

NEURODIVERSE ENVIRONMENTS FOR THE FUTURE

Gensler

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SPEAKER INTRODUCTION



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ABSTRACT

Educational environments have been indelibly inspired and transformed by the pandemic.

Technology, accessibility, inclusivity, equity, and flexibility have redefined classroom design. Architects are collaborating even closer with owners, administrators, and communities in new and profound ways to better serve student populations and their diversity of multimodal learning styles. Gensler Research Institute and strategies will be highlighted to support an innovative and holistic approach to the design of educational spaces of the future.

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LEARNING OUTCOMES

1.

Planning

Engage, explore, and innovate academics, arts, dance, music, social, emotional, civic, social, career & technical education



2.

Choice

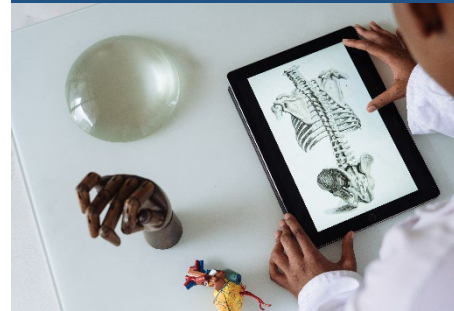
Fuel curiosity, inquisitiveness, creativity, ease computational thinking, foster authentic hands-on learning experiences



3.

Design Elements

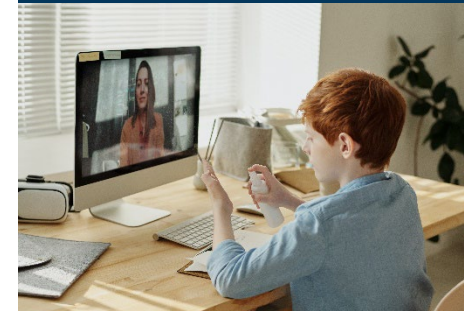
Prepare students for artificial intelligence, autonomous, and 3D technologies existing today, emerging or not yet developed



4.

High-Tech Classroom Formats

Learn what elements from neuroarchitecture were immersed Foust K-5 Gaming & Robotics Magnet School



WHAT IS NEURODIVERSITY?

“Neurodiversity describes the idea that people experience and interact with the world around them in many different ways; there is no one “right” way of thinking, learning, and behaving, and differences are not viewed as deficits.”

— Harvard Health, Nov 23, 2021

INSPIRATION



Eboni Camille Chillis, PHD

Chief Innovation Officer at Guilford County Schools

“Neuroarchitecture aims to better comprehend the impact of architecture on the human brain and behavior.”

— Designing Schools with Neuroarchitecture —
Essentials Magazine (edmarket.org)

NEUROARCHITECTURE



"We are still a long way from designing specific projects guided exclusively by the brains of the future users of the space. Still, research in **neuroarchitecture** describes patterns of common behavior when we are faced with certain stimuli. Our spaces considered the ways to get the brain to wire and fire together, which in-turn fosters engagement, exploration, and sanctuary for better and more profound learning in developing a students' global skills and competencies."

— *Dr. Eboni Camille Chillis*

ELEMENTS FROM NEUROARCHITECTURE

Neuroarchitecture:

- Purposeful Textures
- Glass Walls
- Psyche of Color Schemes
- Flexibility & Mobility
- Innovative Furniture: Collaborative & Solo Furniture
- Dynamic Signage
- Wayfinding
- Spacing
- Cutting-edge Equipment | Supplies | Industry Training Simulators

<https://anfarch.org/> The Academy of Neuroscience for Architecture



A woman with long dark hair is leaning over a desk, smiling and pointing at a laptop screen. A young girl with dark hair in a ponytail is sitting at the desk, looking down at papers. The scene is dimly lit with a blue tint. A green horizontal bar is at the top left.

DESIGNING FOR ALL

Being neurodivergent means having a brain that works differently from the average or “neurotypical” person. ADHD, Autism, Dyspraxia, Dyslexia, Dyscalculia, Dysgraphia, and Tourette’s syndrome are all examples of neurodiverse conditions. They’re diagnostic labels used to explain the diverse ways of thinking, learning, processing, and behaving.
— Harvard Health, Nov 23, 2021

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ASSOCIATION FOR
**LEARNING
ENVIRONMENTS**
Enhancing the Educational Experience

INCLUSIVE DESIGN

11% of the global population - over **1 BILLION** people - **experiences some form of disability**¹.

However -
even with accessibility codes, **40%** of people with disabilities cannot independently meet their own daily needs.

By 2036, **5%** of the global labor force will be over **65**.²

However -
most business workplaces, retail and entertainment venues do not plan for aging bodies in their design.
Every country in the world has **racial diversity**.

However -
we did not typically include these voices in our process, and our renderings and photography are just beginning to reflect this composition.

49.6 % of the world population is **women**³.

However -
most mechanical system setpoints were designed for men wearing wool suits
in highly air conditioned ofces when fossil fuels were cheap.

Estimates on **neurodiversity** in the global population vary widely from **autism (1%) to all forms of neurodiversity (13%)**⁶.

However -
neurodiversity has, until recently, rarely been considered in designing spaces outside of educational and clinical settings

1. World Health Organization, 2017
2. International Labour Organization
3. Our World in Data
4. Gallup
5. World Health Organization
6. World Health Organization

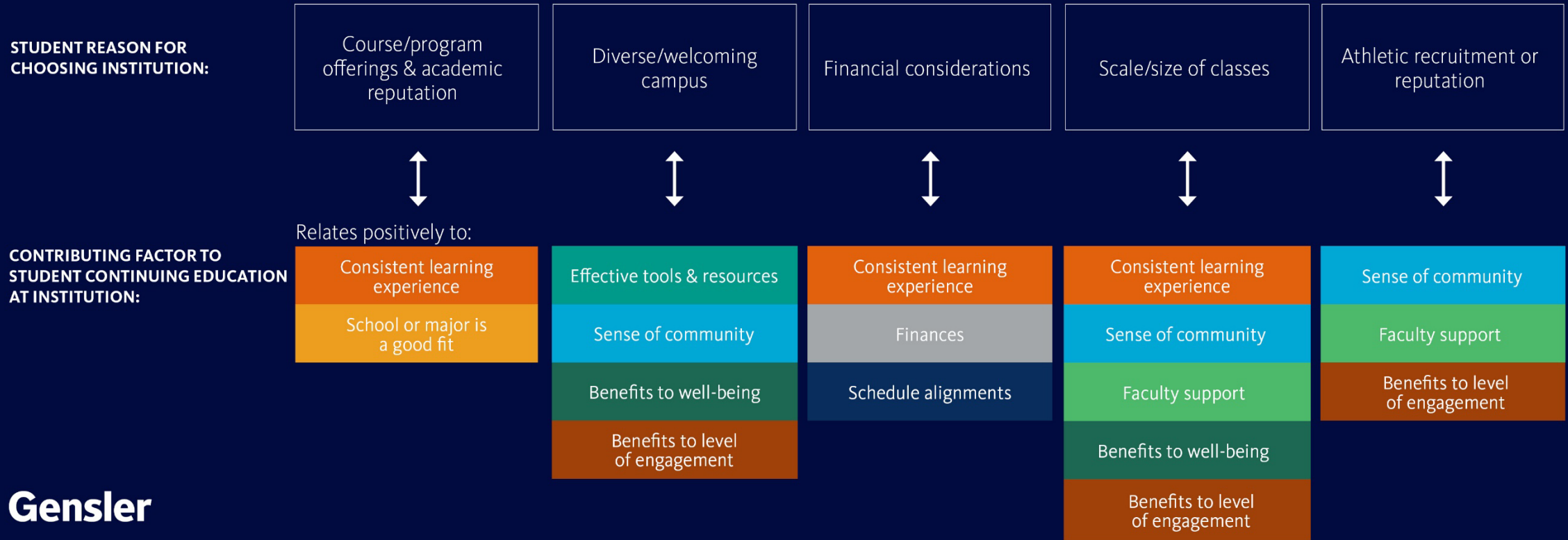
INCLUSIVE DESIGN

- Adaptive Lighting
- Acoustical Quality
- Flexible Private and Collaborative Work Areas
- Air Quality
- Natural Light
- Neurodiversity: Multimodal Learning Styles
- Comfort and Wellness



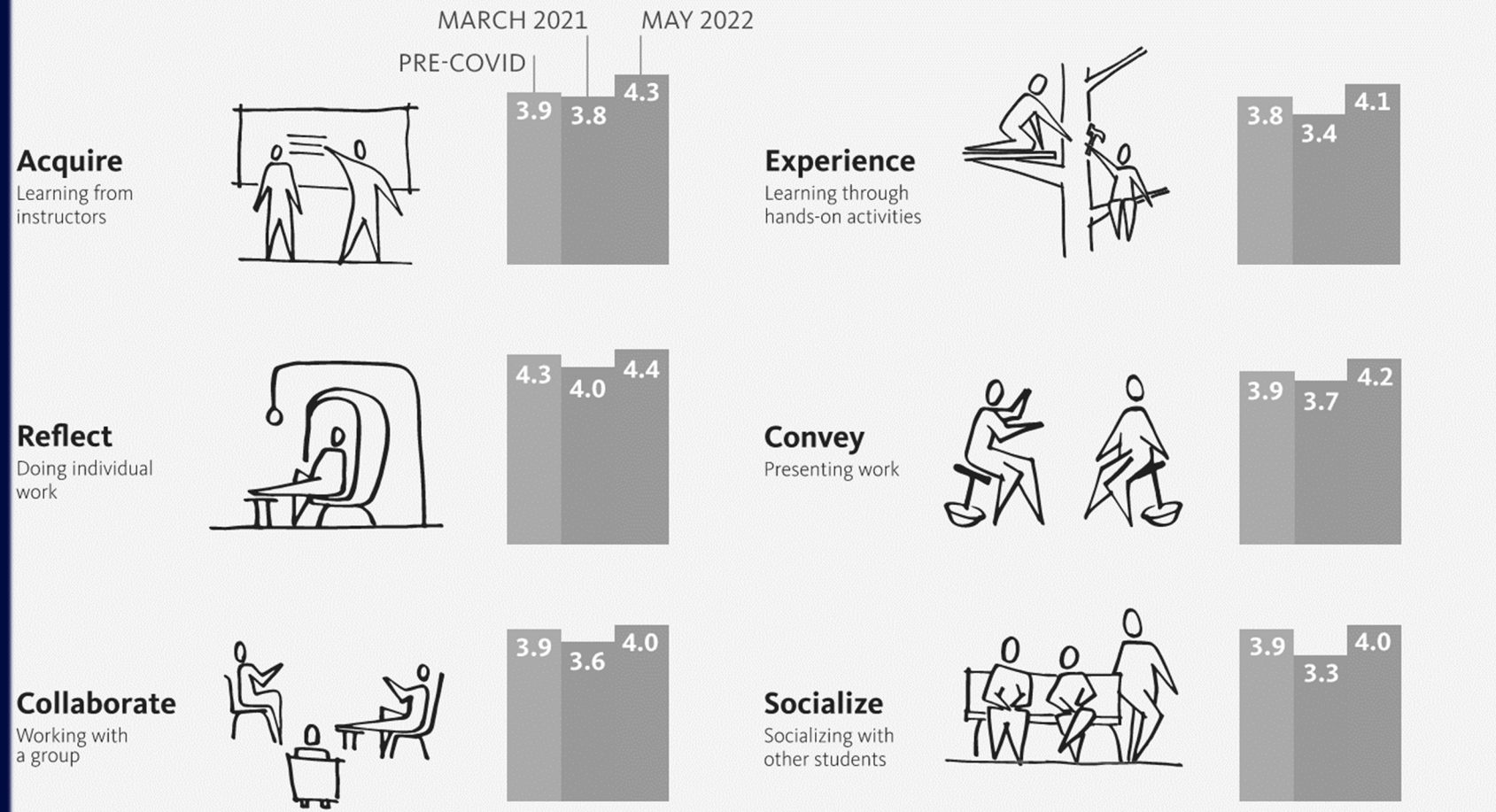
GENSLER RESEARCH: EDUCATION INDEX 2022

To maintain enrollment, schools must align their education experiences with their value propositions to their audiences.



GENSLER RESEARCH: EDUCATION INDEX 2022

Currently, I am able to do the following activities effectively:



Among students, the average answer on a five-point scale where 1=strongly disagree and 5=strongly agree. Data from 2021 and 2022 surveys, virtual and in-person combined.

GENSLER RESEARCH: EDUCATION AND BIPOC EXPERIENCE

Safety and belonging in educational spaces play an essential role in the lives of BIPOC (Black, Indigenous, and People of Color) students. Yet, when it comes to designing learning spaces, these students often do not have enough of a voice. To create spaces where a diverse student community can flourish, we must understand how students truly see education spaces today—and find new ways today—and find new ways to make students feel safe and included.

EDUCATION AND THE BIPOC EXPERIENCE

KEY FINDINGS

BUILDING MATERIALS CARRY DEEP MEANING TO STUDENTS— UNDERSTAND THE SIGNALS THEY SEND. The materials we select and the colors we choose are embedded with wealth and class bias that is easily perceived by students. Today's dominant design and architectural styles often have the unintended consequence of amplifying subconscious wealth disparity. When shown images of various schools, students made inferences not only about institutions themselves, but also about the wealth and anticipated success of the students who might attend.

PRIORITIZE SAFETY AND BELONGING AND CREATE PLACES THAT PROJECT FAMILIARITY AND COMFORT. Designers need to strike a balance between innovative design solutions and familiarity to reinforce a student's comfort while embracing important design innovation. Many students responded positively to images of schools and classrooms that were reminiscent of the institutions they currently attend, but they want to feel comfortable and included in newly designed spaces.

EMPATHY, CONSIDERATION, AND UNDERSTANDING MUST UNDERPIN EDUCATIONAL DESIGN. Many factors shape the student experiences that extend beyond the classroom itself. This includes safety of the neighborhoods where their schools reside, the length and nature

DATA & INSIGHTS

Students feel safest in school when they're familiar with their surroundings and the other people who occupy the space.

4.6 of respondents rate a school on a scale of 1 to 5 on how safe they feel in their schools. They first go to the first floor of the school.

96% of respondents feel that their teachers care about their academic success.

CONCLUSION

The research we've shared with you today is just the beginning of our ongoing work to create a more equitable and inclusive educational experience for all students.

GenSLER

MISSION – DESIGNING FOR:



Technology



Accessibility



Inclusivity



Equity



Flexibility



Collaboration



Innovation



Multimodal Learning Styles



Career Preparedness



Experiential Learning



Corporate Sponsorship

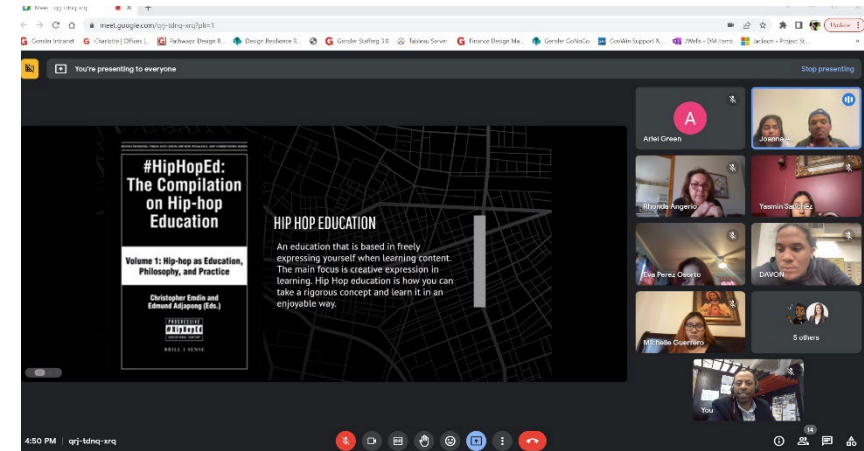


Exposure To Careers Of The Future

A4LE SchoolsNEXT Design Competition



March 21, 2023
Durham Public Schools
Hillside High School /
Early College High School



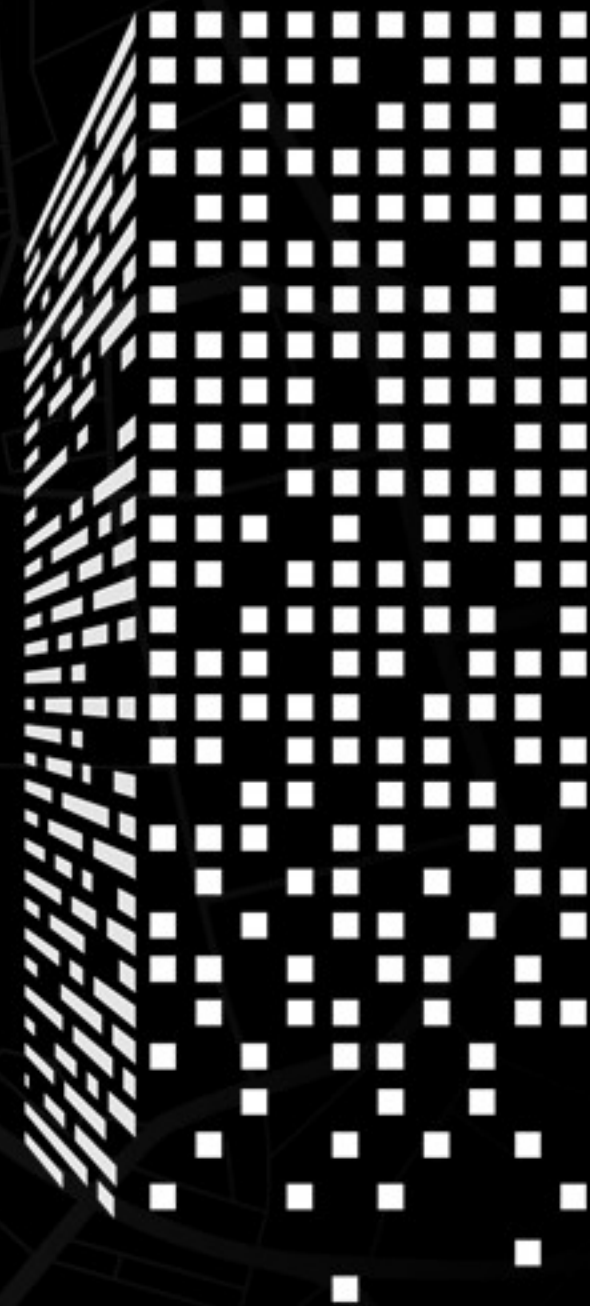


SOL ACADEMY

Sustainable Open Learning Academy

Hillside High School: Scarlett Bermudez,
Micah Hemingway, Mikal Ali

Early College High School: Emily Mejia, Eva Perez , Ariel Green,
Yasmin Sanchez, Michelle Guerrero, Amya Ingram, Jamil Ali



OUR TEAM



Emily Mejia

Early College
Junior



Eva Perez

Early College
Junior



Ariel Green

Early College
Junior

OUR TEAM



Yasmin Sanchez

Early College
Junior



Michelle Guerrero

Early College
Junior



Amya Ingram

Early College
Sophomore

OUR TEAM



Jamil Ali

Early College
Sophomore



Scarlett Bermudez

Hillside High School
Junior



Micah Hemingway

Hillside High School
Sophomore

OUR TEAM



Mikal Ali

Hillside High School
Senior

DESIGN PROCESS




DEFINE THE PROBLEM

Rigorous Research
Looked at OOH &
District Data



EXPLORE IDEAS

Sketching
Brainstorming



APPLY A SOLUTION

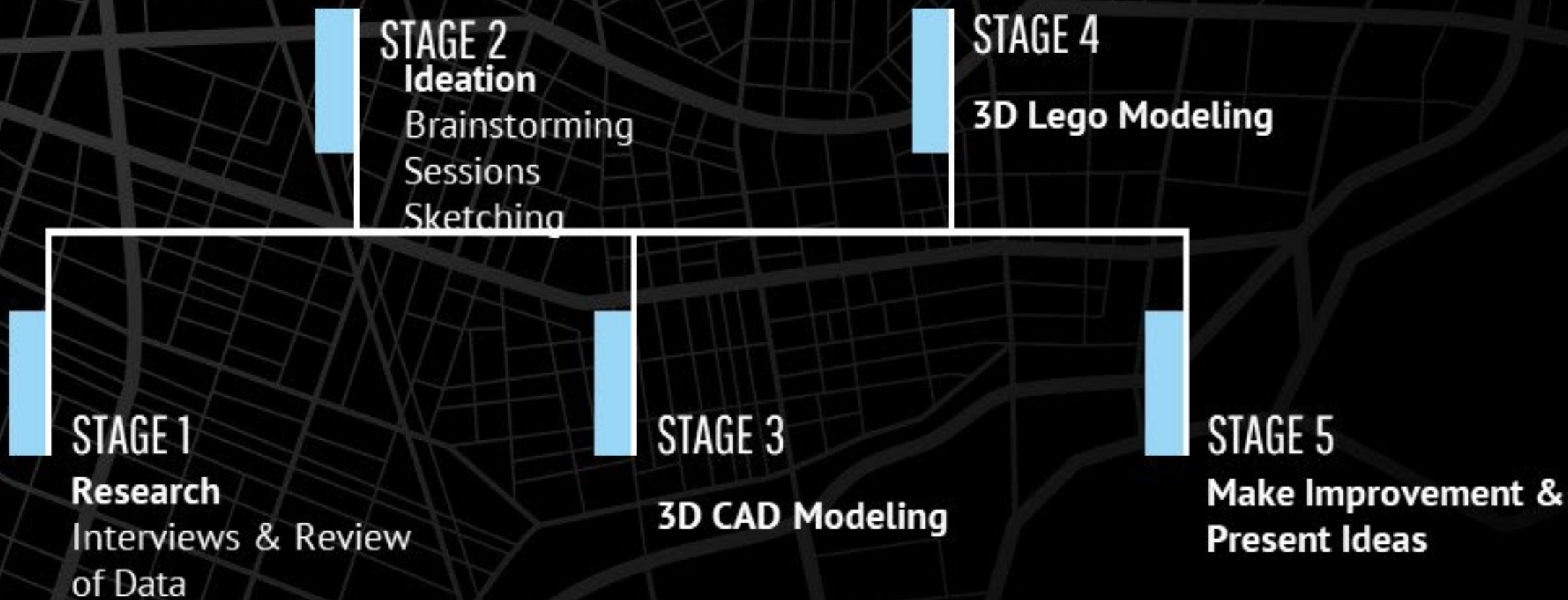
3D Modeling



LOOK BACK AND LEARN

Present & Make
Improvements

TIMELINE



Priority 2: Provide a Safe School Environment that Supports the Whole Child

Goal 2A: By 2023, 100 percent of Durham Public Schools will implement research-based cultural frameworks to support the social-emotional health and safety of students and staff.

Baseline Data

2017-18 baseline data indicate that 25 percent of schools (13 of 52) have identified and implemented a research-based cultural framework with fidelity.

Benchmarks

- **2018-19:** 35 percent of schools (18 of 52) will identify and implement a research-based cultural framework with fidelity.
- **2019-20:** 50 percent of schools (26 of 52) will identify and implement a research-based cultural framework with fidelity.
- **2020-21:** 64 percent of schools (33 of 52) will identify and implement a research-based cultural framework with fidelity.



OUR MAIN GOALS

At SOL Academy we aim to:

- Sustain the culture of students
- Sustain the social-emotional health and safety of students



WE WILL DO THIS BY:

A mind, body, soul approach to
education

- Creating an ecosystem within our school environment.
- Centering the healing of our students within our pedagogy and built environment
- Using Hip Hop as a framework

#HipHopEd: The Compilation on Hip-hop Education

**Volume 1: Hip-hop as Education,
Philosophy, and Practice**

**Christopher Emdin and
Edmund Adjapong (Eds.)**



BRILL | SENSE

HIP HOP EDUCATION

An education that is based in freely expressing yourself when learning content. The main focus is creative expression in learning. Hip Hop education is how you can take a rigorous concept and learn it in an enjoyable way.

LOCATION

Our Campus is located in Research Triangle Park

- Between the Apple and Cisco Campus
- Next to Lake Betz and Holts Pond
- Surrounded by a natural reserve
- Close to walking trails
- About 10 minutes from our current schools





Safety

What is safety to US?

- Safety is more than just getting to and from school unharmed, safety is looking out for the well being of our students, teachers, and staff whether that is emotionally, spiritually and mentally.

Why is this important?

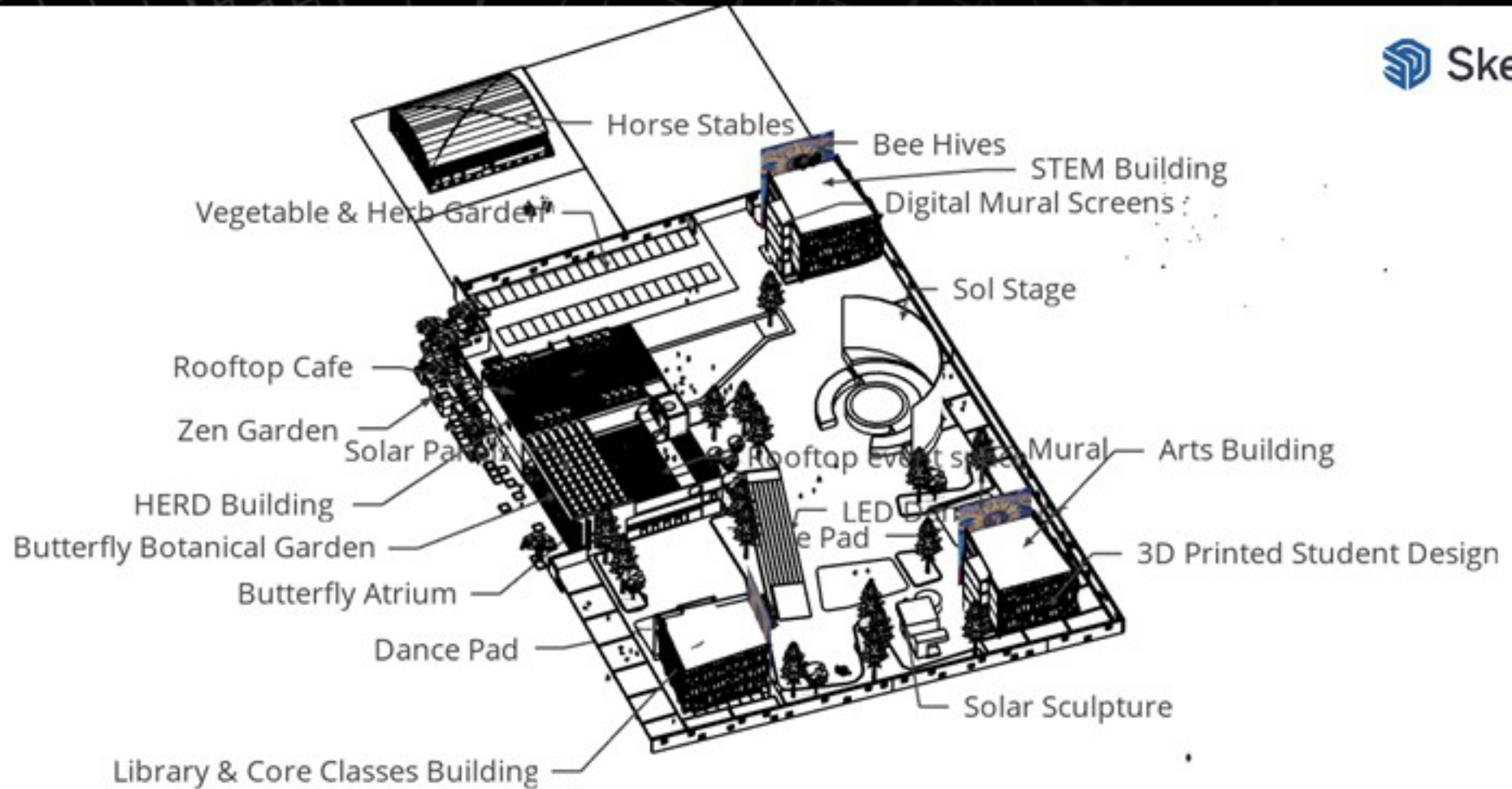
- While school is for learning, school should also be a place where everyone can be themselves and be protected and encouraged to do so. We will do that by keeping them safe without them feeling like they are restricted or in prison.

How we incorporated this into our design:

- Facial recognition
- Public access to main building only
- Gate: secure but not prison looking
- Greenery: creates a clean, calm environment

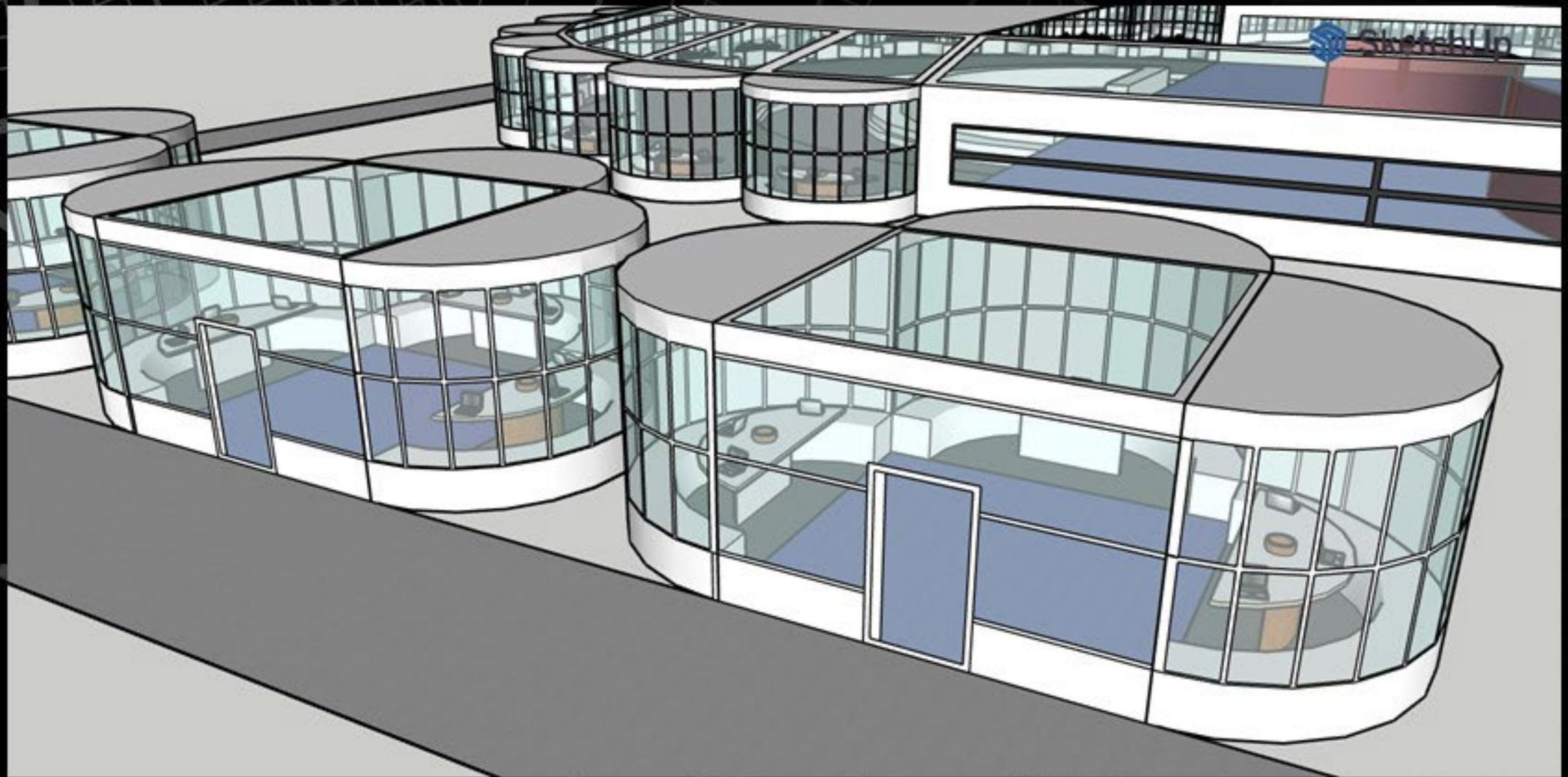


School Layout





Core Building Pods



OUR LEARNING SPACES

STEM BUILDING

Open floor concept with learning pods & Greenhouse located on the first floor.



ARTS BUILDING

Open floor concept that includes dance studios, music studios and makerspaces. Theater located on the 1st floor.



CORE BUILDING

Open floor concept with learning pods. Library Located on 1st floor



H.E.R.D BUILDING

HEALING ELEVATING REVITALIZING DOMAIN

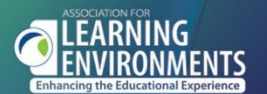
- Therapy Rooms
- Virtual Therapy Pods
- Yoga & Meditation Studio
- Basketball Court
- Student Lounge
- Community Event Space
- Butterfly Botanical Gardens
- Virtual Rooftop Cafe

FOUST ROBOTICS AND GAMING MAGNET ELEMENTARY SCHOOL
GREENSBORO, NC





Genster



DESIGN PURPOSE

The Foust Gaming and Robotics Magnet Elementary School will be a beyond 21st Century vibrant, welcoming and community-oriented facility that is designed to meet three critical, overarching objectives **flexibility, collaboration and innovation**. The interdisciplinary facility will both accommodate the common needs of a variety of curriculum and core academic programming, while also serving as a catalyst for the growth of the community.

Flexibility: spaces for adaptation of curriculum
Collaboration: teaching pedagogy of project-based learning for students, faculty, and the community
Innovation: non-traditional spaces and functionality

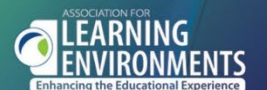
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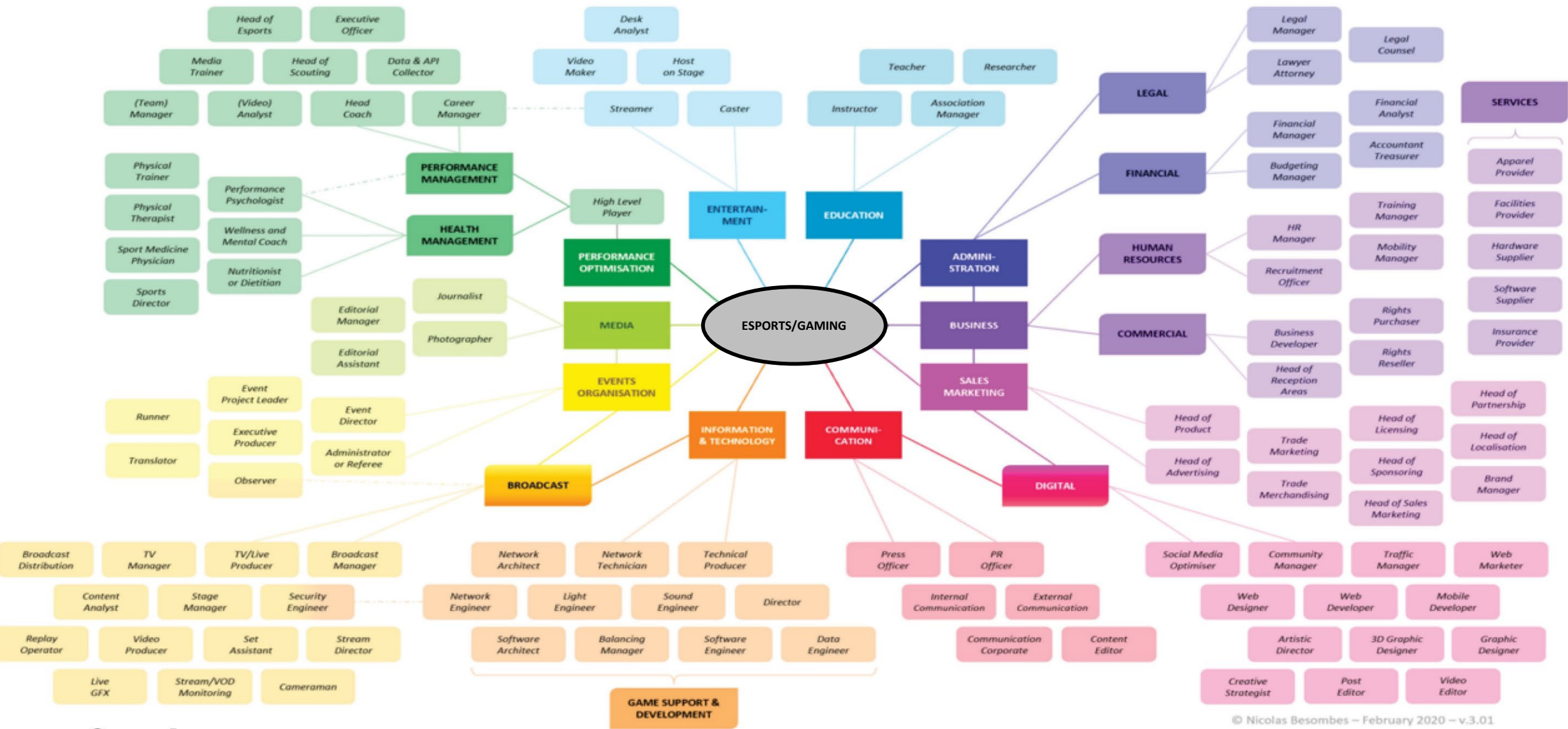
Innovation: non-traditional spaces and functionality



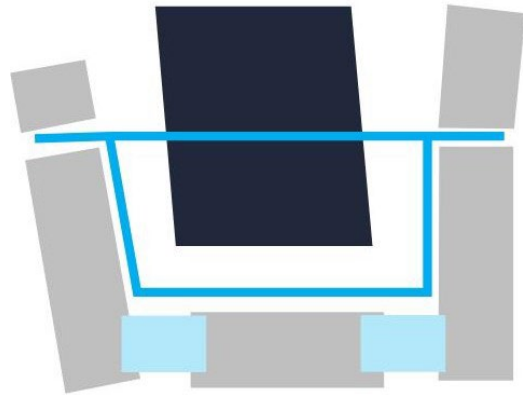
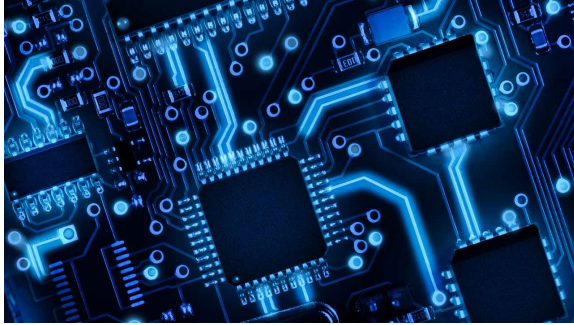
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ESPORTS/GAMING



DESIGN PURPOSE



The Circuit Board: Printed circuit board (PCB) design brings your electronic circuits to life in the physical form. Using the parts of a PCB and its components, the PCB design process is reflected in the overall design concept. The circuit board mechanically serves and supports the electronic components of all technology. The design part of The Circuit Board is influenced by the vision of Guilford County Schools to showcase physical action and activity throughout the campus for advanced, interactive, project-based learning .



A Joint Venture Partnership

Gensler

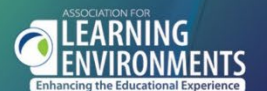


FIRST FLOOR PLAN



A Joint Venture Partnership

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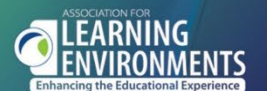


SECOND FLOOR PLAN



A Joint Venture Partnership

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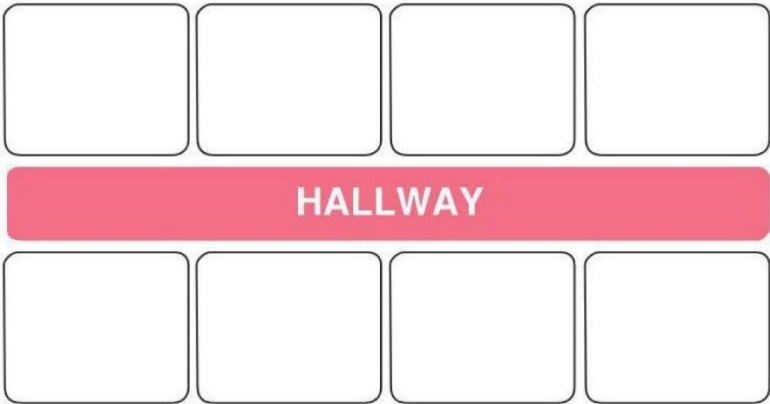




LEARNING MODULES



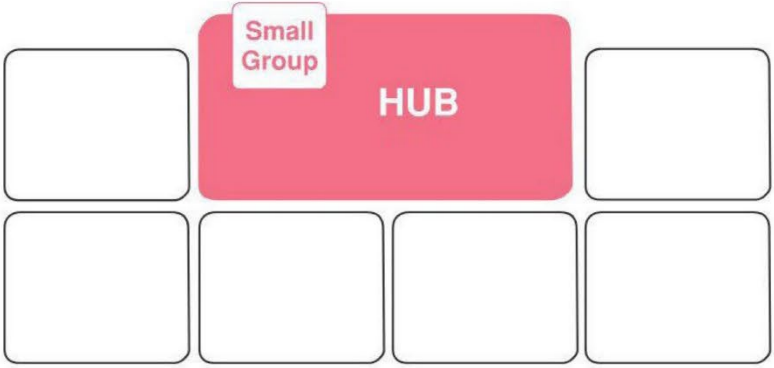
**TRADITIONAL CLASSROOM
PLANNING**



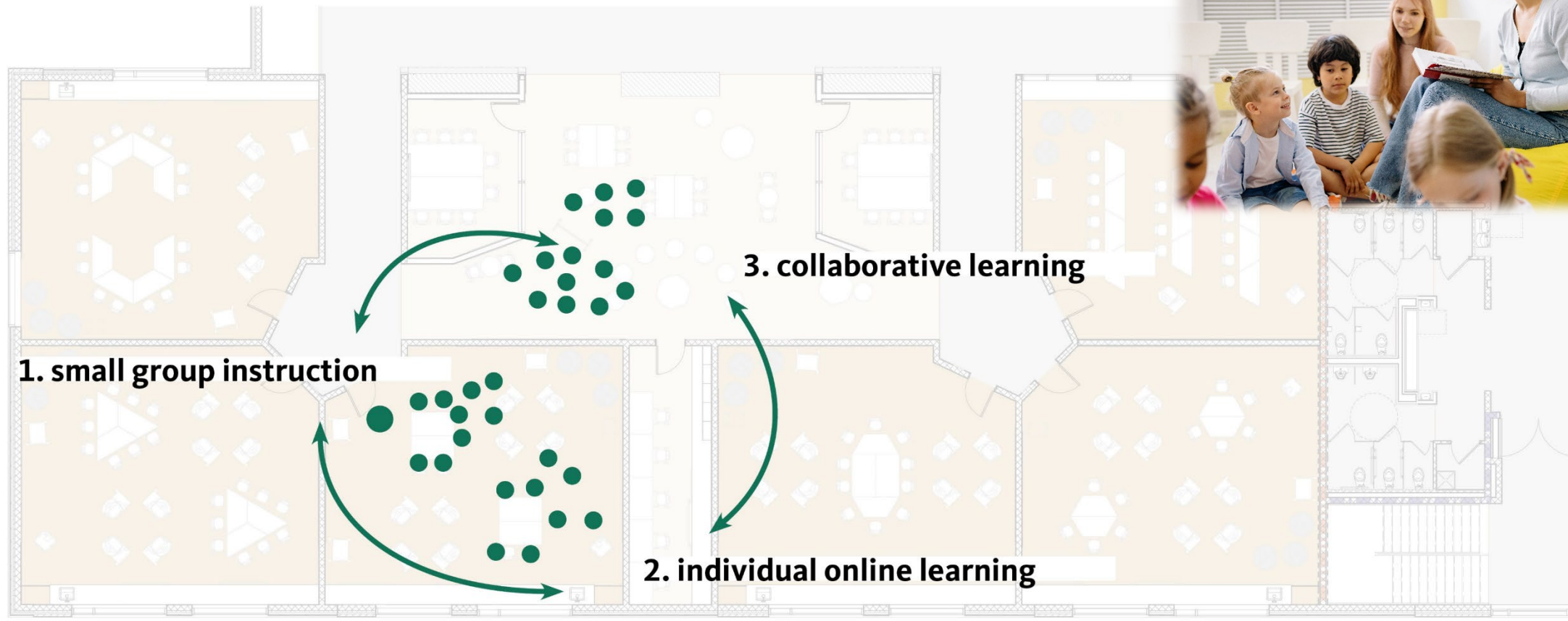
VS.



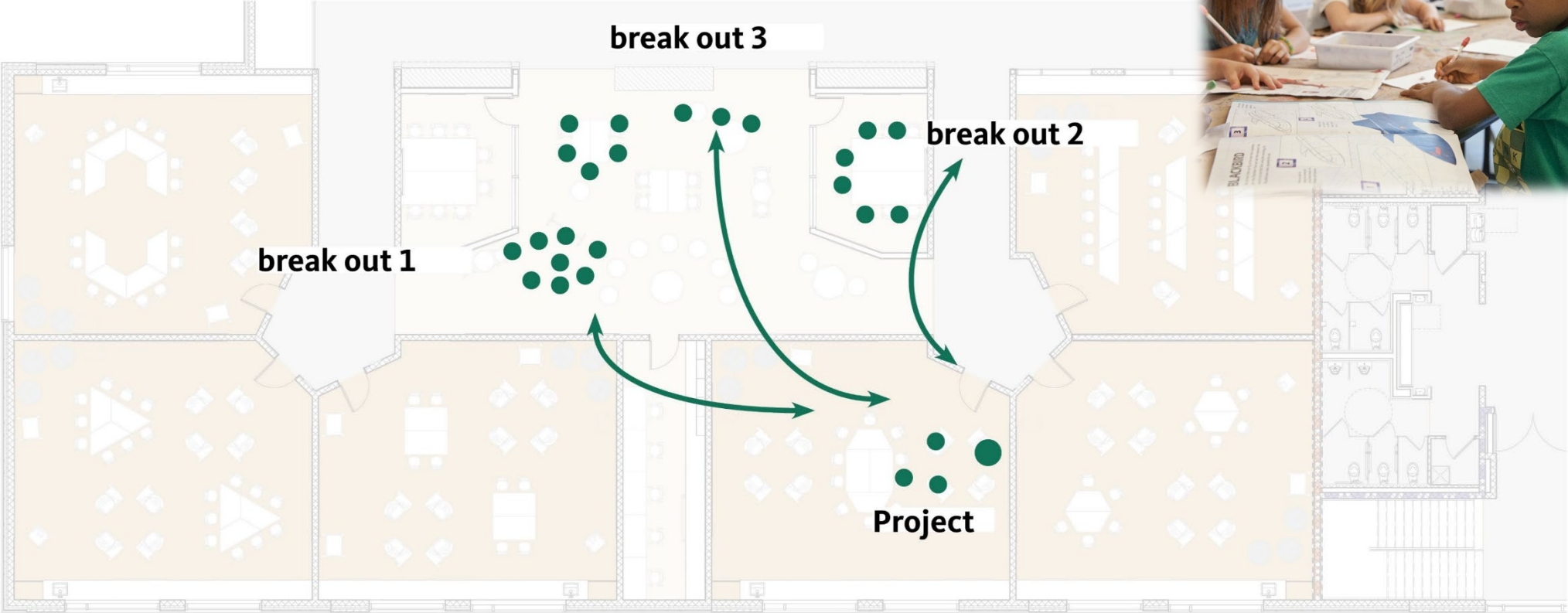
**21ST CENTURY MODEL:
LEARNING MODULE**



LEARNING MODULES: BLENDED LEARNING



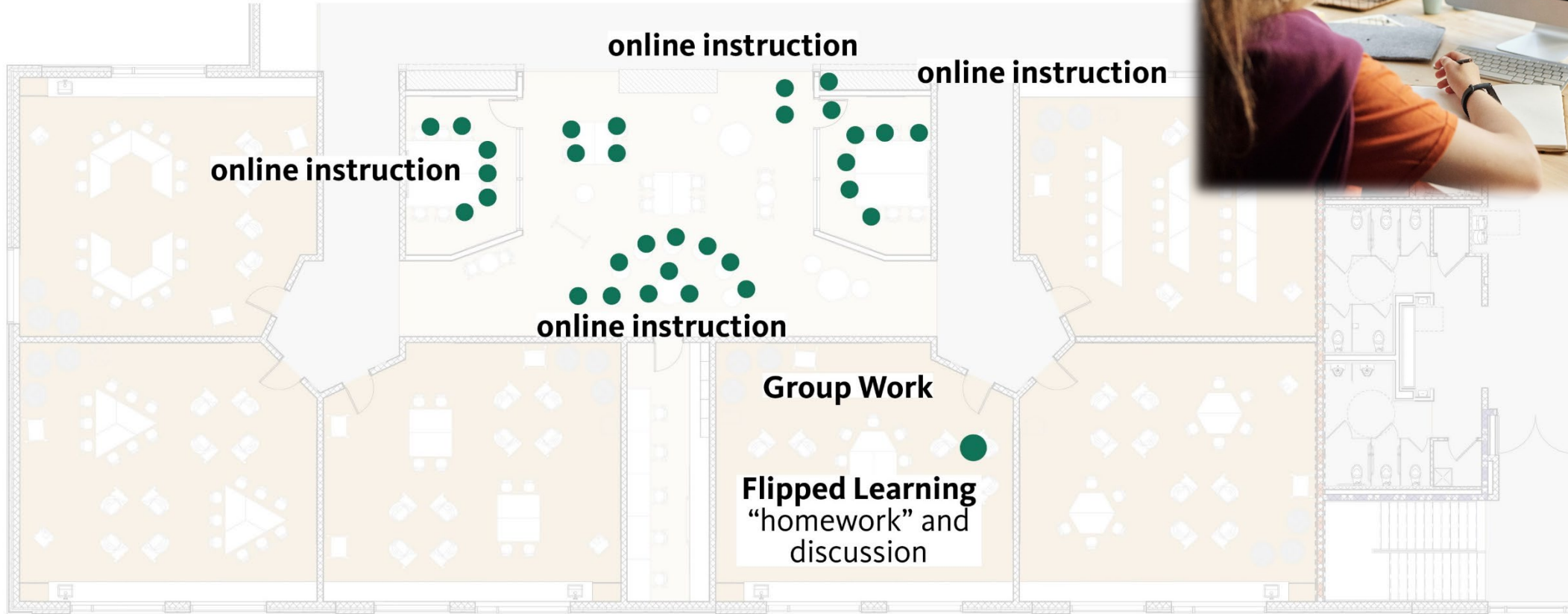
LEARNING MODULES: PROJECT BREAK OUTS



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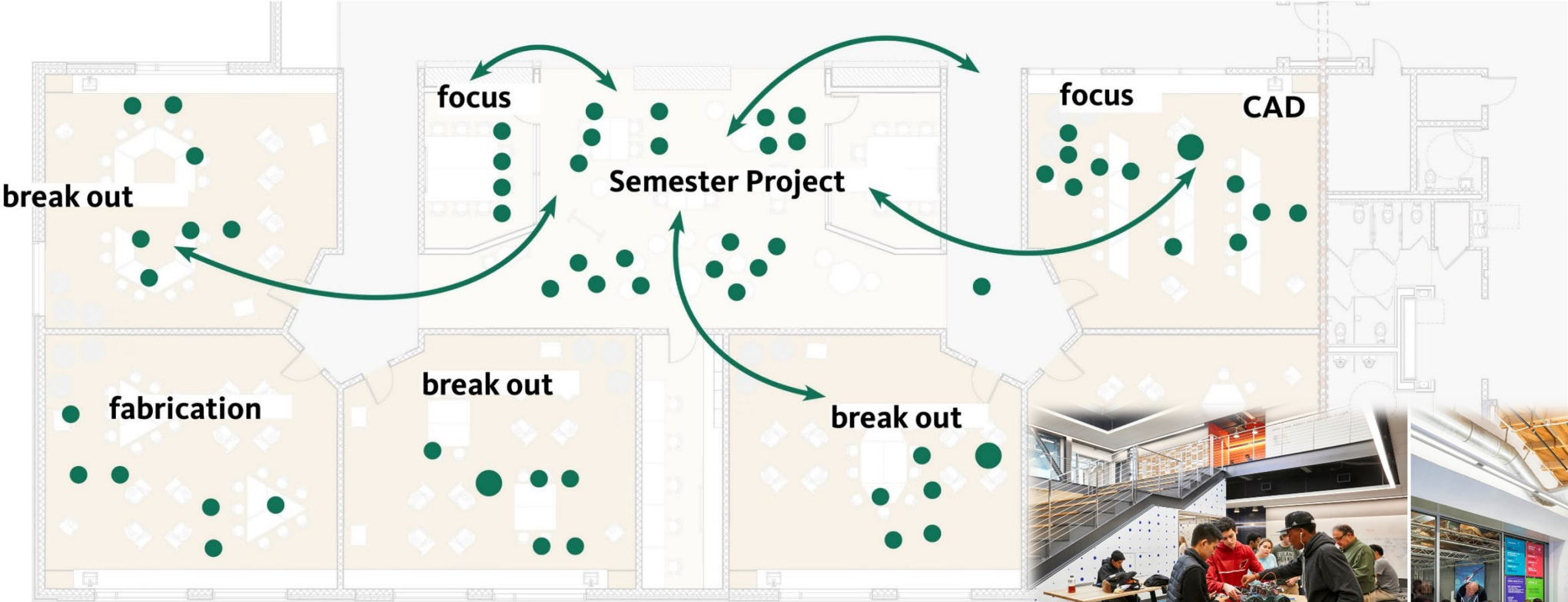
LEARNING MODULES: FLIPPED LEARNING



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LEARNING MODULES: AFTER SCHOOL SEMESTER PROJECT



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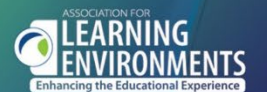


FOUST ROBOTICS AND GAMING MAGNET ELEMENTARY SCHOOL GREENSBORO, NC



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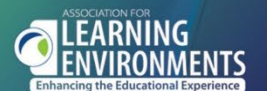


FOUST ROBOTICS AND GAMING MAGNET ELEMENTARY SCHOOL GREENSBORO, NC

Main
Entrance
and
Central
Module



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FOUST ROBOTICS AND GAMING MAGNET ELEMENTARY SCHOOL GREENSBORO, NC

Circuit
Courtyard



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FOUST ROBOTICS AND GAMING MAGNET ELEMENTARY SCHOOL GREENSBORO, NC

Learning
Module
and
Pathways
Node



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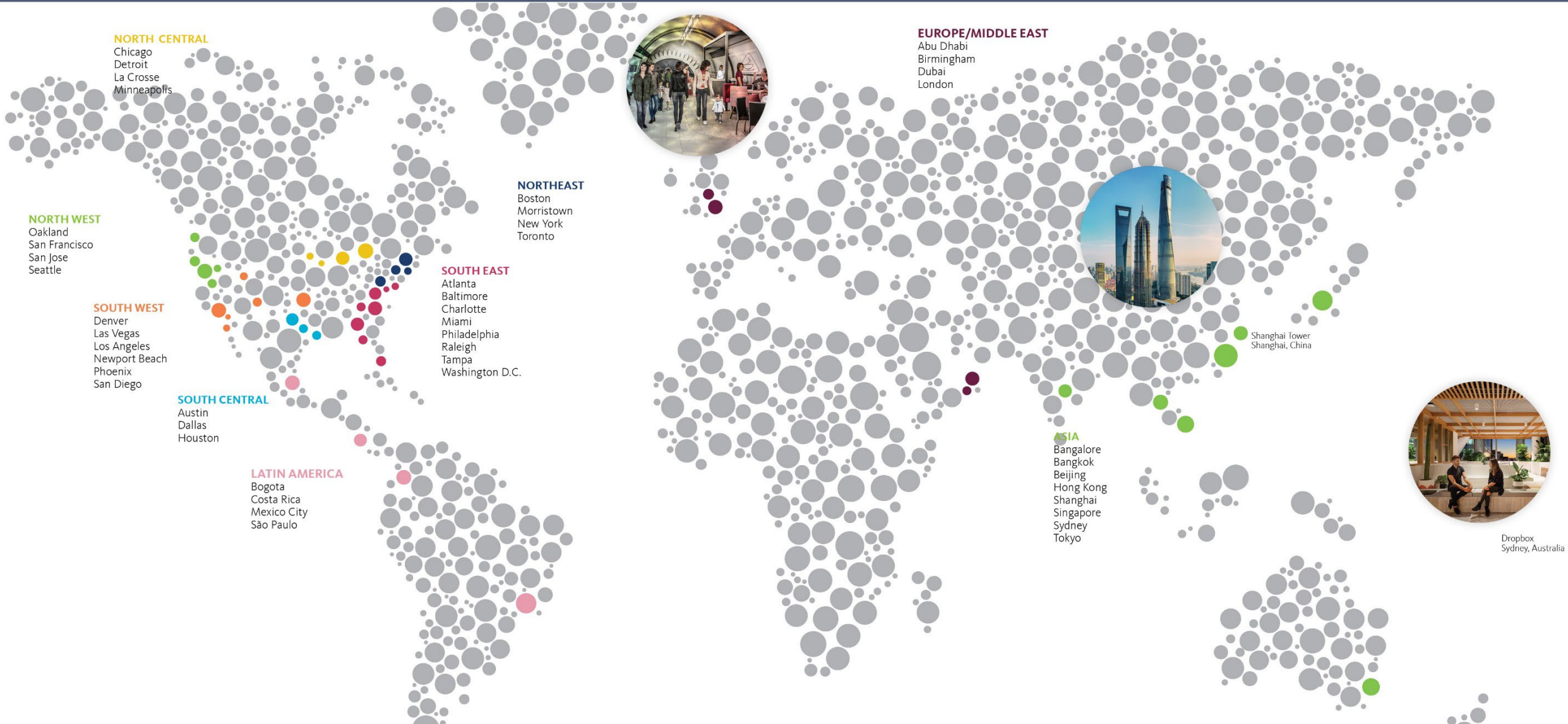


GENSLER IS FOCUSED ON
IMPROVING THE HUMAN EXPERIENCE,
GUIDED BY A VISION THAT'S COMMITTED TO
MAKING A BETTER WORLD.

Gensler



GLOBAL AND LOCAL FOOTPRINTS



90+

Countries Of Origin

1,100+

Universities Attended

85+

Languages Spoken

DIVERSITY
OF OUR PEOPLE

Gensler





**PRODUCT
DESIGN**



STRATEGY



ARCHITECTURE

UNIQUE PRACTICE AREA STRUCTURE

FUELS CROSS-COLLABORATIVE EXPERTISE



**EXPERIENCE
DESIGN**

Gensler



**INTERIOR
DESIGN**



**BRAND
DESIGN**



**URBAN
PLANNING**

ABOUT GENSLER - CHARLOTTE

25

years working in the Charlotte market

350+

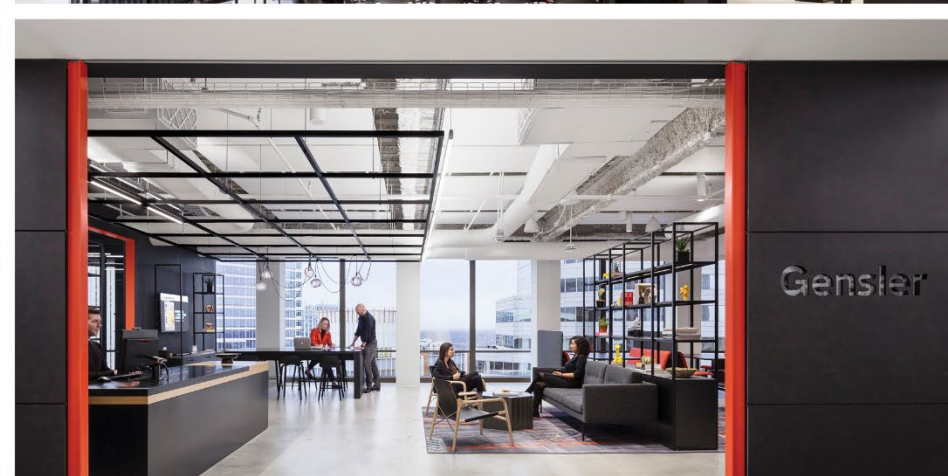
clients serviced by the Charlotte office

60+

dedicated Charlotte-based employees

1,100+

projects designed by the Charlotte office



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ASSOCIATION FOR
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Q&A THANK YOU

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