Pre and Post-Occupancy Evaluations

A4LE LearningScapes Conference

October 6, 2022, San Antonio TX

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Agenda

- What is a Pre and Post Occupancy Survey?

- When do you do them?

- Why do a Pre and Post Occupancy Survey?

- PPOS in action - case studies

- What We've Learned

Learning Objectives

1. Review the value proposition for conducting Pre- and Post-Occupancy Evaluations (PPOEs) and explore associated myths, challenges, and opportunities.

2. Understand PPOEs from perspectives of all team members, from designers and researchers to clients and user groups.

3. Assess and refine a set of design goals that can guide any learning environment design project and metrics to assess the impact of past, present, and future designs.

4. Explore strategies for integrating PPOEs into the full project delivery process, including application of lessons learned from PPOE data to benefit future evidence-based design projects.

"You can't improve what you don't measure."

Peter Drucker

What is a PPOE?

"The process of assessing designed spaces, before some change and after spaces have been occupied for some time duration...using rigorous and systematic tools."
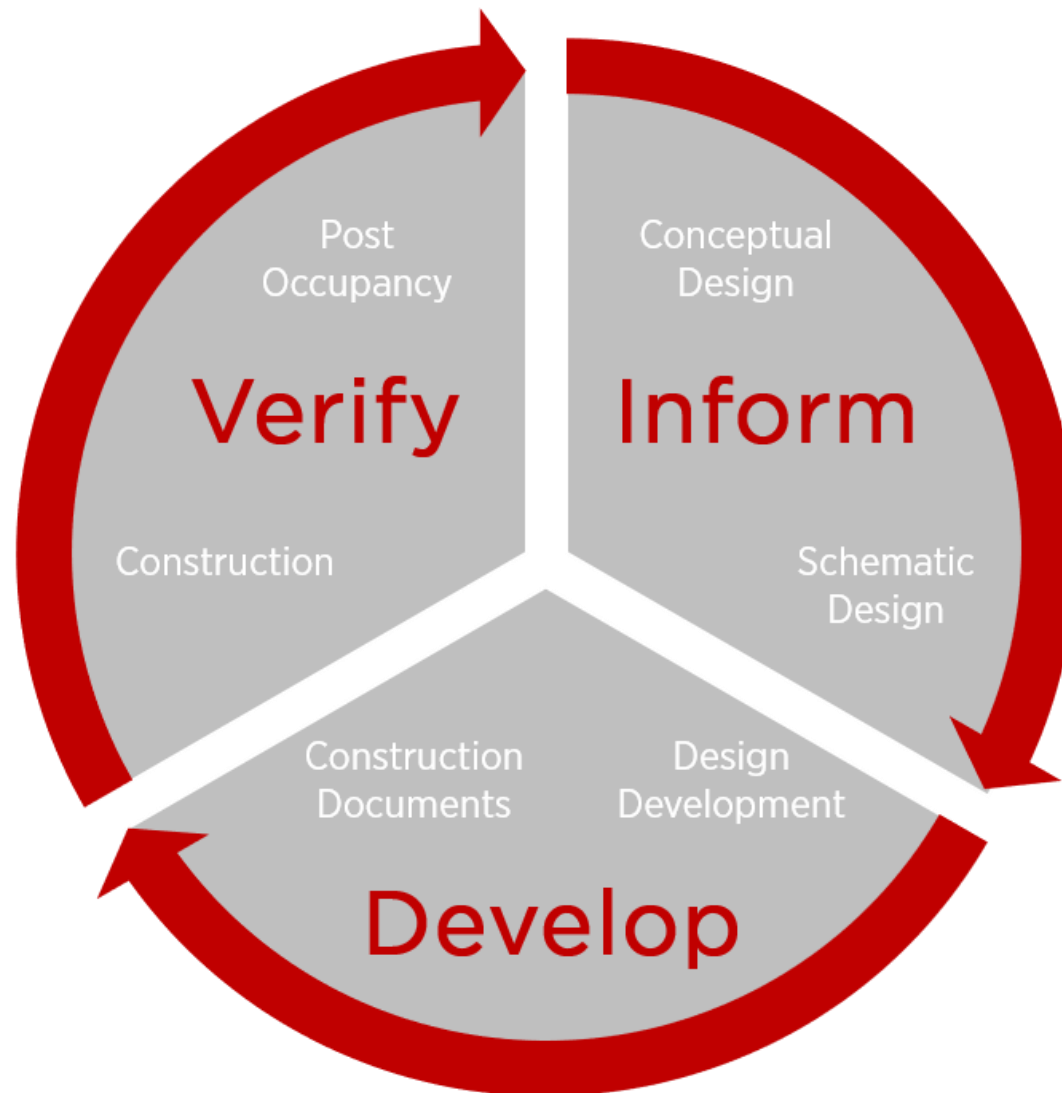
Preiser, White, Rabinowitz, 2015

why do we want to know?

If the learning environment is a player in the context of a student's learning experience….how might physical space influence a behavioral response?

Data-Driven & Evidence-Based Design Throughout the Project Cycle

Myths, Challenges, & Opportunities

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Myths

Too **complex**

Too **time consuming**

Too **expensive**

Sets **unrealistic** expectations

Too much **risk & liability**

Findings too **complex & expensive** to implement

Realities

Start small

Integrate into Design Process

Include in **basic scope** of services

Set goals of the PPOE's

Benefits outweigh the risks

Only assess what you have the resources **to act on**

When Do You Conduct Pre- Post-Occupancy Evaluations?

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Pre- Occupancy

Time Periods

Opportunities & Benefits

Before conceptual design

- Highlight challenges and successes in old facility
- Understand occupant needs
- Facilitate conversation to establish and prioritize design goals
- Provide comparison for Post-Occupancy Evaluation

During design

- Add clarity to client's design goals
- Provide comparison for Post-Occupancy Evaluation

Before move-in

- Understand occupant concerns or questions about how to use the new spaces
- Provide comparison for Post-Occupancy Evaluation

***Pre-Occupancy Evaluation can occur at any time up until the client moves out of the previous/existing building!

Post- Occupancy

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Time Periods

Opportunities & Benefits

Early check-in (3-6 mo)

- Opportunity to touch base with client
- Training or workshop to use space effectively
- Plant seed for more comprehensive POE
- Optimize systems

Short term (1 yr)

- Establish user experience indicators, refined fit, & utilization
- Test application of concept

Medium term (3-5 yrs)

- Optimize & refine user experience indicators
- Translate feedback into applications of knowledge & decisions
- Accountability for performance by owner-occupier & design teams

Long term (10+ yrs)

- Integrate user experience into the fabric of decision making
- Improve design databases, standards criteria & guidance literature
- Decisions based on data, leading to cost/time savings

Preiser, W. (2001). The evolution of post-occupancy evaluation: Toward building performance and universal design evaluation.
Zimmerman, A. & Martin, M. (2010). Post-occupancy evaluation: Benefits and barriers. *Building Research & Information*.

RESEARCH METHODS

- **User Surveys:** to gain occupant perspective & highlight key themes

- **Guided Site Walk:** to observe behaviors & determine patterns of when and how spaces are used

- **Interviews/Focus Groups:** to gather representative voice & dive further into identified themes

- **Energy & Water Use:** to analyze building performance & ensure proper operations/maintenance

COMMON TOPICS

- Indoor Environmental Qualities (IEQs): Acoustics, thermal comfort, visual comfort

- Security & safety

- Inclusive design & neurodiversity

- Teaching pedagogy & culture

- Spatial functionality & adjacencies

- Collaboration & privacy

- Furniture selection

- Durability of Materials

- Energy Utilization

- Pickup/Dropoff

- Technology

what is the
role of
the learning
space?
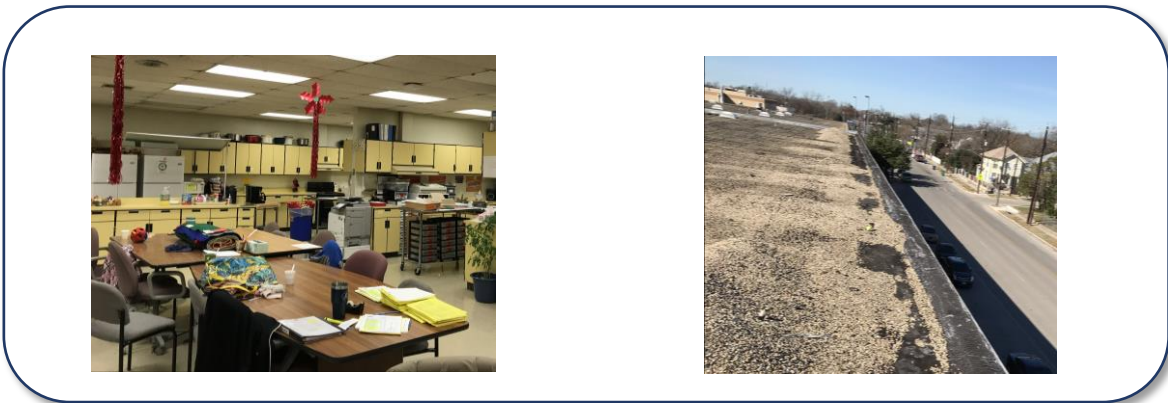
Why do a PPOE?
Designer's Perspective

The Unseen

USER RESPONSES

4	Inflexible Furniture
3	Poor Outlet Layout Limits Layouts
2	Inadequate Room size
2	Inadequate Technology
2	Lack of Storage
2	Lack of Display Space
1	Poor Wifi

STAFF MEETING SPACE **DAYLIGHT/VIEWS** OFFICE CALL BUTTON
COLLABORATION SPACES
WAYFINDING **IMPROVED PARKING**
SECURITY FACILITY CONDITIONS
PROJECTORS **GREAT OUTDOOR SPACES**
BUILDING ACCESS CLEANLINESS
IMRPOVED GO CENTER

The Seen

Project Goals

User Experience
Community

Health + Wellness
Safety

Sustainability
Daylighting

Why do a PPOE?
Educator's Perspective

It allows you to..

- Get to know your design team

- Build Community consensus

- Have another medium to communicate your values

- Measure your Impact!

CASE STUDY #1
MENCHACA ELEMENTARY

Pre-Occupancy Evaluation + Design Goals

march 2018

The PRE-occupancy evaluation informs the project design goals

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Pre-Occupancy FINDINGS

Findings

EXPERIENCE
Layout, furnishings, and technology don't facilitate teaching/learning
Learning spaces don't support interaction & collaboration, flexibility & enjoyment

WELLNESS
Limited access to daylight & views to the outdoors
Poor thermal comfort and acoustic quality
Does not support restoration

COMMUNITY
The current design does not support the campus or local community

PERFORMANCE
Facility uses electric resistance heating
Average Energy Use Intensity was 85kbtu/sf/yr
Reliance on artificial lighting

Design GOALS

EXPERIENCE
Distributed technology to make learning possible anywhere
Grant student agency to gather & collaborate
Outdoor playscape for creativity & imagination

WELLNESS
Access to natural daylight, views to nature & connection to outdoors
Good environmental qualities
Restorative/reflective spaces

COMMUNITY
Promote a culturally inclusive learning community
Incorporate school history
Connect to the local community

PERFORMANCE
Reduce indoor water usage by 40%
Reduce energy use intensity by 53%
Implement passive strategies to reduce artificial light use

Newly Designed Campus is Occupied

january 2020

1 Full School-Year in the New Campus

fall 2021 – spring 2022

Post-Occupancy Evaluation

fall 2021 – spring 2022

RESEARCH METHODS

Guided Site Walk & Observations

Teacher Focus Groups

Engagement Activity with Students

User Surveys

Energy & Water Use

MAY 2022

MENCHACA ELEMENTARY SCHOOL
POST OCCUPANCY EVALUATION MAY 2022

The Post-Occupancy Evaluation (POE) investigated selected design goals around experience, wellness, community and performance. The majority of the staff think the new facility supports the transformational curriculum and instructional practices of Austin ISD, facilitates the whole child learning experience and enhances existing programs at Menchaca ES. This report outlines the goals, the methodology, and the findings of the Post Occupancy evaluation.

Goal 1: Experience

Design a welcoming and inclusive environment that is easy to navigate and grants student agency to create, explore, collaborate, and gather; and include an outdoor playscape that allows for creativity, imagination, and natural play.

Goal 2: Wellness

Provide an environment that offers access to natural daylight, views to nature, connection to the outdoors, good environmental qualities, and restorative/reflective spaces.

Goal 3: Community

Create a culturally inclusive setting that promotes a learning community, incorporates school history and serves the local community.

Goal 4: Performance

Reduce indoor water usage by 40% and energy use intensity by 53%, using primarily passive measures such as building orientation, shading, and strategic use of natural light.

Project Data

OWNER	Austin Independent School District
COMPLETION	January 2020
SIZE	98,600 ft²
LOCATION	Austin, Texas
MARKET SEGMENT	K-12 Education
ARCHITECTS	LPA and Chuck Fields & Associates

Community

GOAL

Create a culturally inclusive setting that promotes a learning community, incorporates school istory and serves the local community.

SUCCESSES

77% of users agree or strongly agree that the library serves as a **learning hub** for the campus.

TRADITION: The newly designed campus was built around an oak tree that was part of the previous school to help connect it to its history.

This was mentioned as a positive attribute and symbol of the school. Incorporating additional features that highlight the local/state culture will help to bridge the connection between the school and local community.

"... when I walk outside and I see trees, and know that this is our original tree... we had an owl that came, that lived here, and we got to watch it hatch little owlets last year..."
—Teacher at Menchaca ES

"Bringing light and nature into the rooms has brought great joy to me mentally and physically, as well as the atmosphere with the kids"
— Teacher at Menchaca ES

The majority feel the newly constructed school has had a positive impact on the neighboring community, while no respondents think it's had a negative impact.

n=38

- Positive impact
- Unsure
- Neutral
- Negative Impact
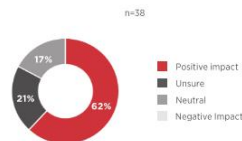
POSITIVE IMPACT: The newly designed campus is a positive investment in the education of local students, providing an enhanced learning experience for them.

Although the community rooms in the administrative building have been minimally used by community members, due to COVID-19, the school's ability to provide support services will encourage greater engagement with the local neighborhood.

Findings

EXPERIENCE
The modern learning environment supports a culture of student agency & communal supervision
Range of spaces & furniture creates inclusivity – consider more individual seating to appeal to introverted students
Distributed technology & flexible spaces allow learning to occur anywhere
Natural playscape encourages creativity & imagination

WELLNESS
Teachers/students enjoy the access to natural daylight, views to nature & connection to outdoors
Enhanced indoor environmental qualities have improved teacher/student health
Corners, nooks & small group rooms provide restorative/reflective opportunities

COMMUNITY
Central library serves as a learning hub but also disconnects learning wings on opposite sides from one another
Existing trees that were preserved connect the new campus to the school's history

PERFORMANCE
Overall indoor water usage was cut by 30%
Overall indoor energy was reduced by 20%
Passive strategies were used

Findings - Building

At early childhood wing, extra-wide hallways are not useful – teachers wouldn't send kids in hall unsupervised.

Loud in colab hallways, but not library

Providing corners / access to windows / variety of spaces helps students with neurodiverse needs.

Gender neutral restrooms – teachers liked for observation, students didn't like them

Student Agency – students understand they have to earn teachers trust to use open, collaborative spaces

Transparency – not as distracting as people thought, only a distraction facing parent pick up line

How kids utilized space and furniture in different ways

Findings - Site

Outdoor learning – natural play, creativity and imagination, student exploration

Wheelchair friendly playscape areas for inclusivity

Tree preservation

Exterior circulation – drop off and pick up queue

More individual seating requested by students

Shade near playgrounds for teachers

Where do I Start?

- Just do it!
- Schedule a Site Walk
- Ask for Energy Bills
- Interview staff members
- Spend a day on site
- Use Pre-Validated Surveys
  - https://cbe.berkeley.edu/resources/occupant-survey/get-started/