THE POSSIBLE ZONE

An Entrepreneurial Ecosystem Model for Positive Youth Development & Economic Equity:

Theory of Change

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Table of Contents

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Executive Summary

AN ENTREPRENEURIAL ECOSYSTEM MODEL FOR POSITIVE YOUTH DEVELOPMENT & ECONOMIC EQUITY

Data show that the largest portion of wealth in the US is held by increasingly few, as the top 1% of US households enjoy 15-times greater wealth than the bottom 50% combined. This skewed distribution of wealth is driven by a cycle of inequity that perpetuates major disparities in education and career opportunities, leaving Americans from under-resourced communities with long odds of climbing the ladder to prosperity. This cycle is broadly experienced, and is disproportionately felt by communities of color.

Since its inception, TPZ has been dedicated to reducing economic inequity by supporting students to find their passions, cultivate valuable skills, mindsets, and assets, and ultimately attain upward economic mobility. Emerging research has elucidated the complex and dynamic interactions of biology, epigenetics, environment, and relationships that influence cognitive, academic, and social development, as well as the conditions under which they are either hampered or accelerated. TPZ has leveraged lessons learned from our work to date, as well as powerful cross-disciplinary research and input from field experts, to design a next generation program model intended to help disrupt long-standing cycles of inequity in Boston and across the nation.

TPZ'S ENTREPRENEURIAL CULTURE & SPIRIT FRAMEWORK©

TPZ was founded on the belief that Entrepreneurship (Eship) can be a powerful vehicle for learning and positive development, and this conviction has only grown stronger — now reinforced by students' success and backed by research literature. Entrepreneurial Culture & Spirit are at the heart of TPZ's new program model. Entrepreneurial Culture & Spirit define HOW we approach the entirety of our work; how students, staff and other stakeholders experience TPZ; and the knowledge skills, and mindsets we hope to cultivate with students. Through Entrepreneurial Culture, TPZ strives to create a safe, supportive, and stimulating learning environment — called "conditions for learning" by researchers — which is essential for maximizing the potential of all students to learn, develop, and thrive — giving rise to an Entrepreneurial Spirit. Students and all stakeholders experience three aspects of TPZ's entrepreneurial culture — INSPIRE, IGNITE, and THRIVE© — which promote three dimensions of entrepreneurial spirit — I COULD, I CAN, and I AM©.industries, many of which are major drivers of the US and global economies.

TPZ'S NEXT GENERATION PROGRAM

In TPZ's new 35,000-square-foot Innovation Center, young people receive authentic, project-based, culturally-responsive, and gender-equitable entrepreneurship (Eship) training aimed at building business, design, social, and emotional skills, as well as igniting passion for innovation. This Eship programming embeds STEAM learning throughout the student experience, including access to high-tech equipment (e.g., laser cutters, 3-D printers

and CAD software). Concurrently, students are offered STEAM Deep Dive opportunities — hands-on and immersive experiences designed to cultivate STEAM knowledge, self-efficacy, and social capital.

Students completing Eship and Deep Dives are eligible for work-based learning opportunities (i.e.,consultancies, internships, and fellowships) — paid opportunities that provide real-world settings to apply and refine skills, and further reinforce students' self-efficacy and social capital (more details will become available on our multi-year program for youth). Additionally, TPZ students receive advisory support from day-one and throughout our program, with more intensive support for Seniors to help them launch successfully into post-secondary life.

TPZ's new Boston facility offers an opportunity to collaborate with a vibrant ecosystem that exists today across the city-at-large and within the neighborhoods surrounding our Innovation Center. This ecosystem represents a full spectrum of essential resources, including economic and workforce development programs; entrepreneurship and small businesses; food access, community health, and affordable housing agencies; educational systems; funders; and governmental organizations. Our process for contributing to this ecosystem includes three strategies: 1) A hub to catalyze — our Innovation Center; 2) Partnerships for Scale, Support, and Opportunity; and 3) Community investment.

WHO WE SERVE

TPZ invests in students who are looking to invest in themselves and for whom opportunities have been disproportionately unavailable — whether that be based on their race, gender, or the socio-economic circumstances of their family or community. TPZ students are innovators, they are problem-solvers, they are team players, and they are learners. Though we believe our program model for social, emotional, and identity development can be applied in a wide range of contexts, TPZ has focused first where there is a long and pervasive history of systemic inequity both locally and nationally — with under-resourced communities of color. Our focus is on high school students (10th to 12th grade) and the demographics of TPZ students reflect our focus on equity, with the large majority (~87%) coming from under-resourced communities and the vast majority (~95%) identifying as students of color. Going forward TPZ will continue this emphasis, focusing new student recruitment on public high schools in the area surrounding its Innovation Center, as well as with organizations in our surrounding communities.

IMPACT & EVALUATION

Economic inequity represents the animating force behind TPZ's founding, and with our new Theory of Change (ToC) we reaffirm our commitment to advancing economic equity. Research shows that economic mobility is a crucial mechanism for reducing inequity in the US, so it is a key target of impact for our program. TPZ has adopted a three-pronged framework identified by the US Partnership on Mobility from Poverty (US Partnership) for measuring upward economic mobility. This framework identifies two additional dimensions along with economic success — 1) power and autonomy and 2) being valued in community — as essential factors that should be part of any effort to measure mobility.

To test and improve our ToC, TPZ has developed a five-year evaluation plan that includes both a Formative phase and Summative phase. The formative evaluation phase will be collaboratively conducted by TPZ's program and research teams, and is focused on using data to iteratively improve its program. During the summative phase, TPZ will partner with an external evaluator to conduct independent research on its program model, which we hope will have achieved relative "steady state" after initial iterative improvement during its first few years of implementation.

Partnering with an external evaluator during its validation phase will allow findings and conclusions to be independently drawn, thereby establishing credibility of the evaluation among external stakeholders. Through its evaluation process, TPZ will identify opportunities for program improvement and test key hypotheses and assumptions of its new ToC. Findings from evaluation will inform future scaling efforts, support long-term sustainability through funding and partnerships, and boost TPZ's reputation as a thought leader in the field as we share our research findings.

Introduction

For more than a decade, TPZ has served the youth of greater Boston through authentic entrepreneurship and hands-on experiences in our in-house enterprises. With the opening of our state-of-the-art Innovation Center in March 2022, we launched our next generation of TPZ programming, as we look to extend our reach and increase the magnitude of our impact. To this end, we rebuilt our program from the ground up, based on a new and research-based Theory of Change (ToC). Our ToC combines previous lessons learned, input from stakeholders, evidence from multidisciplinary research (Appendix A: Evidence Review Topics), and input from field-leading experts and advisors — all aiming to create a more inclusive and impactful program (see Figure 1). We remain dedicated to our mission of reducing inequities in our society and we believe our ToC provides a roadmap to impact.

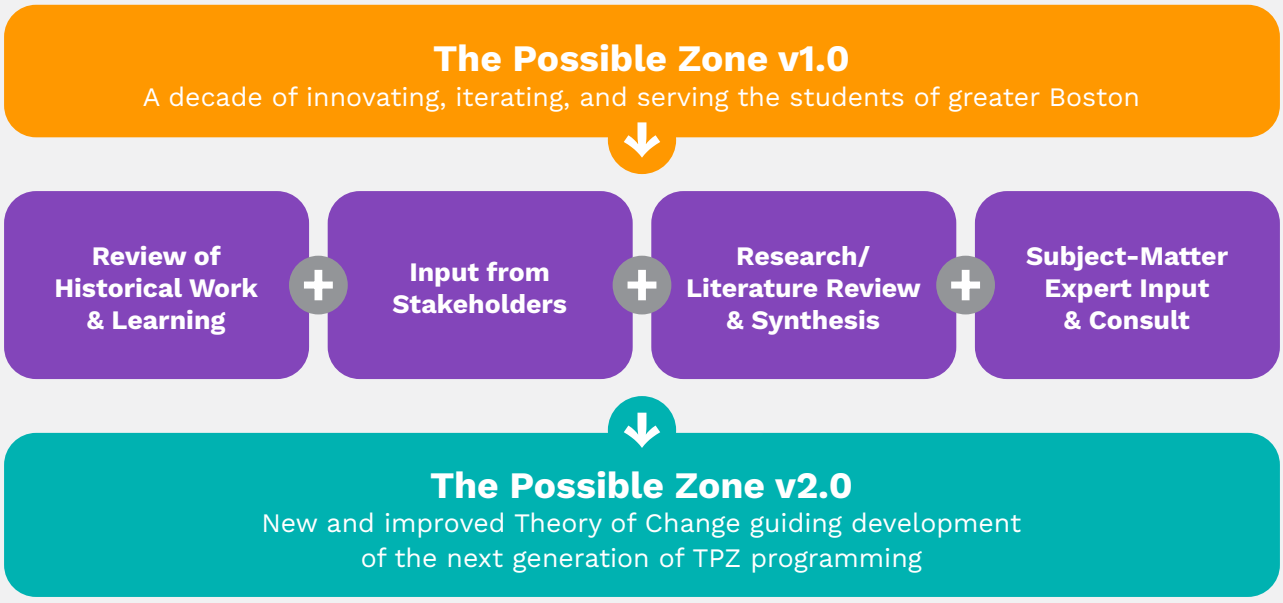


Figure 1. A rigorous road to the TPZ of tomorrow. After a decade of serving the youth of greater Boston, TPZ engaged in a two-year long, org-wide effort to improve our theory and practice, in order to extend our reach and increase the magnitude of our impact with students.

TPZ's commitment to *diversity, equity, and inclusion (DEI)* is the foundation of our work and mission. Our DEI statement communicates our guiding beliefs and principles, around which we built and will continuously improve our new ToC and program. Following our DEI statement, our ToC tells a story about the societal problems that animate TPZ and our plans to be part of solutions to those problems — including our mission, vision, and new *Entrepreneurial Culture & Spirit framework*©.

TPZ's Commitment to Diversity, Equity, and Inclusion

At TPZ, we believe every member of our team and student body deserves opportunities for growth, success and inclusion. We recognize that for many of our students, staff and communities, their life journeys run through oppressive structures and systems (e.g. classism, racism, sexism) — and that's what makes our organizational culture and work so necessary and important.

We believe that diversity in perspectives, backgrounds, ethnicities and lived experience is a strength, and from that strength, we can accomplish great things with the students we serve. Together as students, staff, organizations, communities, volunteers, and partners, we are intentional about creating safe spaces where all members can speak authentically and be themselves.

We are committed to Diversity, Inclusion, and Equity. As members of The Possible Zone community, our progression along this ongoing journey raises thoughtful questions, reveals biases, and opens conversations. We celebrate one another and are unified in our commitment to young people, excellence, and innovation. This work is our shared responsibility and our opportunity to welcome all members who share in our mission and strive to provide pathways that further prepare students in achieving their desired success (see Appendix B. DEI Key Term Definitions).

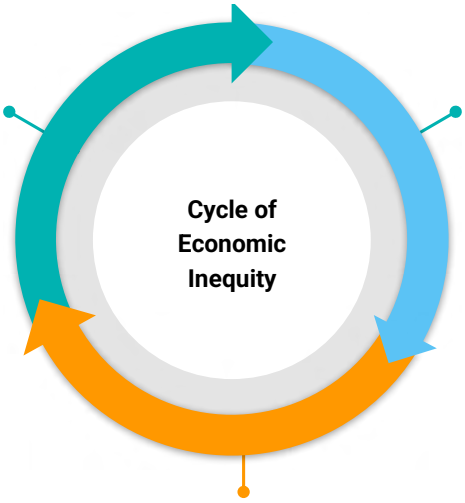
Problem that Prompts Action

DIVE DEEPER: FOUNDATIONAL RESEARCH ON THE PROBLEM THAT PROMPTS ACTION

- Chetty, R., Grusky, D., Hell, M., Hendren, N., Manduca, R., & Narang, J. (2017). The Fading American Dream: Trends in Absolute Income Mobility Since 1940. *Science*, 356(6336): 398-406.
- Chetty, R., Hendren, N., Jones, M.R., & Porter, S.R., (2020). Race and Economic Opportunity in the United States: An Intergenerational Perspective. *Quarterly Journal of Economics*, 135(2): 711–783.
- Collins, C., Asante-Muhammed, D., Hoxie, J., & Terry, S. (2018). Dreams deferred: How enriching the 1% widens the racial wealth divide. Washington, DC: *Institute for Policy Studies*.

By many metrics, the United States (US) recently ended its strongest period of economic growth ever recorded, disrupted only by the global COVID-19 pandemic. However, economic prosperity continues to be experienced inequitably in the US, stemming from a history of systemic discrimination and social and economic injustice.

Despite social and political initiatives aimed at changing these trends, our nation's wealth gap has grown wider than ever. Today, the largest portion of wealth in the US is held by increasingly few, as the top 1% of US households have approximately 15-times greater wealth than the bottom 50% combined. Growth in these gaps is driven by a persistent cycle of economic inequity at work in our nation's education system and job markets. Put simply, youth from under-resourced communities face inequitable barriers and levels of adversity during their PreK-12 education[77], face those of similar magnitude in post-secondary life[15], and then are subsequently under-represented in high-income careers[18, 111]. This under-representation contributes to further educational disparities for generations to come, perpetuating the cycle of inequity (see Figure 2).



Career Underrepresentation: Underrepresented in high-earning careers and industries (e.g., STEAM careers).

- e.g., Black Americans are 13% of the population, only 6% of the STEM workforce; Latinx Americans are 19% of the population, 7% of the STEM workforce.

Disparities in PreK-12 Education: Support, enrichment, and outcomes.

- e.g. "low-income" status linked with graduating high school on-time at a rate **11.4 percentage points lower**; rate for white students nationwide is **89%**, it is **79%** for Black students and **81%** for Latinx students.

Disparities in Postsecondary Education & Opportunity: Inequitable access, quality, & attainment; inequitable career on-ramp opportunities.

- e.g., 40% of Black and 54% of Latinx 4-year college students earn a degree within six years vs. 64% of white students.

Figure 2. Cycle of Economic Inequity. Though the full picture is far more complex and rooted in broader structural and institutional discrimination, the diagram above shows how PreK-12 education, post-secondary education, and career underrepresentation contribute to a cycle of economic inequity — a self-perpetuating cycle that TPZ aspires to disrupt.

America's long-standing cycle of economic inequity also helps to explain its nearly century-long decline in rates of economic mobility[7]. The portion of Americans that earn more than their parents dropped from 92% in 1940 to less than 50% today[16]. Studies show that this cycle is experienced to some degree by all Americans from under-resourced communities, and is disproportionately felt by communities of color[100].

According to a 2019 study, the median net worth of white families in the US (~$147,000) is more than **42-times greater** than that of Black families (~$3,500), and more than **22-times greater** than that of Latinx families (~$6,600). Things are equally grim on a local level in Boston. A 2015 study found that the median net worth of a non-immigrant Black household in Boston was just $8, it was effectively $0 for families of Dominican descent, and it was approximately $3,000 for families of "other" Hispanic descent — all staggering contrasts to the $247,500 net worth of Boston's white households[75].

AN APPROACHING SHORTFALL

Persistent and growing wealth gaps, combined with long-standing cycles of economic inequity, leave most Americans from under-resourced communities with long-odds of obtaining the education, training, and networks needed to achieve career success and ultimately climb the economic ladder. Research on future job markets, STEAM careers, and STEAM education indicate that demand for skilled workers in STEAM industries is growing, but interest among young people remains stagnant and access to the level of education and training needed for STEAM careers remains low for young people from under-resourced communities.

This combination of circumstances may result in a shortfall of skilled labor among many STEAM industries that drive growth in the American economy. Labor economists project that the US will need approximately one million more STEAM workers by 2028, and 20% of all jobs will require a high level of technical STEAM knowledge. This trend is even stronger locally. Computer science skills are required for 24% of jobs in Massachusetts, and more than two-thirds of the technology job demand in Massachusetts is centered in Suffolk and Middlesex counties — predominantly in Boston and Cambridge[1]. Should these trends continue without pipelines to STEAM careers widening, our nation is headed toward a workforce shortfall among many STEAM industries, many of which are major drivers of the US and global economies.

Opportunities to Disrupt Cycles of Inequity

DIVE DEEPER: FOUNDATIONAL RESEARCH FOR OPPORTUNITIES TO IMPROVE

- Cantor, P., Osher, D., Berg, J., Steyer, L., & Rose, T. (2019). Malleability, plasticity, and individuality: How children learn and develop in context. Applied Developmental Science, 23(4), 307-337.
- Osher, D., Cantor, P., Berg, J., Steyer, L., & Rose, T. (2018). Drivers of human development: How relationships and context shape learning and development. Applied Developmental Science, 24(1), 6–36.
- Pekel, K., Roehlkepartain, E. C., Syvertsen, A. K., Scales, P. C., Sullivan, T. K., & Sethi, J. (2018). Finding the fluoride: Examining how and why developmental relationships are the active ingredient in interventions that work. American Journal of Orthopsychiatry, 88(5): 493-502.
- *Technology jobs in Massachusetts: The demand for a Massachusetts Technology Workforce*. Boston, MA: Burning Glass Technologies, May 2017.

If filled by young people from communities under-represented in STEAM industries, the expected continued growth in STEAM workforce demand in the US could provide an opportunity to address economic inequities. Today, Black and Hispanic Americans, as well as students from under-resourced communities and women more broadly, are dramatically under-represented in STEAM careers. In fact, the share of the STEAM workforce belonging to Black Americans, Hispanic Americans, and American women are each roughly half of their respective shares of the overall population (See Table 1). Increasing the amount of traditionally underrepresented groups that engage in the STEAM career pipeline could help to address the STEAM workforce shortfall, while also addressing social injustice in the US.

Group	Black Americans	Hispanic Americans	Women
Share of US Population	13.4%	18.5%	50.8%
Share of STEAM Workforce	6.3%	7%	27%

Table 1. Underrepresentation in STEAM careers in the United States[38,78,89,117]

Broadening pipelines to career success, including for STEAM careers, will require disrupting entrenched cycles of economic inequity. TPZ believes we have developed a new program model that is equipped to support students with accomplishing this monumental task. This new program model is based on a theory of change that integrates cutting-edge insights across a variety of disciplines and is designed to create the specific conditions for learning and student supports that can help close gaps in educational and professional opportunity. More specifically, TPZ's new ToC and program model drew from...

- Research on the science of learning and development (SoLD) to better understand the complex interplay of environmental, social, emotional, biological, and genetic factors that determine the course of learning and development among young people (read more on SoLD research)[13,83].
- Whole child education research that identifies the conditions that optimize learning and healthy child development, as well as how they can be cultivated through specific instruction and design practices in education settings (read more on conditions for learning; on whole child education)[24,83].

- Social and emotional learning (SEL) research that identifies skills, mindsets, and assets that are associated with long-term career and life success, as well as how they translate into career-readiness, how they relate to characteristics of entrepreneurs, and how these competencies are promoted (read more on SEL meta-analysis; learn more through Harvard's SEL Taxonomy website)[22,29,30,51].

- Developmental relationships research that outlines the kinds of close and trusting relationships that help young people develop a positive sense of self, learn important skills, mindsets, and habits, connect with people and the world around them, and ultimately exert a powerful and positive impact on social, emotional, neural, and cognitive development (read more on developmental relationships)[13,83,87].

- Occupational identity research that asserts that negative cognitive, social, and emotional impacts of some systemic inequities that surround youth (e.g., stereotypes, implicit biases, and homophily) can be addressed, and maybe even reversed, through intentional design of programming and practices in formal and informal educational settings (read more on occupational identity)[12].

TPZ's research department also integrated key learnings from literature on project-based learning, culturally-responsive and trauma-informed instruction, entrepreneurship and entrepreneurial mindset, social capital, design thinking, economic mobility, and more. The result of more than two years of research, TPZ believes its new TPZ's Entrepreneurial Culture & Spirit Framework© is unparalleled in its integration of cross-disciplinary knowledge and evidence-based design and practice.

TPZ's Entrepreneurial Culture & Spirit Framework©

DIVE DEEPER: FOUNDATIONAL RESEARCH FOR THIS SECTION

- Callahan, J., Ito, M., Campbell Rea, S., & Wortman, A. (2019). Influences on occupational identity in adolescence: a review of research and programs. Irvine, CA: *Connected Learning Alliance*.
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D. & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82(1): 405–432.
- Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science*, 24(2), 97-140.
- Kerr, S., Kerr, W., & Xu, T. (2018). Personality Traits of Entrepreneurs: A Review of Recent Literature. Foundations and Trends in Entrepreneurship, 14(3), 279-356.
- Pekel, K., Roehlkepartain, E. C., Syvertsen, A. K., Scales, P. C., Sullivan, T. K., & Sethi, J. (2018). Finding the fluoride: Examining how and why developmental relationships are the active ingredient in interventions that work. Minneapolis, MA: The Search Institute.

TPZ's new program features an array of innovations and improvements, but our fundamental characteristics remain. As before, **entrepreneurship** (Eship) remains the inspiring theme of our program and organization. TPZ was founded on the belief that Eship can be a powerful vehicle for learning and positive development, and this conviction has only grown stronger — now reinforced by our students' success, and backed by research literature.

Entrepreneurial Culture & Spirit are at the heart of TPZ's new program model. This framework is characterized by a mutually reinforcing relationship between its two central concepts — *entrepreneurial culture & entrepreneurial spirit* — and serves as a guiding force behind everything we do at TPZ.

ENTREPRENEURIAL CULTURE & SPIRIT

ENTREPRENEURIAL CULTURE

INSPIRE
Inspire students to dream without limits by reinforcing their worth and potential.

IGNITE
Ignite passion and creativity through authentic and collaborative learning, spaces safe for innovation.

THRIVE
Thrive is to build strong and mutually supportive networks; to feel belonging within a professional communities.

ENTREPRENEURIAL SPIRIT

I COULD
Students define what is possible for themselves. "I COULD do whatever I dream."

I CAN
Students find insights in failures, gain confidence to achieve. "I CAN overcome. I CAN succeed."

I AM
Students have clear aspirations and are confident in their path. "I AM a learner. I AM a success. I AM leading the way."

Entrepreneurial Culture & Spirit are more than a set of program activities, curriculum, and outcomes, they define HOW we approach the entirety of our work; how students, staff and other stakeholders experience TPZ; and the skills, mindsets, and assets we hope to cultivate with students. Across its three dimensions (i.e., INSPIRE, IGNITE, AND THRIVE), TPZ's entrepreneurial culture drives decision-making, guides training and improvement, and even informs hiring and partnerships.

TPZ's new framework and program recognize that a safe, supportive, and stimulating learning environment — called "conditions for learning" by researchers — is essential for maximizing the potential of all students to learn, develop, and thrive (see Figure 4: TPZ's New Logic Model). Understanding that students come with a wide range of strengths, assets, and life experiences, TPZ aspires to create conditions for learning that meet students wherever they are in order to optimize opportunities for learning and relationship-building. The result is an experience that promotes a powerful set of knowledge, skills, and assets that foster an *Entrepreneurial Spirit*[footnote 1] with students.

[1] The skills, mindsets, and assets that contribute to Entrepreneurial Spirit are not the only competencies for which TPZ staff are trained to promote in students. Our educators are also trained in instructional practices that promote those that are foundational to our learning targets, such as the five core competencies identified by the Collaborative for Academic, Social, and Emotional Learning (CASEL). Foundational competencies underpinning the skills, mindsets and assets that contribute to Entrepreneurial Spirit are identified in a set of competency diagrams developed by TPZ. Each of the learning targets within the dimensions of Entrepreneurial Spirit, as well as competencies that are foundational to those learning targets, are defined according to multiple dimensions and articulated through learning progressions in a set of SEL & Career-readiness rubrics.

ADVANCING ECONOMIC EQUITY THROUGH AN ECOSYSTEM OF ENTREPRENEURSHIP, OPPORTUNITY, & RELATIONSHIPS

THE POSSIBLE ZONE

INPUTS

Students' Strengths and Assets: Experiences, skills, knowledge, mindsets, talents, supports
Stakeholders: Staff, volunteers, alumni, family, community
Curriculum: Evidence-based Eship, Advisory, WBL, and Deep Dive curriculum and/or course structures
Training: Leadership development, professional learning, culturally responsive, community and culture
Space and Equipment: Innovation Center, makerspace, CAD/Adobe software, digital fabrication tools
Partners: Schools, local businesses, complementary organizations, industry/corporate
Financial Support: Foundation and corporate giving, government grants, TPZ enterprise revenue

ENTREPRENEURIAL CULTURE

INSPIRE — Inspire students to dream without limits by reinforcing their worth and potential.

Program Levers
- Student-centered spaces
- Physical/emotional safety
- Culturally-responsive design/practice
- Student leadership, alumni presence
- Supportive staff & advisors
- Volunteers that inspire, relate, & challenge
- Developmental relationships

IGNITE — Ignite passion and creativity through authentic and collaborative learning, spaces equipped for innovation.

Program Levers
- Access to state-of-the-art technology and facilities
- Authentic Eship instruction & experiences that foster SEL
- Immersive STEAM Deep Dives
- Meaning-making & guidance through Advisory

THRIVE — Thrive within strong and mutually supportive networks; belonging in a professional communities

Program Levers
- Work-based Learning that fosters relationships & career-readiness
- College & career advising
- Alumni leadership & role modeling
- Post-secondary programming & alumni support

ENTREPRENEURIAL SPIRIT

I COULD — Defining what is possible for themselves. "I COULD do whatever I dream."

Skills, Mindsets, & Assets
- Interest sparked by access
- Positive self-concept
- Growth mindset
- Sense of belonging at TPZ

I CAN — Finding insights in failures, gaining confidence to achieve. "I CAN overcome. I CAN succeed."

Skills, Mindsets, & Assets
- Communication & teamwork
- Problem-solving & design thinking
- Self-efficacy & STEAM interest
- Tech agency
- Business & Eship concepts
- Emerging social & professional network

I AM — Having clear aspirations, confidence in their path. "I AM a learner. I AM a success. I AM leading the way."

Skills, Mindsets, & Assets
- Fortified self-efficacy & resilience
- Growing & solidifying social capital
- Refined technical skills, aligned with career aspirations
- Sense of belonging in professional settings
- Commitment to inspiring others

IMPACT

UPWARD MOBILITY PROMOTING EQUITY

1. **Economic Success:** Earning in top 20% of income among same-age peers, 10-years after high school graduation.
2. **Power and Autonomy:** Ability to influence one's environment, other people, and your own outcomes; ability to act according to your own decisions. **Indicators:** Agency, Self-Efficacy, & Growth Mindset
3. **Being Valued in Community:** A sense that one belongs and is included among family, friends, coworkers, neighbors, other communities, and society. **Indicators:** Social Capital & Belonging

Figure 3. TPZ's New Logic Model. TPZ's new Entrepreneurial Culture & Spirit framework© represents a mutually reinforcing dynamic between a positive culture that is conducive to learning and relationship-building, and the entrepreneurial spirit that it cultivates — and by which it is reinforced.

DIMENSIONS OF ENTREPRENEURIAL CULTURE & SPIRIT©

Students and all other stakeholders experience three aspects of TPZ's Entrepreneurial Culture — INSPIRE, IGNITE, and THRIVE© — which promote three dimensions of Entrepreneurial Spirit — I COULD, I CAN, and I AM©. Within each dimension of Entrepreneurial Culture (i.e., INSPIRE, IGNITE, and THRIVE) are multiple program levers that were chosen based on research evidence that points to how they help to promote their respective dimension of Entrepreneurial Culture. Similarly, each dimension of Entrepreneurial Spirit (i.e., I COULD, I CAN, and I AM) is composed of a particular set of carefully chosen skills, mindsets, and assets. The skills, mindsets, and assets within the dimensions of Entrepreneurial Spirit were chosen based on rigorous research review, seeking to achieve balance in those that were 1) accepted as important by entrepreneurs and entrepreneurial scholars[footnote 2], 2) valued by employers[footnote 3], 3) were teachable in a program like TPZ[footnote 1], and 4) were an important part of fostering its respective dimension of Entrepreneurial Spirit. Each element of Entrepreneurial Culture & Spirit are described below, but many more details and definitions will be available in our Entrepreneurial Culture & Spirit Framework brief.

INSPIRE

To **INSPIRE** means to reinforce students' positive beliefs about their potential; to surround students with models of success that **intersect with the multiple aspects of their identities**, undermining biases and stereotypes **if** and **where** they exist and fostering a sense of belonging. To INSPIRE means to cultivate learning environments that unrelentingly communicate students' worth and importance.

INSPIRE will often be the first aspect of Entrepreneurial Culture students encounter at TPZ, even before starting program activities, and an aspect that endures throughout their experience. Seven program levers characterize INSPIRE: *1) Student-Centered Spaces, 2) Physical/Emotional Safety, 3) Culturally-responsive design & practice, 4) Student leadership & alumni presence, 5) Supportive staff & advisors, 6) Volunteers that inspire, relate, & challenge, and 7) Developmental relationships.*

From INSPIRE to I COULD

When **INSPIRED**, students seek new challenges as opportunities to learn. They feel safe to try new things and explore their passions — all of which spark ideas to solve problems and promote a sense of belonging. When we **INSPIRE**, *Entrepreneurial Spirit* begins to emerge — students say: "**I COULD** do whatever I dream."

Emerging from **INSPIRE**, **I COULD** represents a positively expanding self-concept starting to evolve into a sense of belonging and self-efficacy among students. TPZ targets four interconnected skills, mindsets, and assets that contribute to this dimension of *Entrepreneurial Spirit: 1) Interest sparked by access, 2) Positive self-concept, 3) Growth mindset, and 4) Sense of belonging at TPZ.*

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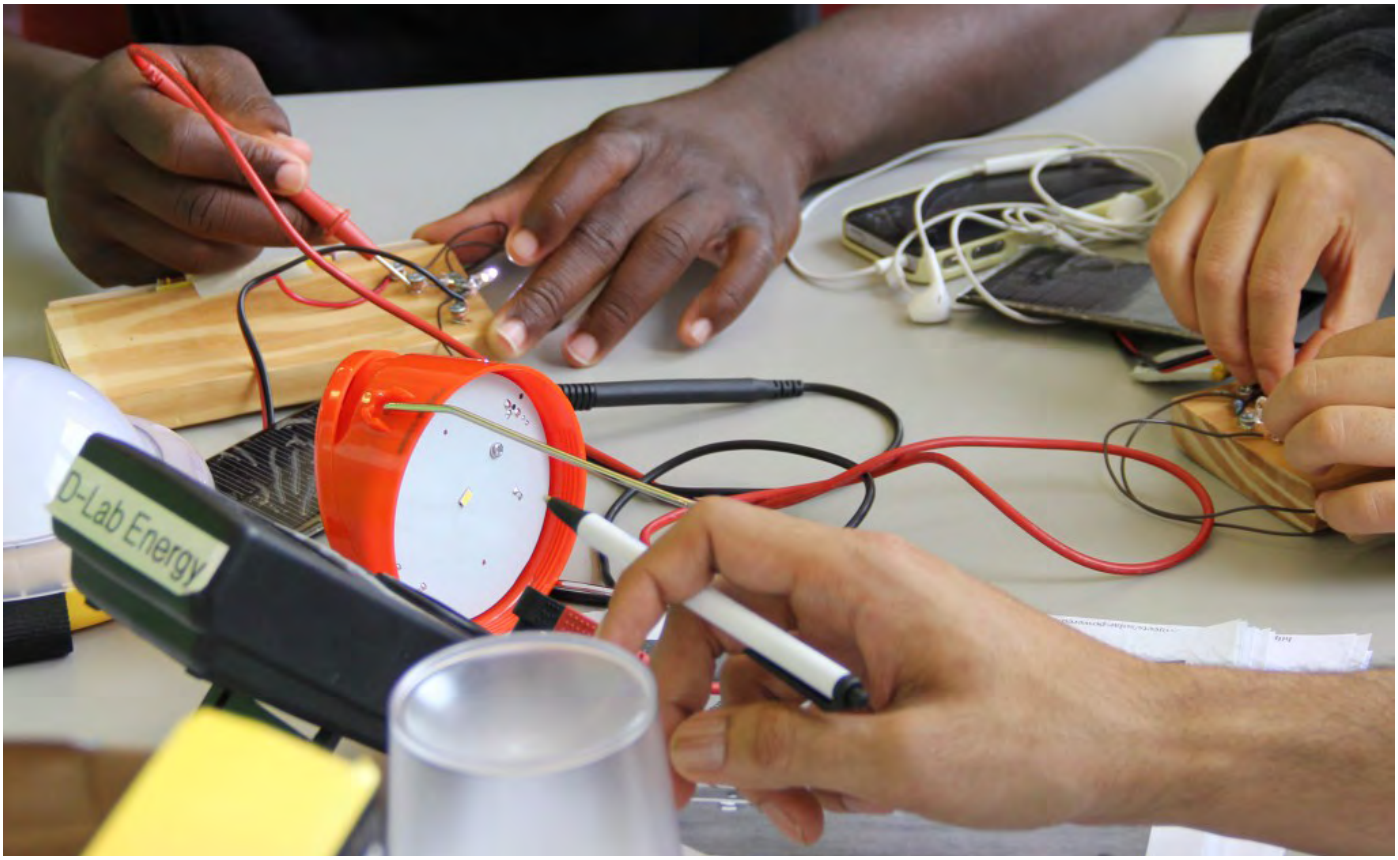
[2] Our research review revealed nine different frameworks for entrepreneurial mindset. Potential learning targets were further considered if they appeared in multiple frameworks, indicating some degree of consensus of their importance across researchers.

[3] Determination of potential learning targets that were valued by employers was determined by synthesizing the outcome of three processes: 1) Findings from three independent research studies conducted on employer surveys were compiled; 2) results of a national listing tour were compiled and summarized; and 3) a literature review on the future of work and job markets was conducted. Details on these processes, including a list of listening tour participants will be available in our summary materials.

[4] To review for teachability/malleability of prospective learning targets, the TPZ research team conducted a scan of more than 130 development/social-emotional learning frameworks, in order to determine which targets (or something highly related) appeared frequently across these SEL framework.



IGNITE

To **IGNITE** means to create spaces in which students feel safe to experiment and take risks, experiences that spark creativity and innovation; to model learning from failure and help students discover the power of trusting relationships and teamwork. To **IGNITE** means to cultivate social and emotional skills, positive identity, enthusiasm, and to cultivate students' agency for shaping their own future.

Compelled by spaces, people, and opportunities all working to inspire, students become immersed in the IGNITE aspect of *Entrepreneurial Culture* as they begin formal program activities, starting with TPZ's Eship program, Advisory, and STEAM Deep Dives. Program levers that characterize IGNITE fall into four categories: *1) Authentic Eship that embeds STEAM & SEL, 2) Immersive STEAM Deep Dives, 3) State-of-the-art technology and facilities, and 4) Meaning-making & guidance through Advisory.*

From IGNITE to I CAN

When we **IGNITE**, students are acquiring, refining, and applying technical, social, and emotional skills needed to both support and rely on others. When we IGNITE, students feel agency to choose their own path, persist through adversity, and achieve their chosen goals — *Entrepreneurial Spirit* grows and students say: "**I CAN** overcome challenges ahead and achieve my goals."

I CAN is characterized by expansion of students' self-concept as learners and potential leaders. Bolstered by inspiration, students are trying new things, experiencing both success and failure in safe and supportive spaces, challenging themselves in new ways, and increasingly feeling self-efficacy and belonging. A wide array of skills, mindsets, and assets contribute to this dimension of *Entrepreneurial Spirit*, including teamwork, communication, problem-solving, design thinking, tech agency, and more (see logic model).

THRIVE

To **THRIVE** means to apply a strengthening set of skills, mindsets, and assets to achieve success in real-world professional settings; to build unshakable relationships on a foundation of shared trust and empathy, which ultimately form a strong professional network to which students both provide and receive support and appreciation. To **THRIVE** is to feel belonging in the face of adversity and uncertainty; and to step-forward to INSPIRE those who come next.

Equipped with an array of knowledge, skills, and assets that reinforce feelings of self-efficacy and belonging, and ultimately IGNITE students' enthusiasm and passion — students are ready to THRIVE in work-based learning environments and in a promising career path. Program levers that characterize the THRIVE dimension of TPZ's *Entrepreneurial Culture* broadly fall into four categories: *1) WBL that fosters career-readiness, 2) College & career advising, 3) Alumni role modeling, and 4) Fellowship & alumni networking.*

From THRIVE to I AM

When TPZ students **THRIVE**, a network of trusting relationships helps to open doors and overcome setbacks. Cycles of economic inequity are disrupted by a virtuous cycle of learning and resilience:

- A sense of belonging feeds growing confidence and reinforces feelings of readiness.
- Confidence and readiness foster professional success.
- Success further solidifies belonging, fuels enthusiasm for learning and challenge.
- When encountered, failures are interpreted as opportunities for learning — learning that contributes to future success, and reinforces positive beliefs about resilience.

When students **THRIVE**, they blaze their own path to success and INSPIRE others along the way — Entrepreneurial Spirit is on full display and students say: "**I AM** a learner. **I AM** a success. **I AM** leading the way."

I AM reflects the culmination of students' journey through TPZ, and embodies a sense of self they will carry with them throughout their lives. Students show a hunger for learning and challenge; an enduring determination, and a sense of responsibility to lead the way for those that come next. TPZ targets five skills, mindsets, and assets that contribute to and sustain the **I AM** dimension of *Entrepreneurial Spirit: 1) Fortified self-efficacy & resilience, 2) Solidifying social capital, 3) Refined technical skills, aligned with career aspirations, 4) Sense of belonging in professional settings, and 5) Commitment to inspiring others.*

RECIPROCITY OF ENTREPRENEURIAL CULTURE & SPIRIT

Though TPZ's new framework asserts that an *Entrepreneurial Spirit* is cultivated by an *Entrepreneurial Culture*, we do not believe this relationship to be linear, nor one-directional. TPZ hypothesizes that the relationship between *Entrepreneurial Culture & Spirit* is mutually reinforcing — or reciprocal. Just as an *Entrepreneurial Culture* gives rise to *Entrepreneurial Spirit* among students, so too is *Entrepreneurial Culture* reinforced by growing *Entrepreneurial Spirit*. Described in terms of the dimensions of both *Entrepreneurial Culture & Spirit*:

- Just as **INSPIRE** (culture) fosters **I COULD** (spirit), the skills, mindsets, and assets linked with **I COULD** — expanding self-concept, developmental relationships, and feelings of safety, trust, and belonging — also propel students into **IGNITE** (culture) with enthusiasm and hope, thereby strengthening *Entrepreneurial Culture*.
- As **IGNITE** (culture) fosters **I CAN** (spirit), the social, emotional, and technical skills associated with **I CAN** — along with solidified belonging and growing self-efficacy — result in deep engagement AND readiness for success for students as they enter **THRIVE** (culture). Again, *Entrepreneurial Culture* is reinforced by continued growth in *Entrepreneurial Spirit*.
- As students **THRIVE** and fully demonstrate their *Entrepreneurial Spirit* through **I AM**, they often feel a responsibility to lead the way for others — just as those that came before did for them. In doing so (e.g., by volunteering or advocating for TPZ as advanced students or alumni)[35], these students are contributing to TPZ's work of **INSPIRE** for cohorts of students who will come next. This culmination of *Entrepreneurial Spirit* is perpetuating the virtuous cycle of *Entrepreneurial Culture* within TPZ.

Who We Serve

WHEN ASKED DURING THE 2020-21 SCHOOL YEAR, TPZ STUDENTS SAID THEY ARE...

- ***Hopeful About the Future***: 99% expect to graduate high school, find a job; 87% expect to attend college.
- ***Confident Learners & Problem-Solvers***: 90% believe they are good at learning new things, 80%good at solving problems.
- ***Motivated to Learn***: 90% set goals for themselves to learn or improve, 94% believe that doing well in school will help them in life.
- ***Team Players***: 79% say they work hard to help others in a group, 77% say they learn from others.

TPZ invests in students that are looking to invest in themselves and for whom opportunities have been disproportionately unavailable — whether that be based on their race, gender, or the socio-economic circumstances of their family or community. TPZ students are innovators, they are problem-solvers, they are team players, and they are learners. Our focus is on high school students (10th to 12th grade) and the demographics of TPZ students reflect our focus on equity, as the large majority (~87%) come from under-resourced communities or backgrounds[footnote 5], and the vast majority (~95%) identify as students of color. TPZ values the success of every student we serve, and we are committed to realizing the maximum amount of benefit, for as many students as possible. With that in mind, our strategic decisions going forward reflect these priorities. Going forward, TPZ is focusing new student recruitment efforts on schools and neighborhoods with high concentrations of students who can most benefit from our program, those from under-resourced backgrounds in Boston. Since early 2021, we expanded our number of Boston partner schools from **one** (*Madison Park Vocational High School*) **to five**, forging partnerships with *Dearborn STEAM Academy, The English High School, Jeremiah E. Burke High School*, and *Margarita Muniz Academy*. Additionally, there are at least eleven additional schools from which we will actively seek to recruit students as we extend our reach. Public data also show that the neighborhoods surrounding our new Innovation Center have the second highest concentration of high school students in the city. In fact, according to the *Boston Planning and Development Agency*, 1 in 5 high school students living in Boston reside in one of these neighborhoods[footnote 6].

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[5] *For purposes of decision-making about recruitment, and ensuring alignment with our mission, TPZ uses data reported by Boston Public School district, which categorizes students as "economically disadvantaged" based on families' use of government-administered and income-based assistance programs — e.g., the Supplemental Nutrition Assistance Program (SNAP); the Transitional Assistance for Families with Dependent Children (TAFDC); the Department of Children and Families' (DCF) foster care program; and MassHealth (Medicaid). Although we have no specific criteria or "cut-off," TPZ focuses recruitment on schools that serve high percentages of students categorized as "economically disadvantaged." See more about this categorization by the Massachusetts Department of Elementary and Secondary Education (DESE)*

[6] *Neighborhoods in these data include: Jamaica Plain (i.e., Jackson Square, Hyde Square, Heath Street, Egleston Square); Mission Hill; and Roxbury (i.e., Fort Hill/Highland Park, Washington Park, Roxbury Crossing).*

Expanding recruitment beyond schools. Though schools will remain crucial recruitment partners, we know that reaching our goal of serving 1,000 students each year will require other strategies too. TPZ plans to expand our strategy for recruiting students, including a possible partnership with *MassHousing* to recruit students from public housing developments near our facility. Another recruitment strategy we plan to explore is partnerships with complementary youth-serving organizations in the area. Examples of these kinds of complementary organizations may include those serving younger students (e.g., middle school-aged) and college access/success organizations (e.g., Bottomline, uAspire, OneGoal, and College Advising Corps).

What We Do

Innovations of TPZ's next generation program are primarily characterized by HOW we design and operate our program, rather than by changes to the kinds of activities students experience. In fact, each of the three main historical pillars of TPZ's previous program — entrepreneurship, work-based learning, and advising (i.e., Pathways advising) — remain core components of TPZ's next generation program model, each fully redesigned to cultivate Entrepreneurial Culture and ultimately promote Entrepreneurial Spirit with students (see Figure 4: Students' Journey Through TPZ).

Though we plan to explore some programming occuring during the school day, TPZ continues to leverage the flexibility for innovation afforded by being a youth development organization with roots as an out-of-school time (OST) program[footnote 7]. Free from the demands of academic curriculum and government mandated learning standards that are typically faced by schools, OST settings are particularly fertile ground for social and emotional development. In this setting, social and emotional learning can be a primary focus, without worry that academic instructional time has been sacrificed. While we enjoy the flexibility of an OST program, TPZ ensures a consistent and high quality experience for students by having our program delivered by well-trained, full-time educators and staff, and continuously conducting rigorous measurement and evaluation (see Test, Improve, & Prove section). Also, our new program is designed to foster sustained engagement and deep learning with students, utilizing best practices from research on project-based learning, social-emotional learning, developmental relationships, and the science of learning and development (SoLD) — and dynamic learning experiences designed to engage students for 3+ years.

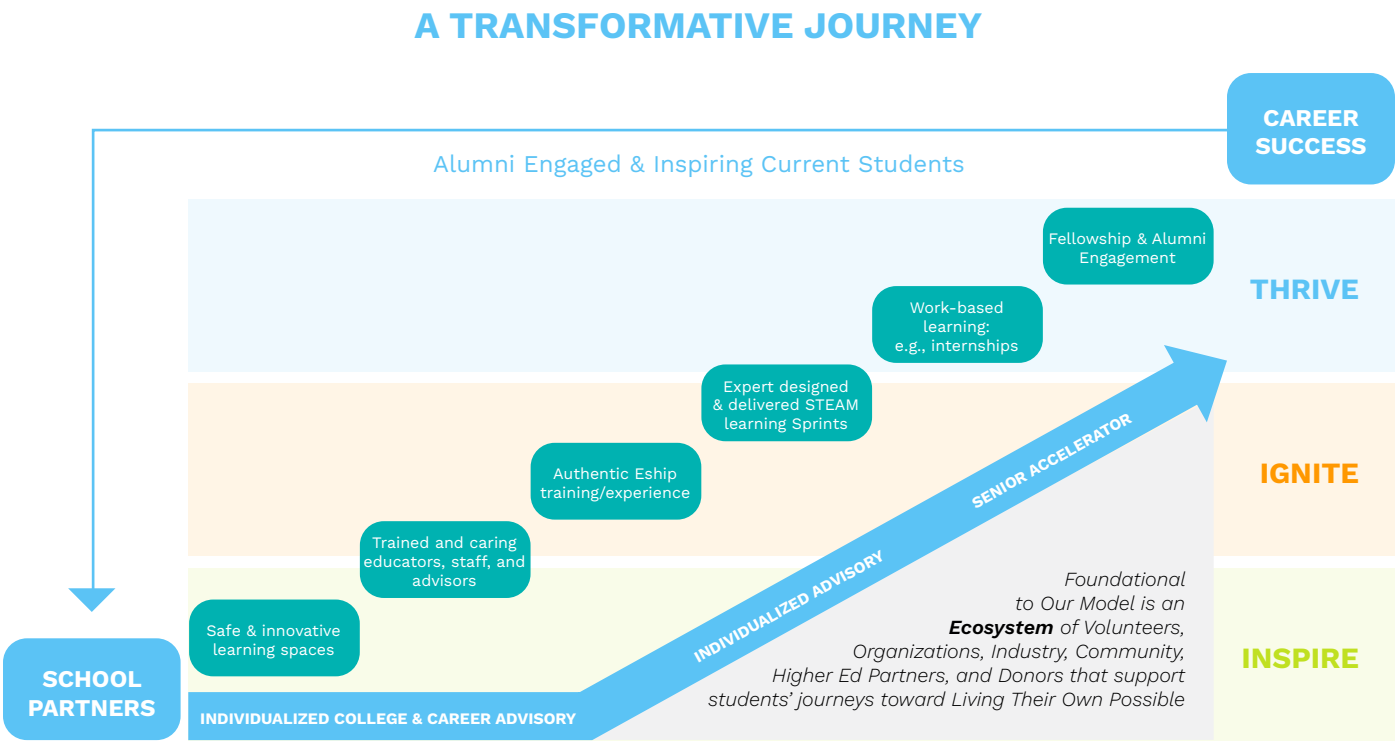

Figure 4. Students' Journey Through TPZ.

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[7] *The term OST program — sometimes also considered part of a broader category of informal learning environments — describes a wide range of youth serving organizations. OST programs sometimes have specific educational or learning objectives, but not in all cases. As a key defining characteristic, OST programs typically serve students during times that they would not otherwise be in school — most commonly after school and/or during the summer.*

INTRO TO TPZ

Prior to formally enrolling in TPZ's program, prospective students have an opportunity to experience a snapshot of TPZ, with our new "Intro to TPZ". Intro to TPZ is a learning experience that offers prospective students opportunities to engage in activities reflective of TPZ's curriculum that spark creativity and engagement. The overarching goal is for students to make an informed decision about committing to TPZ as their program of choice to develop entrepreneurial skills/mindsets, engage in work-based learning, and create a plan to pursue promising postsecondary pathways.

STEAM-EMBEDDED ENTREPRENEURSHIP

DIVE DEEPER: FOUNDATIONAL RESEARCH FOR THIS SECTION

- Gold, T. & Rodriguez, S. (2018). Measuring entrepreneurial mindset in youth: Learnings from NFTE's Entrepreneurial Mindset Index. NFTE
- Karl, R., McLain, B., & Santiago, A. (2017). SciGirls Strategies. Connected Science Learning, 1(2).
- Kerr, S., Kerr, W., & Xu, T. (2018). Personality Traits of Entrepreneurs: A Review of Recent Literature. Foundations and Trends in Entrepreneurship, 14(3), 279-356.
- Neck, H., Neck, C., & Murray, E. (2018). Entrepreneurship: The Practice and Mindset. Sage Publications.
- Neck, H. M., & Greene, P. G. (2011). Entrepreneurship education: known worlds and new frontiers. Journal of small business management, 49(1), 55-70.

Eship remains at the heart of TPZ, as we believe it can be a powerful vehicle for positive youth development, equity, and developing career-readiness skills and mindsets[40,80]. Our Eship experiences promote project-based, culturally-responsive, and gender-equitable learning[55][footnote 8], specifically focused on business, design and prototyping, and essential career-readiness skills (e.g., communication, teamwork, resilience, problem-solving, and tech agency), all of which are designed to ignite students' passion for innovation. With our next generation program model, TPZ has powerfully expanded on our capacity for impact through Eship by integrating best practices and learning from Whole Child Education, identity development, SEL, project-based learning, competency-based learning, jobs of the future, culturally-responsive and trauma-informed practice and instruction, and more. With this foundation of research, TPZ's model is equipped to inspire and promote success with any student, including those for whom opportunity and support have been historically least available (more will be available in our Eship research summary).

WHAT

- Through four Eship program phases ***(Discover, Ideate, Incubate, and Accelerate)***, students learn to develop product ideas, design and fabricate prototypes, conduct market research and pitch to investors, and progress toward launching their own business — including marketing and sales.
- STEAM learning opportunities are embedded throughout all phases of Eship, including access and training with state-of-the-art equipment (e.g., laser cutters, 3-D printers, and clothing printers/presses) and software (e.g., Adobe Illustrator and CAD).
- Designed to promote foundational business knowledge, comfort with technology, essential career-readiness skills (e.g., communication, teamwork, resilience, problem-solving, and tech agency), and preparedness for WBL opportunities and success with long-term career goals.

HOW

- Each phase is approximately 12 weeks in duration, and the typical expectation is that students will complete at least three phases ***(Discover, Ideate, and Incubate)*** before progressing to WBL.
- Students will typically attend 5 hours of Eship each week, split between two sessions.
- Eship courses are taught by full-time TPZ educators, with guest speakers and collaboration from various outside experts and local entrepreneurs.
- Educators use project-based learning, design-thinking challenges, and connections with local entrepreneurs to support students' *Entrepreneurial Spirit*, business knowledge, and skill.

WHEN

- After experiencing our 4 to 6 hour introductory experience and on-boarding with their TPZ advisor, Eship students begin their Eship experience at TPZ
- Typically in 10th grade, enrollment may occur throughout the year, likely up through the summer following their 10th grade year.

ESHIP PHASE	DESCRIPTION AND LEARNING OBJECTIVES
Discover	Students begin to develop their entrepreneurial spirit by learning about different problems for which they could start a business venture. They engage in problem finding, learn from other entrepreneurs, and explore their passions and interests. By the end of Discover, each student generates at least three potential ideas for which they could start a business venture.
Ideate	Students employ design thinking methodology to engage in solution finding, first creating low fidelity prototypes of potential solutions to their top three ideas from Discover. Through this process students learn about opportunity evaluation and prototype testing using data from potential customers. By the end, students design at least one high fidelity prototype for the solution they find most interesting and has the most value add.
Incubate	Students continue to develop their high fidelity prototype and are introduced to the lean canvas business model. They identify a business name and begin to define their brand identity. Students have the opportunity to learn about sales and the business basics of financial planning and setting business goals. By the end, students are seeking investments for their business ideas.
Accelerate	This optional phase is for students who are ready to increase the production of their product or service. Students in this phase build the skills necessary to obtain outside investments into their business. They receive guidance and feedback from experienced entrepreneurs to guide them as they scale and sustain a business.

STEAM DEEP DIVES

DIVE DEEPER: FOUNDATIONAL RESEARCH FOR STEAM DEEP DIVES

- Boy, Guy A. (2013). From STEM to STEAM: Toward a Human-Centred Education, Creativity & Learning Thinking. In Proceedings of the 31st European Conference on Cognitive Ergonomics, 3:1–3:7. ECCE '13. New York, NY, USA: ACM.
- Connor, A. M., Karmokar, S. and Whittington. C. (2015). From STEM to STEAM: Strategies for Enhancing Engineering & Technology Education. 5(2), 37–47.
- Acosta, A. (2015). Macromolecules and Monologues: How Science and Arts Classes Motivate Students for College. The STEAM Journal, 2(1), 25.
- Madden et al., (2013). Rethinking STEM education: An interdisciplinary STEAM curriculum. Procedia Computer Science, 20, 541-546.

An interdisciplinary framework that integrates arts into STEM fields (i.e., STEAM) is crucial for ensuring that the development of technical skill is complemented by a creative mindset that allows for the judicious application of said skills towards the goal of innovation (see Background and Context of STEAM brief; read more about STEAM at TPZ). As part of TPZ's next generation program, students engage in STEAM Deep Dives concurrent to their Eship experience. STEAM Deep Dives are hands-on and immersive experiences designed to cultivate technical knowledge, self-efficacy, belonging, and social capital. These experiences are co-facilitated by TPZ's full-time educators and external experts from a variety of STEAM-related fields.

Deep Dive topics are driven by a combination of student interest and research that point to skills that will be crucial for jobs of the future. Examples may include, but are not limited to: making robots, furniture design, app development, game design, and/or music production. Two initial Deep Dive pilots partnered with MIT Media Lab and Converse, focusing on artificial intelligence and apparel design, respectively. In the artificial intelligence deep dive, students were introduced to the emerging technology and learned how to build a classifier algorithm. In the Deep Dive co-designed by Converse (a subsidiary of Nike, Inc.), students were introduced to the various stages of the product development in the apparel industry. TPZ is currently collaborating with Converse to design a longer summer experience, in which students will have the opportunity to practice the product development processes they were introduced to with greater detail.

WHAT

- Immersive, STEAM-focused, project-based experiences for technical skill building, career exploration, creative problem-solving, and fostering community and sense of belonging in STEAM-disciplinary context
- Build students' networks and social capital by fostering relationships with industry professionals
- Opportunities for sustained practice for deeper learning vs. momentary exposure
- Potential as launching pad/preparation for industry bootcamps, certification programs, and internships

HOW

- Modular, 10-20 hour elective experiences — typical expectation is that students complete 2+ deep dives before WBL
- Co-taught by TPZ educators and outside experts in the field
- Students choose topics that most interest them, with some topics potentially required (e.g. if a student's business requires use of the CNC mill, Deep Dive on CNC machining likely required)

WHEN

- Students engage in Deep Dives concurrent to their Eship terms and can continue engaging in them throughout their TPZ experience

ADVISORY

DIVE DEEPER: FOUNDATIONAL RESEARCH FOR ADVISORY

- Brodie, Beth S., (2014). Perceptions of the Impact of High School Advisory on Academic Success, Connectdness and Personalization of Education. Graduate College Dissertations and Theses. 248.
- Adams, C. J. (2016). The impact of a student advisory program on school climate at a suburban high school. Drexel University.
- Brown, K. M., & Anfara Jr, V. A. (2001). Competing perspectives on advisory programs: Mingling or meddling in middle schools. Research in Middle Level Education Annual, 24(2).
- Ng, Gorick (2021). The Unspoken Rules: Secrets to Starting Your Career Off Right, Harvard Business Review Press.

As students pursue individualized plans in Entrepreneurship, Work-Based Learning, and Fellowship, Advisory acts as a continual touchpoint and throughline across students' program experience. Advisory experiences cultivate community by building peer-peer relationships, reflection on identity and social-emotional skills, creation of an e-portfolio, and targeted college and career readiness and pathways to career pipelines.

Through direct advisory support, ecosystem collaboration, and strategic partnerships, TPZ helps students establish a post-secondary career plan that is aligned with their goals, and ensures that key steps are taken to help that plan gain traction (e.g., financial aid, college/training program applications...etc). Crucially, TPZ advisors also engages students to establish a network of support, and help promote social and emotional readiness for post-secondary life — because we know that graduating high school and matriculating to college or post-secondary training are important milestones, but not sufficient on their own to realize students' long-term goals.

WHAT

- Helps students navigate TPZ, connects learning to long-term plans
- Ensures steps for post-secondary success (directly or in collaboration with ecosystem partners)
- Engages students to establish a network of support, helps to foster belonging at TPZ, and helps promote social and emotional readiness for post-secondary life

HOW

- Mix of cohort and 1-on-1 experiences; with student from day one, consistent relationship throughout TPZ experience
- Students will engage in targeted Advisory experiences for 8 hours over the 12-week course , starting from day one
- **Advisory Cohorts:** Meets 3-4 times per term (approximately 12 weeks in duration) in cohorts of peers. Will focus on college-career readiness skills, reflection on progress towards competencies (content and SEL/identity), and creation of e-portfolios. Each cohort will have approximately 20 students in the cohort.
- **One-on-One Advisory:** Meets approximately 2 times per term (approximately 12 weeks in duration). Will focus on developing a trusting relationship; conferring with each student about TPZ learning experiences; supporting students in identifying college-career goals and determining the pathway to reach goals; providing individualized support based on student needs.

WHEN

- Starting from day one, students are engaged with their TPZ advisor throughout their time at TPZ, and even check-in quarterly for the first two years after completing our high school program
- Students meet regularly with their advisory cohort and for one-on-one sessions, typically on off-days when they do not have scheduled Eship or STEAM Deep Dive sessions.
- Design of Advisory will be supported by external experts with deep Advisory expertise and developmental relationships combined with internal knowledge of college-career readiness and WBL experiences
- Advisory will be launched in January, 2022 as part of TPZs core program and concurrent with Eship

TPZ students engage with advisory from day one at TPZ, and throughout their experience. This advisory is a space for both cohort and 1-1 support, facilitating community-building and social emotional skill development, as well as opportunities to build peer and adult developmental relationships and reflect on their identities. Advisory offers a safe and brave space to develop student-to-student networks, create an e-portfolio to showcase their learning, and plan for their futures. TPZ designs Advisory as a structure and a culture, meaning that it acts as a continual touchpoint and throughline across students' program experience and fosters relationships that support students' sense of belonging, identity development, agency, and growth mindset to pursue postsecondary pathways of their choosing.

ADVISORY PHASE	DESCRIPTION AND LEARNING OBJECTIVES
Who Am I (Now)?	During the Discover term, students will reflect on their identities to articulate the values, skills, and experiences they bring, while also exploring academic and career goals, identifying resources, and navigating perceived obstacles to grow a vision for their future.
Where Am I Going?	During the Ideate term, students will develop a vision for upward mobility. They will consider their personal, professional, and financial choices and how to navigate towards their future goals.
How Will I Get There?	During the Incubate term, students will identify action steps for transforming aspirations into reality. Students will engage in interviews, research, and feedback cycles to consider their post-secondary options and future personal, professional and financial goals.
How Do I Shape My Future(s)?	During the Consult term, students in Advisory will translate their skills and experiences from school and TPZ to the workplace. They will consider how their personal, professional, and financial values impact their personal mission and will set and reflect upon SMART goals in the workplace.
What's Next for Me?	During the Fellowship experience, Fellows will make meaning of their work and credentialing opportunities and translate identity, skills, and values to create an actionable career plan.

WORK-BASED LEARNING EXPERIENCES

DIVE DEEPER: FOUNDATIONAL RESEARCH FOR WORK-BASED LEARNING EXPERIENCES

- Cahill, C. (2016). Making Work-Based Learning Work. Jobs for the Future.
- Holyoak, L. (2013). Are all internships beneficial learning experiences? An exploratory study. Education Training, 55(6), 573-583.
- Knouse, S., Tanner, J., & Harris, E. (1999). The relation of college internships, college performance, and subsequent job opportunity. Journal of Employment Counseling, 36(1), 35-43.
- Kobes, D., Cahill, C., & Hartung, K. (2018). Work-based learning framework. Center for Apprenticeship and Work-Based Learning. *Jobs for the Future*.
- Parton, B. (2017). Youth Apprenticeship in America Today: Connecting High School Students to Apprenticeship. Washington, D.C.:New America, Policy File.

TPZ believes that hands-on, experiential learning environments increase agency and engagement among students, resulting in development of transferable skills. Students who participate in a work-based learning (WBL) experience tend to find a job more quickly than peers and earn higher incomes in their career[106,94,61]. WBL may also play an important role in addressing inequities in career and economic success.

Data show that WBL programs are not equally accessible for young people in the US[61,86,45,42], with youth of color being less likely to participate in an internship program than their white peers and women being underrepresented in Registered Apprenticeship programs[42]. Applying the skills, mindsets, and assets cultivated in Eship, Advisory, and Deep Dives, every TPZ student is connected to WBL opportunities and uses these experiences to solidify their own feelings of self-efficacy and belonging. Relationships formed in WBL settings also serve as an essential foundation for students' social capital, often a difference-maker for young people entering the workforce and trying to overcome challenges and adversity that inevitably await them.

Students' initial WBL experience at TPZ is a consultancy project. These are WBL projects that offer more scaffolding and structure than a typical internship, with TPZ staff supervising cohorts of students to solve authentic problems for local businesses. Past consultancies have tasked students with conducting social media marketing research for the Black Inventors Hall of Fame and developing resources for a law firm's internal Diversity, Equity, and Inclusion webpage. During engagements like these, students build key skills and mindsets, while also having the opportunity to expand their networks, as they interact with professionals from various fields.

Following the consultancy projects, TPZ students have opportunities for external internship experiences, some provided by TPZ corporate/industry partners (e.g., Converse, Boston Medical Center, and Blue Cross Blue Shield) and others by Boston's Private Industry Council (PIC). Throughout these WBL experiences, TPZ continues to support students in Advisory as a space to develop and refine professional skills, unpack learning experiences, and transfer and apply their learning to post-secondary goals. Lastly, for students interested in additional opportunities to learn and earn, TPZ provides a post-secondary Fellowship that offers WBL in its in-house Enterprises as well as Advisory and career-readiness support (interviewing skills, G-suite facility, and others) to create a direct pathway into an in-demand career job that promotes economic mobility (more will be available in our WBL Research Brief).

WHAT

- Hands-on, real-world experience in work-place settings — both in-house and external — that will solidify students' self-efficacy and reinforce their feelings of belonging in professional settings
- Opportunity to apply and refine social and emotional skills/mindsets, develop new technical skills based on demands of the industry or work setting
- Acquire new skills and sets of industry-specific technical knowledge
- Strengthens students' resumé and portfolio of experience; expands students' professional network (i.e., social capital) in WBL settings (especially for external internships)

HOW

- Opportunities planned for TPZ's in-house enterprises, as well as with partner companies, entrepreneurs, and/or non-profit organizations (via consultancies)
- Expectation that all students engage in at least 2 external WBL experience; students may engage in more, as determined by advisor-student

WHEN

- Students engage in WBL opportunities after completing the Discover, Ideate, and Incubate phases of Eship, as well as STEAM Deep Dives during that time period (we hope students complete at least two Deep Dives).
- Students remain eligible for WBL opportunities through their senior year, at which time they may pursue entrance into our Post-Secondary Fellowship. This fellowship is a combination of work, advisory, and advanced training experience that is approximately 10 months in duration

POST-SECONDARY FELLOWSHIP

Though data show that students who persist in TPZ through senior year enroll in college at a rate substantially higher than peers (34%), nearly a quarter of students still do not enroll in traditional higher education within six years of graduation, potentially leaving them with limited career options. Yet, increasingly a traditional two or four year college option is not the only path to a good job. Several middle skill positions in IT/tech, healthcare, advanced manufacturing, business development / sales positions, and project management require sub-bachelor's training and/or a certification. Employers seek talent-pipeline partners to fill these positions, while diversifying and strengthening their workforce.

TPZ aspires to be a conduit of opportunity for our students and fill the needs of industry partners, all while supporting students to thrive and advance towards economic mobility. Our fellowship program offers a 10-month, intensive, and holistic career training program for TPZ students who are high school graduates and interested in pursuing in-demand careers in industries prominent in Boston. Examples of possible competencies learned through a Fellowship in a TPZ in-house enterprise include: Material Sourcing (B2B), Inventory Management, IT — Data Security, IT — Refurbishment/Diagnostics, IT — Support & Networking, Branding / Marketing, Sales, Customer Service, and Shipping & Logistics (more details will be in TPZ's WBL Business Content Competencies).

Fellowship Program Components

Earn & Learn

20hrs/week engaged in a work-based learning experience embedded in TPZ's enterprises (TPZE) or an external business

Credentials

Develop specialised expertise by earning industry recognized credentials

Career Success Support

Build skills for career success in cohort-based and 1:1 advisory support. Define desired career path, access opportunities, land preferred job

TPZ'S ECOSYSTEM MODEL

The opening of TPZ's new Innovation Center in Boston offers a tremendous opportunity to collaborate with a vibrant ecosystem that exists today across the city-at-large and within the neighborhoods surrounding our facility. This ecosystem represents a full spectrum of essential resources, including economic and workforce development programs; entrepreneurship and small businesses; food access, community health, and affordable housing agencies; educational systems; funders; and governmental organizations. TPZ envisions an ecosystem in which education, community, and commerce come together to strengthen career and education pathways for students, and ultimately improve economic mobility. Our process for cultivating this ecosystem includes three key strategies: 1) A hub to catalyze — our Innovation Center; 2) Partnerships for Scale, Support, and Opportunity; and 3) Community investment. These strategies will be detailed in our TPZ Ecosystem Model brief.

A hub to catalyze: Our new Innovation Center. We envision TPZ's new Innovation Center as a community hub and catalyst of creativity, innovation, and learning (see Figure 7: TPZ's new Innovation Center). This space was designed entirely for and around the needs of students, featuring lively design and collaboration spaces, a professional makerspace with state-of-the-art equipment, multi-media studios, offices for ecosystem partners, community meeting space, and quiet spaces for thinking and creation. The Innovation Center's design emphasizes the potential and successes of TPZ students, building on research that shows that surrounding youth with positive messages about their worth and potential can increase motivation, encourage exploration, and positively impact self-concept and self-efficacy[12]. The new Innovation Center also serves as TPZ's new headquarters, bringing together leadership, staff, operations, and programs under one roof, and leaving lots of room to grow. In our new space, TPZ will grow our enrollment to reach up to 1,000 students per year in the next five years.

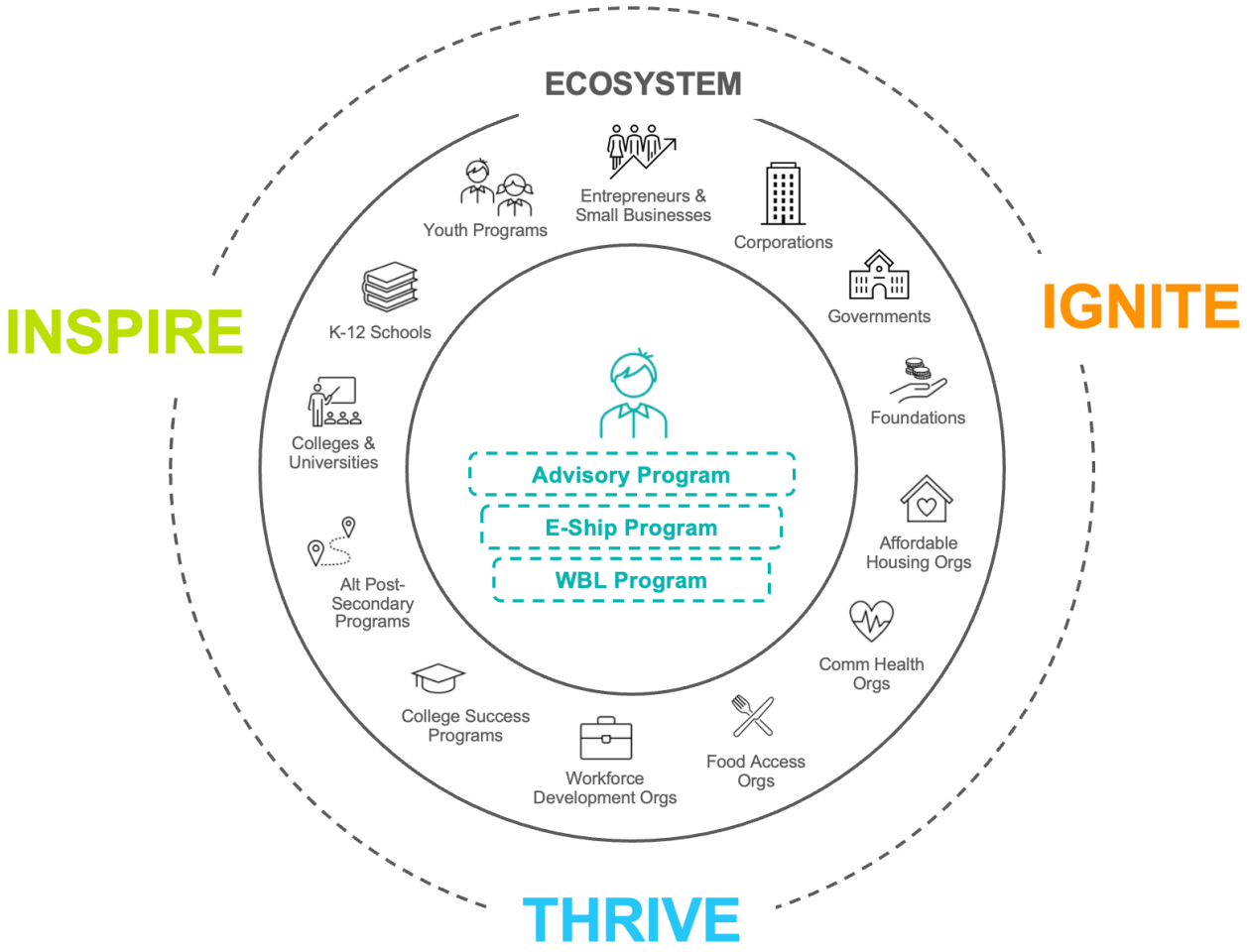

Figure 5. The Possible Zone Ecosystem

Partnerships for Scale, Support, and Opportunity. Though we believe our Innovation Center will be integral to the collaborative ecosystem to which we aspire, we know that our success will be determined — in large part — by our effectiveness with partnerships and with leveraging the already-existing assets of the community. As we prepare to move into our new facilities, TPZ will engage key collaborators in the Boston community, including the Mayor's office, BPS, local and national businesses, local high schools, colleges, complementary non-profits, small businesses, community leaders, and of course, students and parents. This web of collaboration and partnership will help TPZ establish and maintain organizational goals that advance our mission, and are mutually beneficial to the array of stakeholders in the community.

Through ecosystem partnerships, TPZ will scale-up the number of students we serve (e.g., recruitment through school partners and community organizations); connect students with wrap-around support (e.g., food access, community health organizations, tutoring services, and more); link students with WBL opportunities (e.g., internships and/or apprenticeships); and ensure students are supported during their transition from high school (and TPZ) to post-secondary life (e.g., colleges, job placement, college success partners...etc).

Community investment. In addition to the construction of our Innovation Center and the array of collaborations and partnerships that we plan to establish, TPZ is exploring the launch of a Local Venture Fund that would leverage insights from micro-finance and venture capital to support local business development. This fund could support the founding and development of local, minority-owned businesses by local entrepreneurs, and include availability of WBL opportunities (e.g., internships and/or apprenticeships) for students as part of the return-on-investment. Recipients of such funds may also have opportunities for co-location in TPZ's Innovation Center, and/or have access to other resources to support their venture (e.g., professional workshops, and other professional services).

The Impact We Seek

DIVE DEEPER: FOUNDATIONAL RESEARCH FOR THE IMPACT WE SEEK

- Chetty, R., Grusky, D., Hell, M., Hendren, N., Manduca, R., & Narang, J. (2017). The Fading American Dream: Trends in Absolute Income Mobility Since 1940. *Science*, 356(6336): 398-406.
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The COVID pandemic and resulting economic consequences have shined a brighter spotlight on social and economic inequities that have long been a troubling part of our national history (more will be available in our National Context Brief). These inequities represent the animating force that sparked TPZ's founding, and with our new ToC and program we reaffirm our commitment to advancing economic equity (see Appendix G. TPZ Mission & Vision Statement).

Research shows that *economic mobility — traditionally defined as the ability of individuals or groups to improve their economic standing*[98] — is a crucial mechanism for reducing economic inequity in the US[17]. In alignment with our mission — to *advance economic equity* — TPZ aspires to impact economic mobility, especially within communities that have disproportionately experienced a lack of mobility. Though we believe that our conceptual program model for social, emotional, and identity development could be effectively applied within a wide range of communities and contexts, we are targeting the launch of our new program model where there is a long and pervasive history of systemic inequity both locally and nationally — within under-resourced communities that are disproportionately made-up of communities of color.

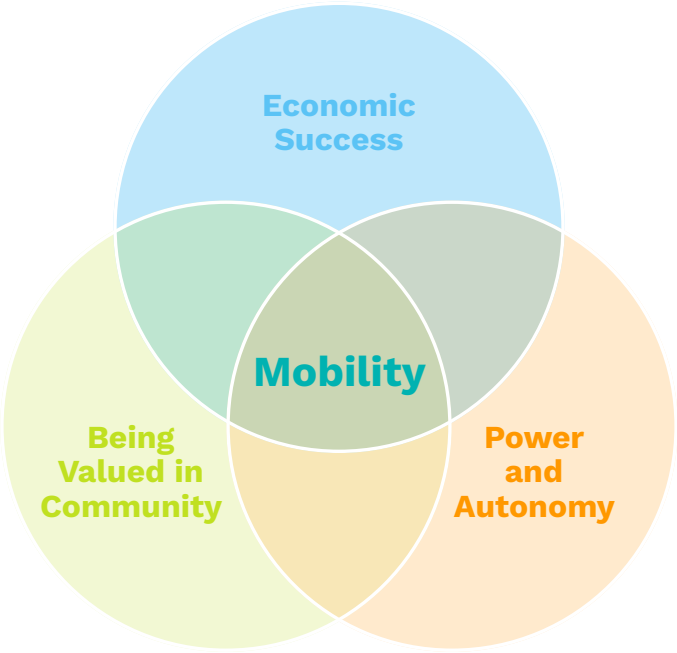
LONG-TERM OUTCOMES: IMPACTING & MEASURING ECONOMIC MOBILITY

Directly measuring economic mobility would require several decades of data, and even longer to measure intergenerational mobility — longer time scale than is available to a youth development program. TPZ aspires to measure impact on economic mobility using research-based leading indicators (e.g., on-time high school graduation and post-secondary degree/credential attainment). However, emerging research on measurement of economic mobility has emphasized the need for policymakers, researchers, philanthropists, and nonprofits to think about mobility through a broader lens — expanding from a traditional and narrowly financial view, to a more holistic framework that considers non-financial factors that both enable and sustain mobility.

TPZ has adopted a three-pronged framework identified by the *US Partnership on Mobility from Poverty* (US Partnership) for measuring upward economic mobility[2]. This framework identifies two additional dimensions along with economic success — 1) *power and autonomy* and 2) *being valued in community* — as essential factors that should be part of any effort to measure mobility.

TPZ chose to utilize the US Partnership's holistic framework for measuring mobility for at least three reasons:

1. Inclusion of 1) *power and autonomy* and 2) *being valued in community* as dimensions of mobility aligns with TPZ's beliefs about what promotes and sustains mobility, as demonstrated by our new program's emphasis on an array of highly related skills and mindsets (e.g., self-efficacy, growth mindset, belonging, and social capital).
2. The US Partnership framework is aligned with research on TPZ's animating problem: economic inequity. Research from *Opportunity Insights* indicates that meaningfully reducing economic inequity will require promoting mobility that is felt across generations[16,17]. The US Partnership framework reflects this reality by not only measuring change in financial standing, but also measuring factors that are essential for sustaining economic mobility long term.

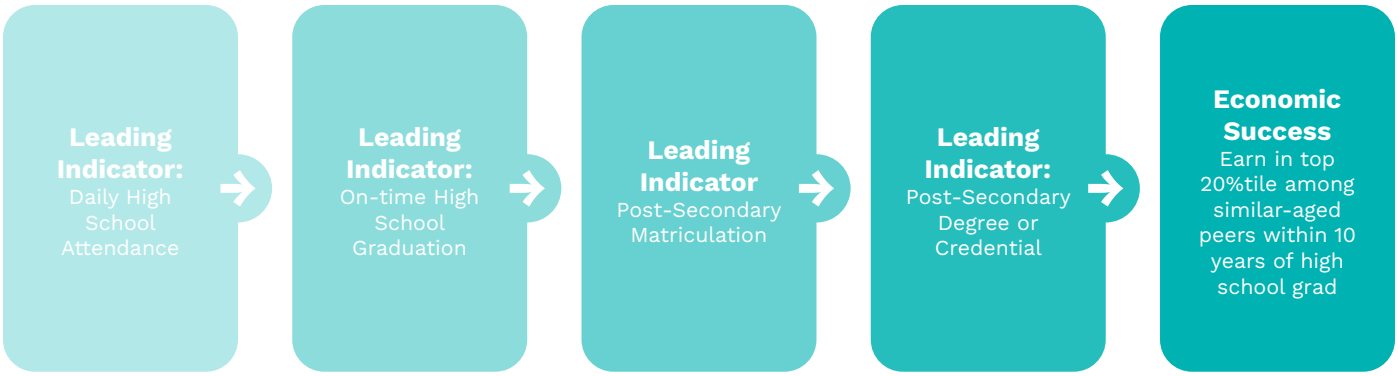


3. The three-pronged framework for measuring mobility also addresses a prominent piece of feedback received from various stakeholders during the ToC development process — that a long-term outcome focused solely on financial gain would fail to capture important social, emotional, and well-being benefits that would be felt by students and communities.

ECONOMIC SUCCESS

In order to measure impact on the financial dimension of mobility — as directly as possible and on a timescale that allows us to improve from data — TPZ's research team will utilize a "bottom-to-top" mobility metric that has been employed in recent years by leading economic researchers. This metric measures students' movement across income quintiles of similar-aged peers[16]. We aspire for TPZ students — who predominantly tend to be students of color living in under-resourced communities — to earn in the top quintile (i.e., top 20%) of similar-aged peers within 10 years of high school graduation.

Leading Indicators. To determine whether program implementation is likely to have long-term benefits to students, TPZ will utilize data on several leading indicators, factors shown by research to be linked with economic mobility, and of economic inequity more broadly. Specifically, post-secondary degree or credential attainment, post-secondary matriculation, on-time high school graduation, and daily school attendance will each be tracked as leading indicators of economic success (read more in our evaluation plan).



POWER AND AUTONOMY

As an indicator of upward mobility, the concepts of power and autonomy are linked in the US Parntership's framework in a manner that is reminiscent of language from TPZ's vision statement — we envision '**a world where young people shape their own future**'. As in the framework, we define **power** as "a person's ability to influence their environment, other people, and their own outcomes," and "**autonomy** is a person's ability to act according to their own decisions"[2,41,39]. Much research — such as that on self-determination theory and intrinsic motivation[6,36,101,97,63]— supports these two concepts as important and interconnected factors that are linked with mechanisms for achieving and sustaining economic mobility, including: greater feelings of happiness and life satisfaction, greater perseverance in the face of adversity, superior performance on cognitive tasks, better job performance, and even longer life expectancy. Put simply, research suggests that having power and autonomy makes it more likely that an individual will achieve economic success, more likely they will sustain economic success throughout their lives, and more likely that future generations will continue this positive trajectory.

Research identifies several constructs that greatly overlap with the concepts of power and autonomy, and for which there are reliable and valid measurements available, such that they can be used as indicators of this domain of mobility. Several of these constructs appear prominently as targets of instruction and program activities in TPZ's new theory of change and program — including agency, self-efficacy, and growth mindset — further highlighting the strong alignment between our new model and this framework for measuring mobility.

BEING VALUED IN COMMUNITY

Being valued in community is the third and final dimension of how TPZ conceptualizes and measures mobility. As described in the US Partnership framework and consistent with our own research, **being valued in community** is defined as *a person's sense that they belong and are included among family, friends, coworkers, neighbors, other communities, and society*[2,41,39].

This concept is closely related to at least two others that are central to TPZ's new ToC and program, social capital and belonging. Both of these related concepts are key levers for an array of important life factors and outcomes, including access to clean water and nutritious food, as well as safe living, learning, and working environments. Research also shows that social capital and feeling a sense of belonging in professional settings are crucial factors for achieving career and economic success, as well as for persisting through adversity and sustaining success long-term[2].

Just as being valued in community is linked to some of life's most essential needs (e.g., clean water, food, and safe living), it follows that the inverse would represent living conditions that may be characterized by intense and sustained stress and trauma. Given the consequences to learning and development that are linked with stress and trauma (read more about the role of stress and relationships on learning), it is clear how being valued in community is a key condition for optimizing learning and development. In fact, Developmental Systems Theory (DST) shows how being valued in community might enable mobility that extends across generations. The consequences of stress and trauma can be profound, potentially hampering an individual's ability to develop cognitively, socially, academically, and professionally. These consequences contribute to cycles of inequity that are directly oppressive to individuals living amidst stress and trauma, and can be felt by subsequent generations through the socio-economic, epigenetic, and ecological influences they exert[13].

Test, Improve, & Prove

Effectively using data to learn, improve, and grow is a hallmark of any successful company, and is especially important among nonprofits that perpetually strive for sustainability. Accordingly, rigorous program evaluation is one of several strategies TPZ has prioritized to support our efforts to achieve our mission. Led by our Research & Evaluation (R&E) team, TPZ has developed a five-year evaluation plan in order to achieve three crucial and overarching purposes: 1) *continuously improve to maximize benefits to impact;* 2) *test and communicate about our program and impact;* and 3) *emerge as local and national thought leaders* (read more in our Evaluation Plan).

TPZ's evaluation plan includes two phases, a *Formative phase* and *Summative phase*. Through both, TPZ will test key hypotheses and assumptions of our ToC, including those related to improvement in student outcomes and key programmatic levers for realizing impact. We will identify and document key program improvements that are made and we will be equipped with actionable findings from our summative phase. These actionable findings will inform additional improvements, as well as key learnings for how to extend TPZ's reach and impact.

More details about the Formative and Summative phases of TPZ's evaluation plan, including research questions and plans for reporting findings for each phase, can be found in TPZ's Five-year Evaluation Plan.

Formative Research Phase

- Program quality, process indicators, short-term outcomes, and leading indicators
- Drive continuous improvement
- Internal research team to execute
- Improvement science methods to maintain rigor
- Data & learnings shared with key stakeholders
- Measures and focus guided by ToC

Summative Research Phase

- Tests assumptions of ToC, mechanisms of impact, implications for scaling-up
- External Evaluator to execute, report annually
- Program evaluation best practices ensure rigor
- Focused on long-term outcomes, link with program quality, implementation, and short-term outcomes
- Continuous improvement work continues (led by internal team), as part of TPZ standard practice

MEASURES FOR FORMATIVE ASSESSMENT & SUMMATIVE RESEARCH

TPZ uses a range of measurement types for evaluation, including: surveys, observation protocols, staff focus groups, student interviews and focus groups, tech-based (meta) data, competency rubrics, and archival data from school partners and public databases (e.g., National Student Clearinghouse). Use of each type is described briefly, and more details — including evidence of reliability and validity — are available in TPZ's Five-year Evaluation Plan (see also Appendix I. Measurement targets, methods, & analysis for TPZ's ToC Evaluation).

I. Program Quality & Experience

SAYO-Y & Developmental Relationships (Surveys), exit tickets, & APT (Obs.)

- Supportive Social Environment
- Engagement in Learning
- Future Plans & Expectations
- Program Organization & Structure
- 5 Dimensions of Developmental Relationships

II. Learning & Development

SAYO-S, HSA, & Social Capital (Surveys), Rubrics, & Tech data

- SEL, Career-readiness, & Social Capital
- Eship & STEAM learning
- Tech/Meta-data as proxies (e.g., maker logos; discussion forum, etc.)

III. Outcomes & Impact

School data, BPS Senior survey, NSC, & Alumni survey

- Attendence, graduation, & plans
- College attendence, major, degree status
- Career path, income, network engagement, TPZ perception
- Alumni accomplishments, learnings, and stories
- "Power and autonomy" & "Being Valued in Community"

Survey Measures. Surveys will be used to assess several constructs, including SEL, the learning environment, social capital, students' identity development, students' relationships with adults, and their intentions/ plans after high school graduation. Survey measures collect data on elements of TPZ's Entrepreneurial Culture, as well as on outcomes (i.e., elements of TPZ's Entrepreneurial Spirit) and constructs that underpin those outcomes. Data on students' post-secondary plans will be obtained from the BPS Office of Data and Accountability (ODA), specifically from a survey already administered by the district to all BPS seniors annually.

SURVEY MEASURE	SCOPE	SCALES
Developmental Assets Survey (Search)	58-items 10 min	**External Assets**: Support, Empowerment, Boundaries & Expectations, Constructive Use of Time **Internal Assets**: Commitment to Learning, Positive Values, Social Competencies, Positive Identity **Contexts**: Personal Assets, Social Assets, Family Assets, School Assets, Community Assets
Developmental Relationships Survey (Search)	56-items 15 min	**Developmental Relationships (DevRel)**: Express care, Challenge growth, Provide support, Share power, and Expand possibilities **Social and Emotional Competencies (SEL)**: Self-Awareness, Self-Management, Relationship Skills, Responsible Decision-Making, and Social Awareness
Social Capital Assessment + Learning for Equity (SCALE) Survey (Search Institute)	45-items 10 min	**Social Capital (SC)** : Social Capital, Network Diversity, Network Strength **Mindsets and skills for SC**: Catalysts to Mobilize, Self-Initiated Social Capital, Networking Skills, Racial and Ethnic Identity, Sense of Purpose, Self-Efficacy for Reaching Life Goals **Support for SC**: Sense of Program/School Community, Psychological Safety, Volunteer Support, Seeking Volunteer Support, Seeking Teacher/Professor Support **Program outcomes**: Progress Towards Education or Career Goals, Commitment to Paying- it-Forward, Collective Efficacy to Change Systems, Occupational Identity, Job-Seeking Skills
SAYO-Y (NIOST)	60-items 10 min	**Supportive Environment**: Helps Youth Socially, Supportive Adults, Supportive Social Environment **Engagement in Activities & Learning**: Helps Youth Academically, Leadership & Responsibility Opportunities, Youth Enjoyment & Engagement, Youth Feel Challenged, Youth Choice & Autonomy **Youth Future Planning & Expectations**: Help with future planning, Expectations about the future, Actions to achieve goals, Adults talking with student about future

Observation Measure. The Assessment of Program Practices Tool (APT) is an observation protocol — developed by the National Institute on Out-of-School Time (NIOST) — that assesses quality of OST programming. As part of the BASB network, TPZ evaluation staff are trained as part of the Certified Observer Network – an in depth training opportunity designed to enable program partners to conduct their own program quality observations. BASB network organizations observe peer organizations on a quarterly basis and share

feedback about strengths and opportunities for improvement. The protocol measures: supportiveness of the learning environment, students' opportunities for engagement in learning and skill building, students' autonomy and leadership in programming, and programmatic organization and structure. Validation research produced strong evidence of test-retest reliability and construct validity (i.e., scale structure).

Focus Groups & Interviews. Focus groups and interviews will be used for a variety of purposes in our evaluation plan, in particular for planning and on-going continuous improvement. Front-end focus groups with TPZ staff and students have already informed development of TPZ's ToC and program, and will continue to do so. Focus groups will be conducted at least twice each year with students, to help gauge their satisfaction with program activities and identify opportunities to improve engagement. Interviews will also be conducted with students as they on-board and exit the program, to help us plan their TPZ path, and to understand their experience and find opportunities for improvement. Finally, staff focus groups will be conducted periodically to reflect on opportunities to improve practice. Focus group and interview protocols will be developed by TPZ's R&E and program teams, with input from expert advisors.

DATA USE & REPORTING

Formative evaluation efforts will answer questions about how implementation unfolds and how it can be continuously improved over time, in order to best achieve our intended outcomes. Formative data will be collected, analyzed, and shared with TPZ's internal teams multiple times throughout each year, via facilitated data reflection sessions, as well as larger, periodic continuous improvement retreats. Major learnings and themes from Formative research efforts will be shared through TPZ's annual Impact & Learning Report, the first of which will be shared in Q4 of 2022 and annually thereafter.

Summative evaluation efforts will answer questions about the theoretical underpinnings of TPZ's new ToC and program model, including the magnitude of intended outcomes realized and the mediating/moderating circumstances in which they were achieved. Findings from both formative and summative evaluation may be used broadly for knowledge building in the field (i.e., thought leadership). Data for summative research will be collected continually, with analysis and interpretation of these data primarily occurring TPZ's Annual Impact & Learning Report. The development of this report will be a collaborative process led by TPZ's R&E team, executed in collaboration with all departments and teams in the organization.

ACCOUNTABILITY FOR RIGOR THROUGH EXPERT ADVISORY

In addition to internal evaluation, and an external evaluation partnership during our Summative phase, TPZ plans to ensure research rigor and innovation by forming an expert Research Advisory Board. This group will convene at least twice annually to review progress, give feedback and input on key topics, and help plan/improve future evaluation efforts. The Research Advisory Board will review evaluation activities and data prior to each meeting and come prepared with feedback, questions, and/or ideas for how the quality, rigor, or usefulness of evaluation activities could be improved. The evaluation advisors will give specific input on any outstanding measurement development or validation questions/issues. Members of this group were chosen based on their expertise, as well as a desire to get a variety of research perspectives. The project's Evaluation Advisory Board will be composed of four members:

- **Laura Hamilton, Ph.D.**, General Manager of Research Centers at Education Testing Services (ETS). Dr. Hamilton brings nationally-recognized expertise with program evaluation and assessment (SEL and learning environments in particular). She previously served as director of RAND's Center for Social and Emotional Learning Research.
- **Kimberly Cassel, Ph.D.**, Director of Evidence-Based Policy at Arnold Ventures. Dr. Cassel is a leading expert in rigorous evaluation and applying research to improve the effectiveness of social policy. She has a long track-record of working at the intersection of research, practice, policy, and philanthropy, having been advisor to several policymakers and philanthropic funders.

- **Garrett Warfield, Ph.D.**, Chief Research Officer at Year Up. Dr. Warfield is a proven expert in using research, evaluation, and data science to help nonprofit organizations, businesses, schools, and government agencies maximize their efforts, work and to help the people they serve reach their goals. He led Year-up's research and evaluation efforts as they scaled from a local to national organization, and will bring those learnings and insights to TPZ as an important advisor.
- **Linda Dusenbury, Ph.D.**, Senior Research Scientist at CASEL. Dr. Dusenbury is a nationally recognized expert with 30+ years of experience with planning, supporting, and evaluating evidence-based strategies designed to create a safe and nurturing world for children and adolescents. She notably leads CASEL's Collaborating States Initiative, a multistate effort that supports 40+ states — serving more than 30 million K-12 students — in creating the conditions where SEL can thrive.

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NOTE: There are more references below than citations that appear in this document. This is because this document was informed by several literature reviews by our research team, and those reviews informed our thinking in substantive ways even when they cannot be traced back to specific points in this narrative. To acknowledge that, many of the prominent references from those reviews are included below, even if they are not cited in the narrative above.

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APPENDIX

APPENDIX A. THEORY OF CHANGE EVIDENCE REVIEW TOPICS

- Competency-Based Education and Gamification
- Culturally-Responsive and Trauma-Informed Teaching
- Design Thinking
- Ecosystems
- Entrepreneurship
- Job-Readiness
- Out-of-School Time (OST)
- Personalized Learning
- Project-Based Learning (PBL)
- Social-Emotional Learning (SEL)
- STEAM Self-Efficacy
- Work-Based Learning (WBL): Apprenticeships and Internships
- Identity development/Occupational Identity
- Social Capital
- Economic mobility

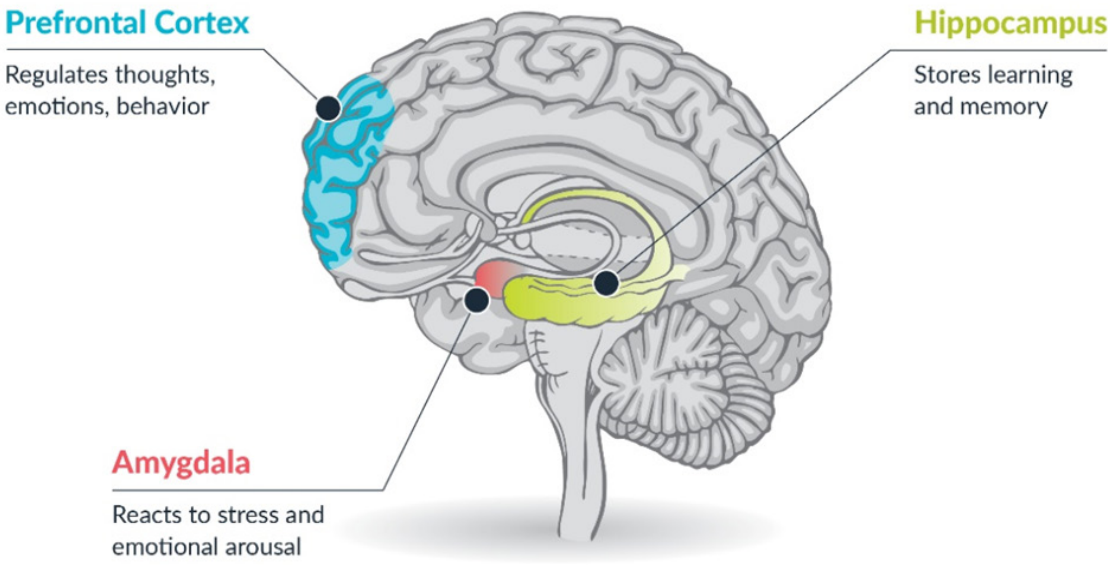
APPENDIX B. DEFINITIONS OF DIVERSITY, EQUITY AND INCLUSION:

Diversity: We appreciate, respect, and leverage our differences, and we involve and reflect the communities we serve.

Equity: We align our policies, practices, and resources so that people of all races, ethnicities, genders, gender identity, sexual orientation, age, social class, physical ability or attributes, religious affiliations or beliefs, national origin, and political associations have genuine opportunities to thrive.

Inclusion: Our inclusive work environment promotes and sustains a sense of belonging, where the inherent worth and dignity of all people are recognized. We value and practice respect for the talents, beliefs, backgrounds, and ways of living of all of our members, through acknowledgment, involvement, and empowerment.

APPENDIX C. THE LIMBIC SYSTEM AND DEVELOPMENTAL SYSTEMS THEORY



The prefrontal cortex, the amygdala, and the hippocampus — all part of the limbic system — each play integral and interconnected roles in human development and learning, and each are influenced by a complex interaction between biology, epigenetics, relationships, and our experiences/environments/contexts (Turnaround for Children, 2020; Cantor, et al., 2019; Osher et al., 2018).

APPENDIX D. EXAMPLES OF CULTURALLY-RESPONSIVE PRACTICE

- Curriculum and materials (e.g., materials/visuals are diverse, reflect our students' intersectionality; multisensory experiences: video, auditory, hands-on etc.)
- Program activities/structures (e.g., connections to students communities and cultures; engages social issues from a multicultural perspective; consistency and stability of learning environment; relationship-focused)
- Instructional practice (e.g., trauma-informed instruction; connects to students' values and explores social problems through multicultural lens)
- Innovation center (e.g., visual celebration of students' success, communities, and culture; accessibility of learning spaces; safety protocols and structures; presence of community — co-location)
- Partnerships, advisors, and volunteers (e.g., diverse & reflective of our students)
- Staff, volunteers, and stakeholders training (e.g., asset-based language; cultivating growth mindset and SEL skills; communicating high expectations).

APPENDIX E. TPZ'S UPDATED VISION & MISSION STATEMENTS

MISSION

To advance economic equity by ensuring young people develop the entrepreneurial spirit, skills, and networks to launch successful careers.

VISION

A world where young people shape their own future

APPENDIX F. MEASUREMENT TARGETS, METHODS, & ANALYSIS FOR TPZ'S TOC EVALUATION

Measurement Target	Method or Instrument	Analyses
Factors of effective implementation and practice	• Focus groups with staff and students • Developmental Relationships Survey	• Qualitative thematic analysis • Compare to benchmarks and goals
Program quality (e.g., supportive environment; engaging activities & learning; and youth future plans & expectations)	• Student survey (SAYO-Y)[17] • APT Observation protocol (independent observer)[19]	• Compare to benchmarks • Predictor on which student outcomes are regressed
Student retention and program path	• TPZ administrative data (e.g., enrollment and attendance)	• Compare to retention goals • Correlate with program quality, implementation factors
Student career readiness skills: communication, problem-solving, growth mindset, teamwork, resilience, and tech agency	• SEL Surveys: HSA[20], SAYO-Y[17], & SAYO-T[18] • SEL Competency rubrics† • Tech-based behavioral data††	• Descriptive examination of learning, compare to programmatic goals • Regressed on program factors, compared by program path
Social Capital Assessment and Learning for Equity Survey	• Search Institute's *Social Capital Assessment and Learning for Equity Survey*	• Correlate/regressed on program factors, compared by program path • Social Network Analysis
Eship learning objectives	• TPZ Eship Competency rubrics† • Eship milestone events (e.g., prototype development, investor pitch, and marketplace sales)	• Descriptive examination of learning, comparison to programmatic goals • Regressed on program factors, compared by program path
Student programmatic experience/satisfaction	• Exit ticket surveys • Student focus groups • Student exit interviews	• Descriptive analysis/reflection (e.g., Atlas protocol), compare to goals set by program team • Qualitative thematic analysis
Student post-secondary plans/intentions/actions	• Data from the BPS Office of Data and Accountability (ODA), survey on aspirations/plans administered to all BPS seniors annually; data of on-time high school graduation • Post-secondary training/education data from National Student Clearinghouse (NSC) • Alumni survey data on post-secondary path; career decisions; earnings, etc.	• Correlate with program path, program quality, and implementation factors • Descriptively compare with similar peers at school; potentially test against propensity-score matched peers[5]

† For both Eship and SEL learning objectives, the TPZ program and evaluation teams collaborated to develop competency rubrics, each with multiple reporting dimensions and 3-level learning progressions that describe performance that is emerging, developing, and proficient (rubrics available on request).

†† Refers to meta-data produced by programmatic technology systems, which may reflect useful proxies of student learning (e.g., frequency and/or duration of maker equipment use; problem-solving through interactive digital platforms).

APPENDIX G. TASK FORCE INDIVIDUAL COMPONENT FINDINGS SUMMARY

Component	What Worked	Chances to Improve
Entrepreneurship (Eship)	• Valuable chance for students to tap into their passions & personal identities. • Length and depth of the program helps foster deep, valued relationships w/adults and peers. • Increased STEAM engagement among students. • Good blend of structured and unstructured time, supports varied styles.	• More flexibility needed: e.g., program path, personalized support for learning/experience. • Align learning from Eship to the next experience (e.g., TPZE), connect to long-term outcomes. • Connect program progression to learning, rather than time or arbitrary attendance thresholds. • Greater family engagement is needed. • More robust volunteer training/onboarding
Enterprises (TPZE)	• Safe and support job experiences for students, with somewhat elevated stakes • Flexible income opportunities for students and alums • Continued increase in STEAM engagement (from Eship) • Began connecting learning to career-readiness outcomes (based on market audit) • Engaged students that did not connect with Eship	• Students can't on-ramp directly into TPZE, so some never get there. • Transition to TPZE from Eship can feel disjointed, not cohesive. • Most students only engage after school, limiting exposure to business operations. • Unclear how to balance business and educational roles of "students". • Primary role of TPZE unclear (e.g., job training, flexible income, student retention, TPZ revenue...etc).
Pathways (Advisory)	• Post-secondary guidance in senior year is valuable, early data on college matriculation encouraging. • Cohort model showed priming ability to foster relationships with staff & peers. • Played an important role in helping to monitor long-term outcomes (post-TPZ).	• Value could be bolstered if engaged earlier and more broadly, including guidance through high school and TPZ experience. • Closest component to ultimate outcomes, but lowest dosage; highest dosage in senior year after many students have dropped out. • Attempts at engaging before senior year not cohesive, felt like interruption. • Need to broaden Pathway's outcome focus, has been only on college access, no attention to college success or other outcomes. • Need structured way to engage/track alumni. • Would benefit from more robust data access (programmatic and from school).
STEAM*	• Successfully integrated STEAM learning into both Eship and TPZE experiences. • Preliminary data suggests students' comfort with and engagement with technology increased after hardware and software infusion, curriculum redesign to inject design thinking instruction. • Students really enjoy their STEAM experiences at TPZ! • Eship curriculum has strong overlap with Massachusetts state Engineering learning standards.	• Need more clarity on the role/prioritization of STEAM in TPZ. Is TPZ a "STEAM program"? • Additional staff and/or volunteer expertise needed in a range of STEAM topics to go deeper with students. • Build educators' tech-enabled learning capacity. • Further explore how we scaffold STEAM experiences for students with varied degrees of previous experience/exposure. • STEAM could be a more connective thread through the program, if we so choose. • Consider having "minimums" for STEAM experiences, given data emerging about the value of STEAM skills for jobs of the future.

APPENDIX H. SUMMARY OF TPZ KEY HISTORICAL LEARNINGS

After nearly a decade of operation, TPZ assembled a cross-functional Task Force to reflect on TPZ's work in three broad categories: 1) Recruitment, 2) Outputs and Outcomes, and 3) Pedagogy and Curriculum. Over the course of approximately 18 months, this task force collected and reviewed data of various kinds, including interviews and discussions with stakeholders (including staff and students), a review of historical data on student learning and program experiences, results from various pilots, a review of curriculum materials, and an audit of curriculum and learning targets.

Findings were shared with TPZ leadership and staff, and were influential to the development of TPZ's new ToC. A synthesis of the overarching themes identified are offered below, while a summary of themes for individual program components can be found in Appendix G: Task Force Individual Component Findings Summary. Additionally, a full summary of findings and processes can be found here.

Overarching Themes from TPZ Historical Review

- Students really enjoyed and connected with Entrepreneurship; it provided valuable opportunities to tap into and explore their passions and identities.
- Strong relationships were among the things most valued by students about their TPZ experience.
- TPZ would benefit from greater clarity about how we defined and measured success, how outcomes from different program components fit together and/or contributed to a long-term outcome, and shared understanding about who TPZ intended to serve.
- Overall, a clearer, holistic, and cohesive logic model and theory of change was needed, to provide a connective tissue for all program elements of TPZ; there was a sense that identity was potentially under-leveraged, and should be considered as a greater focus.
- There was a general sense that TPZ's ultimate goals extended beyond students' time at TPZ and high school, but we lacked mechanisms for supporting students beyond that time (e.g., post-secondary fellowship, alumni engagement program, and/or college/career success partners).
- More flexibility and personalization needed, which could include: more on-ramps and/or paths through program; weekend or online programming; and more experiential options to choose from.
- Advisory (Pathways) could play a bigger role by engaging with students from day-one in the program; could provide consistent connections/relationships for students, help with meaning-making of students' TPZ experience, and support personalized learning and navigation of program paths, while continuing to offer robust college and career advising and guidance.