizes learning as embedded in social and physical contexts. Furthermore, this theory recognizes that the transactions with a place lead to the transformations of the learners. The notion of transactions leading the transformation is not arbitrary, but rather occurs within purposefully designed settings. Given this, the built environment must be crafted to actuate learning and engage learners (Brown & Conroy, 1999).

Rather than accept and validate the current approach, a paradigm shifts for the spatial design of classrooms that understands the actions and operations of the place must be fostered. The reason for this is that the current approach provides teachers in a 60 square meter classroom with approximately 14 (1.8m x 7.75m) square meters of space. Furthermore, the cabinetry, including the space for accessing the resources, use about 16 (6.75m x 1.2m x 2 locations) square meters of space, which leaves only 30 square meters for a class of 30 learners. Whereas the last forty years of research has examined the consequences of classrooms that are planned with desks arranged in rows and has considered the effects of U-Shape layout, the more up-to-date research has begun to investigate the benefits for the spatial design of elementary, middle, high school classrooms which are organized with activity settings / rooms-within-rooms (Lippman, 2016; Barrett, 2013).

ACTIVITY SETTINGS

Activity settings mediate and actuate the learning process (Lippman, 2016), since these are learning zones organized to stabilize and ground the learner. These settings provide defined areas in which learners explore, negotiate, and share concepts with one another (Lippman, 2013; Tharp & Gallimore, 1997). Hence, these settings are learner-centered; for, each student has the opportunity to become fully engaged in activities in ways that is appropriate for how s/he learns.

Within activity settings, the resources, tools, and materials are visibly categorized, clearly labeled, and easily available to support specific actions, motivations and operations of the learner. Therefore, a successful learning environment must be structured with defined learning zones and classification systems (Lippman, 2016).

Since classrooms need to support the needs of approximately 30 learners, each must be planned with activity settings that:

- are defined with tools and resources that indicate what actions are intended to occur within them;

- support the rotations of space and the diverse ways that teaching and learning occurs; and

- encourage learners to shape and re-shape their space(s) to afford them safe and secure places to learn.

Lastly, when activity settings are located along walls and in corners, teachers have essentially created an open plan classroom. With these settings, teachers have greater flexibility to move around the rooms. This open plan arrangement affords them the ability to support independent and small group work, while still providing visual surveillance over each of the different learning zones. Additionally, they have direct access to learners and when conflicts take place they can quickly and easily attend to them. Hence, anxiety levels with students may often be mitigated because they can easily "check in" visually with friends and their teachers (Mathews and Lippman, 2015).

FIGURE 2 | Skapaskolan, Huddinge, Sweden

BEING RESPONSIVE: ARRANGING INSTRUCTIONAL SPACES FOR HEALTHY DEVELOPMENT

Classrooms are transactional settings where learners are transformed by their actions, motivations and operations. To create a supportive learning environment for healthy development, classrooms must be programmed and planned with a variety of learning zones. For early learning, these zones or activity settings may support dramatic play, reading, math, art, science, and blocks. In elementary and secondary schools, these learning zones might be arranged to encourage large group, small group and independent work.

When possible, corners and walls can actuate these settings as well as provide learners with a sense of autonomy; for, in these settings, they are able to share ideas, negotiate with others, and test hypotheses (Fig. 2). While corners provide prospect and refuge affording learners a sense of safety, activating the walls to display and showcase work of the students affords self-awareness and social awareness. To this end, walls and corners become stabilizing features of the room that engages the learner as they appropriate knowledge for themselves.

To create a supportive learning environment, the classroom can be organized with, but not limited to the following:

> A defined large group meeting area.

> Defined independent and small group learning areas.

> Defined storage areas where teachers and students have access to resources

> *...classrooms must be programmed and planned with a variety of learning zones."*

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DEFINED LARGE GROUP MEETING AREA

THE HEART

Essentially, a classroom is a large group meeting area. In today's world, the classroom must be re-imagined. It is a place that supports didactic learning, cooperative group work, and independent work. For this reason, the classroom must be arranged with an area where everyone can gather. In Sweden, I designed an amphitheater seating area for a 120 square meter open plan room that was shared by two classes.

The amphitheater accomplished three things.

1. In this shared space, which the teachers acknowledged was too open, the amphitheater delineated an area where the two classes could meet together at any time. Furthermore, this feature defined zones in which the two classes could meet separately.

2. It created and defined new activity settings which could take place at each of its sides. These activity settings were created by the learners using different furniture and equipment. Furthermore, these activity settings supported students' autonomy; for, these areas provided them a choice of where, with whom, and how they could work through the tasks-at-hand.

3. Lastly, because the students were able to work more autonomously, many of them chose to work independently or with others in the amphitheater.

The amphitheater became the heart of the classroom. As blood flows to and from the heart in the human body, this learning area was vibrant, since teachers and students alike were encouraged to distribute, assimilate, and accommodate a variety of scientific and every day concepts. Hence, the amphitheater afforded an area where the fluid transfer of ideas between learners would take place (Fig. 3).

While many schools are unable to construct an amphitheater in their classrooms, teachers can create a similar learning zone by using a large rug. This approach is generally used in elementary schools. However, at the secondary level, this may be viewed as infantile. In lieu of the rug, a high table with stools around which the teacher and students can sit or choose to stand may be introduced into the space. For either scenario, the furniture and furnishings are tools that are being arranged to activate the heart. Additionally, tables with chairs and/or stools that support independent and small grouping work may be placed along the perimeter walls of the room. By doing this, the central space of the room is available for all users. Desks are not barricading teachers from their students, nor are students' desks obstructing teachers access though the space. Not only can all move comfortably through the classroom, but more importantly all have a place and ownership of the room. To this end, all transactions can be seen from any point in the room.

FIGURE 3 | Skapaskolan, Huddinge, Sweden

DEFINED INDEPENDENT AND SMALL GROUP LEARNING AREAS

FIGURE 4 | Skapaskolan, Huddinge, Sweden

CORNERS

Generally, classrooms are planned as rectangles and squares. Sometimes, L-Shaped classrooms are introduced. Nonetheless, in a rectangular shaped space, rooms have four corners to support activity settings. Generally, in planning the classroom three corners can be salvaged to create activity settings. Corners are defined areas, which as indicated above provide refuge and prospect (Lippman, 2013;

Lippman, 2010). In these settings, a group of four to six learners are provided with a dedicated area in which to work. In this area, they are able to transform it as needed so that they can settle in and be comfortable working. Conceptually, feeling safe and secure in their work space will enable them to focus on the activity-at-hand. Even though groups are working cooperatively within their defined places, these spaces are not confining them. Activity settings, while separate,

are defined with furniture, such as cabinets on wheels, tables with chairs, high benches and stools, soft seating, and movable ottomans on wheels (Fig. 4). Given this, learners can remain visually connected to one another. Hence, they can still view and hear what is going on around them. To this end, if curious, they can leave their refuge and see what others are doing as well as invite others into their space and share their daily progress.

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FIGURE 5 | Skapaskolan, Huddinge, Sweden

FURNITURE

In a classroom of 30 students, a minimum of five activity settings should be created (Lippman, 2013). Given that only three corners in a rectilinear shaped room may be re-claimed by teachers, activity settings must be crafted using furniture and equipment. As indicated earlier, this can be achieved by using movable cabinetry and storage units and/or high back seating with side panels. A pair of high back seating can be arranged like a booth with a table in between. This arrangement provides both refuge and prospect for an activity setting that is essentially free standing. Most importantly, this arrangement further defines learning zones around it (Fig. 5).

Regardless of whether the building is new or being renovated, before crafting the activity settings, the following questions might be considered:

1. Why are activity settings being created?

2. What activities are intended to occur in these learning zones?

3. Who will be using them?

4. How many learning zones are needed?

5. How many small group learning areas are needed?

6. How many independent work areas are needed?

7. When will these areas be used?

8. What furniture, furnishings, and equipment will best support the actions and operations of independent work?
   a. Does everyone need a desk?
   b. Does everyone need a chair?

9. What furniture, furnishings and equipment will best support the actions and operations of cooperative work?

10. Does each activity setting have an adjacent wall to install a vertical writing surface for presenting work?

These questions are to encourage and prepare teachers to think about and understand how they intend to use their spaces every day. Furthermore, these questions are intended: (1) to help teachers identify what they need in their rooms; (2) to empower them to better understand how they currently use their rooms; and (3) to encourage them to consider alternative arrangements for how their classrooms may be used. When teachers and administrators answer these questions, designers are better able to provide them with ideas for responsive solutions for integrating the appropriate furniture, furnishings and equipment for the classrooms. Once there is an understanding about how the settings are intended to be used then the appropriate furniture may be selected that will enable, encourage and allow learners to engage in the tasks-at-had.

DEFINED STORAGE AREAS

Generally, teachers and learners require spaces for storage. For elementary school classrooms, where teachers and students generally own the room, storage spaces are essential for them. Given this, a combination of built-in cabinetry, movable storage units and storage closets are recommended. In middle schools and high schools, where teachers and students are less likely to own classrooms, the recommendation would be to have minimal and movable storage units. For middle school and high school, the teacher's workrooms become the places where they will store their resources, whereas students will be provided with storage spaces outside classrooms. Additionally, science, music, art, as well as design and technology instructional spaces will utilize built-in cabinetry along with storage rooms. Similar to elementary classrooms, these storage areas are needed for both students and teachers. Regardless of the storage type, it must be readily accessible for students and teachers (Lippman, 2010).

CONCLUSION: BEING RESPONSIVE

Designing for the everyday means being responsive to clients. A designer who follows a responsive approach is aware of the literature on developmental, educational, and environmental psychology. Most importantly, they are able to transfer this knowledge and apply it to the spatial design of the school (Lippman, 2010). Concepts for the spatial design are grounded in context around human behavior rather than normative theories. While thoughtful

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aesthetics must be applied to the overall design, functional considerations of space are paramount to the success of the project. Functionality relates to how the spaces support the actions and operations of the teachers, students, and staff who learn within spaces and maintain the building along

with the buildings' furniture and equipment. Building on these notions, the spaces can be designed responsively to support the vision and mission of the school as well as planned to support the pedagogy of place. Furthermore, when renovating existing classrooms, observations and interviews with users can help to decipher how the spaces are used and consider how these settings could be used to enhance learning (Lippman, 2010). To uncover this knowledge, below are questions and considerations for the spatial design of classrooms that may guide the evolution of a place:

- ❯ How do we encourage a paradigm shift?
  - – Embrace a growth mindset
  - – Create Activity Based Learning Environments
  - – Understand the classroom as a resource for the things to be learned

- ❯ If we consider how classrooms are designed in New York City and Australia, what can be done in the built environment?
  - – Remove built-in cabinetry and the teacher's desk.
  - – With furniture, create a safe and secure places to learn for the diverse ways that people learn.
  - – Provide writable wall surfaces.
  - – Consider the choreography of the space.
  - – Make resources accessible for all users of the space.

- ❯ When cabinetry is not removed what can be done?
  - – Remove teachers desk and provide a work surface that can also be a workstation for students.
  - – Using the furniture and equipment, provide areas of prospect and refuge for independent and cooperative group work.
  - – Incorporate writable surfaces on table and/or counter tops.
  - – Understand the intended actions and operations of the room and provide for the spaces-in-between.
  - – Make resources accessible for all users of the space.

While these questions and considerations stimulate ideas for the options, possibilities, and the potential of the place, the next article will examine how furniture can be used to create places that support healthy development for elementary, middle school, and high school. Additionally, layouts will be provided that showcase how spaces can be arranged for the learner to best acquire knowledge and master skills.

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BIOGRAPHY

For the last 25 years, **Peter C. Lippman, M. Phil., Assoc. AIA, REFP** has been researching, writing about, designing and creating activity-based learning environments for the future. His work is fueled by a desire to create places that are responsive to the needs of its users and encourage knowledge acquisition and life-long learning. Peter's approach is unique to the practice of architecture. Grounded in research, Peter applies social science research methodologies to the programming, planning, and design of learning environments. Peter's Master's Degree and experience in research enables insight to trends in educational principles that reaches beyond the normative theories presupposed by contemporaries. This approach supports the creation of dynamic places where the physical environment is understood as a vehicle of the transformative work of teaching and learning. Among other publications, Peter is the author of *Evidence-Based Design for Primary and Secondary Schools: A responsive Approach to Creating Learning Environments* (2010) and is the founder of Places Created for Learning an Evidence Based Design Practice that specializes in creating activity based learning environments for schools.