FUGITIVE SPACES FOR CULTIVATING CREATIVITY:
A FRAMEWORK FOR VALUE-CENTERED LEARNING ENVIRONMENTS

by

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Submitted to the Program in Media Arts and Sciences, School of Architecture and Planning
in Partial Fulfillment of the Requirements for the Degree of

Master of Science in Media Technology
at the
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

September 2023

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Abstract
In today's world, there is a growing recognition of the importance of creativity and curiosity as essential 21st-century skills. Efforts to expand access to technology-mediated creative learning experiences have become widespread. However, oppressive structures in education systems hinder and stifle the participation of all young people in these opportunities for self-expression and agency, particularly Black youth who are negatively impacted by the pervasiveness of anti-Blackness.

This thesis proposes a framework for value-centered learning environments. Through the application of BlackCrit’s theory of anti-Blackness as a lens for analyzing experiences, the holistic design of these learning environments aims to cultivate a sense of fugitive space – purposefully constructed out-of-school spaces for practicing radical imagination. These spaces offer transformative creative learning experiences with computing, challenging anti-Blackness in education and embracing liberatory fantasy. The learning environment encompasses the tools and materials, physical space, pedagogy, and community culture. The core values – accountability, authenticity, awareness, and adaptability – are put into practice by: doing the work, showing up, checking in, and embodying change.

The exploration is conducted in the context of a local community-based grassroots organization, blackyard, that centers Black youth and their families by offering after-school programming. Through design-based approaches and critical inquiry, creative learning workshops, interviews, and immersion are employed to explore the values that underpin ways of being, knowing, and acting, fostering creative and playful learning experiences for Black youth. By centering Black youth and their communities, this thesis opens a dialogue, explores tensions, and encourages persistent dreaming about opportunities that center the humanity and dignity of the learner,
celebrate curiosity and imagination, and challenge oppressive narratives in education about who is worthy and capable of the rights to creativity and play.

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Aesthetic Inheritances

“This quilt [...] reminds me of who I am and where I have come from. Symbolically identifying a tradition of Black female artistry, it challenges the notion that creative Black women are rare exceptions, we are deeply passionately connected to Black women whose sense of aesthetics, whose commitment to ongoing creative work, inspires and sustains. We reclaim their history, call their names, state their particulars, to gather and remember, to share our inheritance.” (hooks, 2008, p. 161)

I first came across bell hooks’ book, Belonging: A Culture of Place (2008), last summer before many of the ideas for the topic of this thesis were developed. As a collection of essays about the search for home and the necessary considerations of the social and ethical contexts that allows and deters people from finding it, I was drawn to it in my own pursuit of home. It had been almost a year since I first moved to Cambridge, and it was my first summer in the area after enduring my first official Boston winter. I reveled in the way that hooks shared her own personal reckoning with the importance of connection to place and belonging, seeing so many parallels in her relationship to Kentucky and mine to North Carolina. As the ideas for my thesis began to take shape later in the fall, I was reminded of how the quest for the feelings of home mirror the feelings that many of us seek to create in a learning environment that fosters belonging for all learners. hooks lays out these feelings in an earlier piece about how Black women have cultivated homeplaces as sites of resistance and protection for themselves and their communities which also inspired this thesis (hooks, 1990).

Although not presented in an identical order, the chapter titles of this thesis (including this one) pay homage to a book and an author that had a transformative impact on my life as I actively explored the central themes of Belonging: A Culture of Place (2008) in my personal life while completing this work. You will notice that bell hooks’ work is referenced continuously throughout this thesis. Her book puts language to a lived experience in a way that I did not yet have the vocabulary to describe at the time. Because the book explores questions of belonging, community, and home, I saw it fitting to let the structure and organization of this thesis reflect the inspiration of putting theory into practice that hooks has been for me. Each major section of this thesis is named after a chapter in the book. Along with the title, each chapter begins with an excerpt from the corresponding book chapter that conveys the ideas and concepts that will be introduced in the thesis section.
Inspired Eccentricity

“There are family members you try to forget and ones that you always remember, that you can’t stop talking about. They may be dead — long gone — but their presence lingers and you have to share who they were and who they still are with the world. You want everyone to know them as you did; to love them as you did.” (hooks, 2008, p.135)

Dedication

The roots of this thesis are deeply personal. They stem from a story that started long before I had even heard of the MIT Media Lab or Lifelong Kindergarten but are all profoundly connected by an unbroken chain of kindred spirits and wonderful ideas. Whether you are an educator, a designer, a parent, a student, or all of the above it is my goal that this thesis encourages you to consider how your own experiences might allow you to bring a new and needed perspective to your work that allows you to uplift others and by extension those who come after you. We are not meant to see the harvest of all of the seeds that we plant, nevertheless we must plant anyway with the faith that one day they will grow.

My experience both working on this thesis and during this master’s program has been denoted by a series of affirming and serendipitous moments. These were moments in which I realized that there was indeed “a word for that”, for so many of the experiences that I had lived through but never had the language to name. Accustomed to spending so much of my time in academia learning words for “their” tools and technologies, I now recognize that there is immense power in having the ability to name your experience. Many times, we carry things in our bodies that our minds and tongues have not yet found the words to describe. It has been a historical intentional effort to deprive Black people and others with minoritized identities of the opportunity to receive education because all are aware of the transformative power of words and knowledge. You cannot challenge that which you do not identify. I once heard a speaker say something that stuck with me from the moment I heard it. “Our elders sent us to school to articulate what they already know to be true. They did not send us to learn what they didn’t know. They sent us to school to articulate their existence.” This thesis is dedicated to my late maternal grandmother and the village of people who have prayed for me and instilled the importance of receiving an education long before I had the presence of mind to value it myself.
Acknowledgements

To my parents, my sister, and my extended family, thank you for your continued love and unwavering support along every step of my life. Whether it was for graduations, basketball games, or piano recitals, thank you for always being in my cheering section. Your devotion and prayers continue to cover and carry me.

I want to express gratitude to my Lifelong Kindergarten family: a group of kindred spirits who have been a source of inspiration and encouragement throughout this process. For the big and small ways each of you have cared for and about me, thank you. I also want to express appreciation for my dear friends (and writing group), Thais Xisto, Ila Kumar, and Chelsi Cocking, as we embarked on the rollercoaster journey of completing our theses at the same time.

To Mitch, thank you for cultivating a space where people can not only embrace the parts of themselves that are often hidden away, but also be met with validation and kindness as they reconnect with their innermost self. Thank you for continuously encouraging me to follow the things that I am interested in and passionate about, and offering timely patience, reassurance, and understanding as I figured that out.

I want to thank my thesis readers, Dr. Aaliyah El-Amin and Dr. Karen Brennan, for their insight, guidance, and thoughtful attention. I am grateful that the universe afforded me the opportunity to learn from and with you both during courses in the first semester of my master’s program. I had little idea at the time how truly transformative those learning experiences would turn out to be. Many of those ideas found their home in this thesis and will continue to shape my work as I move forward.

The work that went into this thesis was one that many hearts, hands, and minds poured into. It is rare that through the act of completing an academic milestone like a thesis that you become so embedded in the organization that you work with. I not only gained another degree, I gained community. To everyone affiliated with blackyard thank you for allowing me to uplift your story. Thank you to Topper Carew for establishing the wonderful connection. Thank you to Ashley, Razan, and Normala for welcoming into the sacred space you all tirelessly work to cultivate. Thank you to the parents and families of blackyard for sharing with me and allowing me the opportunity to work with such a special group of young people.

To the young people of blackyard, continue to shine your light in the spaces that refuse to acknowledge how bright you are. Thank you for all of the laughs, growth, and sheer joy that was poured into and came out of our time together.
Chapter 1 – Introduction

Preface: To Know Where I’m Going

“Like many of my contemporaries I have yearned to find my place in this world, to have a sense of homecoming, a sense of being wedded to a place. Searching for a place to belong I make a list of what I will need to create firm ground. [...] walking I will establish my presence, as one who is claiming the earth, creating a sense of belonging, a culture of place.” (hooks, 2008, p. 2)

What would education look and feel like if it was designed to liberate and transform rather than constrain and control? How can centering those who are the least valued in our society inform the development of inclusive learning experiences that foster new avenues of creativity for all young people? These are the types of questions that have inspired my work with blackyard, a grassroots community organization dedicated to nurturing and serving those who society has deemed unworthy and incapable of dreaming: Black youth.

As I entered the train on an unseasonably chilly Wednesday afternoon in April, I noticed a sign I had never seen before pinned to the wall. It read, "When all the world's a classroom...". The image accompanying the text featured a young white child pointing excitedly at something in the distance with a look of wonder and awe in their eyes. Upon closer inspection, I realized the poster (see Figure 1) was an advertisement by the Massachusetts Department of Elementary and Secondary Education, promoting the idea that learning can happen anytime, anywhere.

Figure 1: Poster from the Massachusetts Department of Elementary and Secondary Education.
Continuing my typical commute, getting off the train and making my way through the neighborhood park to the repurposed garage where blackyard afterschool takes places, I couldn't help but reflect on the irony of the poster's message wondering, who gets access to these joyful and awe-inspiring experiences with learning? Who is denied them in the classroom? After all, I was on my way to blackyard, a space full of young people who, based on their own experiences in school, had not received the promise of education that the poster advertised. And they are not the only ones with this story.

As I turned onto the street, the familiar sound of laughter and chatter grew louder. Two young people greeted me with a warm "Hey Cecilé!" as they bounced on the trampoline in the driveway. Inside the garage, laptops were already open on the table, and other young people were eager to start their personal tech time. After five minutes of troubleshooting login issues and watching them play various online games, I gathered everyone and introduced our group activity for the day: using LEGO bricks to create a duck that would then be used to tell a story using OctoStudio, a mobile based application for making projects by taking photos, recording sounds, and bringing them to life with coding blocks.

At first, some of them were hesitant, unsure of what to do and worried about doing the activity wrong. It was evident that many of the young people had encountered contradictions in some of their previous learning experiences where they were told they were allowed to do one thing, but reality was different. Once they realized that the invitation to play and explore was authentic, the young people began to embrace a playful and creative spirit. Slowly shedding the heaviness that they carried in with them from the school day, they were discovering and discussing the possibilities that come with combining different materials with ideas.

Throughout our time together, I had observed how the uniqueness of the blackyard community rears its head not only through the physical interactions of the young people but, through the conversations that ensue amongst them. In this session while making their ducks, a small disagreement surfaced between two young people where one of them accused the other of stealing an idea and copying them. Rather than interrupting or denying the validity of either child’s feelings, a conversation arose posing the questions, “aren’t there enough ideas to go around? Where does the idea of copying come from? What is the difference between a copy and a remix?” Almost seamlessly, while continuing to work ardently on their ducks the young people shifted to thinking about the concept of copying and how it relates to creativity and ownership. This led to a thoughtful discussion about the value of sharing ideas and giving credit where it's due, importantly and directly acknowledging that many of these ideas are rooted in capitalism. As the first part of the activity drew to a close, each young person proudly shared their unique duck creations, complete with its own name and personality (see Figure 1). We celebrated their work with a round of applause before moving on to the next phase: using the iPads to bring their ducks to life using OctoStudio.

Watching the young people explore and create with such joy, enthusiasm, and curiosity reminded me of the power of blackyard as a learning environment that grants Black youth the freedom to exist in their full humanity. It is a reminder that learning looks different when young people feel held, seen, and valued. It does not have to be confined to a classroom for this to occur - for many
young people today, the traditional classroom is not the space where these experiences occur - what is essential is a solid foundation on which to design these learning environments around. With the right learning environment, we can open a world of possibilities for young people to discover, explore, and learn in ways that are joyful, playful, and empowering.

Figure 2: Ducks made out of LEGO bricks created during the session.
Opening

The importance of creativity and curiosity as essential 21st century skills is widely recognized today; however, many learners are not experiencing the freedom to express themselves that technology has the potential to offer. While some formative technology-mediated learning experiences do result in increased interest, agency, and self-efficacy, others occur in education settings that reinforce the oppressive systems of society. They result in learning experiences that stifle creativity and curiosity, thus perpetuating the marginalization of those furthest from educational justice (Brown & Brown, 2020; Love, 2019). The global influence of oppressive structural and ideological systems (e.g., anti-Blackness, xenophobia, heteropatriarchy, sexism, ableism) has resulted in cycles of harm on individuals and communities and is manifested in educational settings. In the United States, Black youth are one group that has been negatively impacted by these systems and deprived of the human right to creativity and play (Souto-Manning, 2017).

Efforts to expand access to creative learning experiences have spread globally in recent years (Resnick & Rusk, 2020). Around the world, increased digital connectivity has led to more opportunities for young people to learn about and with technology. Many of the driving forces behind initiatives for this proliferation have been focused on developing skills in young people to ensure future technological and scientific innovation, or economic and workforce development (Santo et al., 2019; Vogel et al., 2017). These motivations for broadening participation have led to the scaling of standardized curricula and extracurricular programs that seek to introduce computer science topics at the K-12 level.

Computational tools like Scratch have been developed with intentions to remove conceptual barriers to getting started programming; however, young people may not receive the full potential benefits of using these creative learning technologies if systemic barriers in educational settings, like those that disproportionately punish and discipline, are not simultaneously addressed (Coles & Powell, 2019). Frequently, these tools are introduced in learning environments and contexts that do not value and honor the humanity of the learners. For non-dominant youth and Black youth in particular, the misalignment of intended and perceived values can further reinforce the dominant narratives in education about who is deserving of opportunities to explore, experiment, tinker, and play.

Current approaches around equity in STEM and computing education focus on creating new activities for communities while neglecting to acknowledge the richness of the work that communities are already doing for themselves. Additionally, there is a gap in discussion of the importance of maintaining imagination and creativity explicitly when incorporating bell hooks’ (1994b) liberatory practice into computing education. This thesis aims to open dialogue, explore tensions, wrestle with realities, and encourage persistence in dreaming about what learning environments can and might be by centering a group who has historically been an afterthought: Black youth and their communities.

I apply design-based approaches to critical inquiry within the context of blackyard: a local Cambridge community-based organization that centers Black youth and Black families supporting them in the traditional and nontraditional education system by offering after-school
programming. Through the design, facilitation, and analysis of creative learning activities, cultural immersion, and semi-structured interviews, I introduce a conceptual framework for the design of value-centered learning environments as fugitive spaces for fostering radical imagination in Black youth. I seek to highlight the underlying values of a learning environment that promote ways of being, knowing, and acting that lead to playful, joyful, and empowering learning experiences.

Through the creative learning activities, I identified the learning environment as encompassing the tools and materials, physical space, pedagogy, and community culture. Through cultural immersion, I identified the core values of these value-centered learning environments as accountability, authenticity, awareness, and adaptability. I surfaced the four major components of the framework – doing the work, showing up, checking in, and embodying change – through interviews that explored blackyard as a Black-created and Black-led learning community dedicated to transformative healing for Black youth.

**Researching as a Black woman at MIT**

I acknowledge that no research is done in isolation or neutrality. For this reason, I will situate myself in relation to my thesis by exploring how my identity and positionality impact the research and the community I work with (Luttrell, 2010; McCorkel & Myers, 2003).

I am a Black woman graduate student researcher at the Massachusetts Institute of Technology (MIT). Like other Cambridge universities, MIT is an institution built on stolen land by a stolen people and continues to benefit from the removal and erasure of the communities in the surrounding areas. I feel a sense of responsibility to leverage my position as a researcher to serve others by elevating the stories of young people who look like me. The power that comes with my role as an MIT affiliate was one that remained top of mind in each interaction with blackyard. I recognize that relationships between local Cambridge communities, particularly communities of color, and the elite institutions in the surrounding area have historically been extractive and exploitative in their research approaches. Honoring and acknowledging that painful history has driven me to be intentional about the ways I engage. It is my desire for my work to uphold action through love and care. Each step of this thesis has necessarily involved input and insight from the community I have been welcomed into. The decision to partner with blackyard for my thesis is one that was made possible by relationship building first and that relationship and trust had to be honored and valued along each step of inquiry.

My affiliation with MIT has also led to nuances in experiences throughout the work. Although I was conducting research for academic purposes, that does not mean that I did not experience the everyday subtle yet direct tensions that come from being a Black body in the non-Black space that is MIT. The reality of the pervasiveness of anti-Blackness was further reinforced when I brought the young people to campus only to have them questioned and corrected about how they should behave. Because this work is focused on designing and cultivating learning environments that recognize and value the full humanity of Black youth, I think it is essential to acknowledge the importance of acting in ways that align with values that you claim to uphold as a researcher, organization, or institution.
In addition to my position as an academic, my personal identity makes me both an insider and outsider in the work. Firstly, the location of this research is in a community and city in which I did not grow up and do not have deep roots. I have an outsider’s perspective from my lack of direct experiences on the implications of the schools that the young people of blackyard attend and other implications for what it means to grow up Black in Cambridge, Massachusetts. Having attended K-12 schooling in the southern United States, I have my own experiences and encounters with anti-Blackness in education and understanding what it can do to Black youth but, I do not have a shared perspective of the additional layer of being in community impacted by displacement, segregation, and gentrification because of being surrounded by elite institutions. It was important for me to address this gap in knowledge by actively working to understand the context and the community dynamics of blackyard by listening, observing, and engaging with caregivers and young people outside of my traditional research activities.

As someone who recently moved to Cambridge and knew no one when I first arrived, I began as an outsider to the community. This tension was amplified by my connection to MIT. The relationship between research institutions and Black communities that have been displaced and ignored in Cambridge is one that is still being reckoned with today. On the surface, Cambridge appears to be a liberal place but has yet to reconcile its role in the structural and systemic racism it sustains. For instance, MIT’s founder, William Barton Rogers, possessed enslaved persons prior to founding MIT. Similarly, Harvard University used enslaved individuals for labor on campus. I am grateful for the introduction that was made through a person who had a trusted relationship with the Lifelong Kindergarten research group and was willing to invite me into community conversation; however, I remained aware that I must continue to demonstrate clear and honest intentions to ensure that my work did not inflict any harm.

Because I know what it is like to be in educational spaces that perpetuate oppression, I also know the freedom and joy that comes from engaging in creation in a learning environment that makes it psychologically and physically safe for you to do so. My racial and ethnic identity provided an insider’s perspective when engaging with the blackyard community. Practicing reflexivity, I draw upon critical race theory’s tenet surrounding the idea of the “voice of color” which states that because of our experiences with oppression, people of color can communicate matters with one another in ways that white people are unlikely to know (Delgado & Stefancic, 2001). This shared perspective has allowed me to better understand the stories and comprehend the barriers that Black youth encounter in having agency over their learning experiences.

This work intentionally distinguishes itself from typical research conducted between institutions like MIT and their surrounding communities. I consider it an act of fugitivity and refusal of traditional research practices in my field. Extractive and deficit-based research on Black communities and individuals with minoritized identities have demonstrated that the recognition and utilization of storytelling as part of scholarly inquiry does not automatically legitimize all stories in knowledge construction and disciplinary progress (Ladson-Billings, 1998). My work challenges and rejects this notion. I invite you to perceive this thesis as a narrative of possibilities and an exploration of one specific context among many engaged in designing and creating space for marginalized individuals. In Outlaw Culture: Resisting Representations (1994a), bell hooks describes research as an ethic of love that necessitates making room for silenced voices. Throughout history, those who have been pushed to the margins of society have persisted by
creating and dreaming. As emancipatory research, this thesis focuses on addressing significant societal issues to bring about improvement (Okeke & Van Wyk, 2015). My aspiration is that this work inspires you to think openly, dream differently, and act mindfully in solidarity with the voices in this exploration of joyful resistance and radical imagination.

A contradiction in values and beliefs

In critical research, shedding light on historical and social contexts is essential to critiquing and transforming dominant structures in society in the same way that understanding the connectedness of phenomena is crucial to changing them (Ókeke & Van Wyk, 2015). This work begins by exploring two compounding problems: (1) contradictions in beliefs about how learning occurs and (2) contradictions in beliefs about who is capable and deserving of opportunities to participate in creative learning experiences. These contradictions arose because prior approaches were not adequately rooted in addressing inequity and resulted in new problems. Moreover, the misalignment of values and beliefs regarding creative learning in environments where children learn about and with technology has led to deficit-based and damage-centered narratives about students with non-dominant identities. Without an examination of the systemic oppressions that are endemic in society these problems negatively impact those furthest from educational justice. To address these issues, this thesis will apply Michael Dumas and kihana miraya ross' theory of anti-Blackness, BlackCrit, to reimagining the design of learning environments by centering Black youth (Dumas & ross, 2016).

Beliefs about learning

At their core, most educational approaches to formal schooling for the masses have not significantly changed from their inception. Traditional learning settings were envisioned as places where young people acquire the knowledge necessary to work in factories and assembly lines. This led to education as we know it today where children attend school for eight hours a day, sitting in rows of desks, with a teacher standing at the front of the classroom lecturing about information from predetermined (and often outdated) curriculum. The underlying assumption is that students’ minds (and bodies) arrive at school empty, and it is the job of the teacher to pour information into their brains while managing their bodies. Teachers transmit instruction while students are expected to catch the information to regurgitate it on assessments that evaluate what they have learned. This cycle continues as they move on to the next topic. These narratives and perceptions of education reinforce capitalistic and hierarchical views through which polarizing labels are placed on learners and normalized, thus sending the message that students who do not conform to these framing are unworthy or incapable of learning (Dyke et al., 2018).

There are many problems with this instructionist style of learning or what Paulo Freire (2000) calls the banking model of education. “Any situation in which some individuals prevent others from engaging in the process of inquiry is one of violence” (Freire, 2000, p. 83). Not only is this method ineffective for the ways that we know people learn best but, it does not leave room for the role of curiosity, creativity, and exploration that makes learning meaningful and it is not driven by or concerned with the needs and interests of the learners. The instructionist style of learning creates an illusion of separation between the content, the learner, and their lived worlds. Constructionist approaches, developed as an alternative to instructionism, describe a style of learning where people build upon their currently held knowledge through the act of making
(Papert & Harel, 2002). It holds the belief that people learn best by doing and recognizes that all learners regardless of their age or background bring their own set of knowledge, lived experiences, and perspectives into a learning context that should be starting points for developing new knowledge.

Creative learning was developed out of constructionism to further theorize learning by designing. It stipulates that learning experiences should be designed to enable people to work on projects, inspired by their passions, in collaboration with peers, in a playful spirit (Resnick, 2017). These principles have been applied to develop various tools and technologies for young people to express themselves and learn through creating. The Scratch programming language and online community was developed to lower entry points and widen the pathways for people of all ages to get started coding by working on projects that are meaningful to them (Resnick & Silverman, 2005). Over the last 15 years Scratch has played a key role in expanding access to computer science education for many children all over the world. However, over time issues have emerged with its expansion. In some learning contexts, the tool is not always used in ways that embody the four P’s of creative learning – projects, passion, peers, and play. Although originally intended to be used as a tool to think with, in some places Scratch is introduced with instructionist approaches that have a narrow focus on teaching computer science (CS) concepts. This limiting view results in curricula and activities that steer away from creativity and diversity of thought thus souring perceptions of CS for many learners.

It is important to note that having creative tools present in a learning environment does not guarantee that the four Ps will actively support the psychological safety to experiment, explore, and fail necessary for the learning experiences to be fruitful. This becomes evident as we consider who is traditionally allowed and encouraged to play in classrooms. “[…] for many Black and other children from historically marginalized communities, play […] is not considered a necessary part of early childhood education and these children are often subjected to extreme restriction of movement and opportunities for play” (Nxumalo & Ross, 2019, p. 505). A contradiction arises when creative learning is not used with its original spirit and values. Black youth are often disciplined and punished even when play is being encouraged, producing a reality where creativity, as a human right, has been denied.

**Beliefs about the learner**

Pedagogy has been designed to connect with the lived experiences of non-dominant youth to address the need for learning materials that allow young people to see themselves and their identities reflected. However, changing the curricula is insufficient if the approach does not also address the beliefs, attitudes, and practices of educators that may exist in contrast to the curriculum content and physical environment. Other solutions have been explored by creating spaces in non-school settings for these experiences to occur. However, although well intended, many times these are designed lacking input from the communities and people they wish to serve, thus reinforcing deficit narratives. Without a willingness to first understand what communities are already having success doing for themselves, new spaces and programs are created that do not have the intended impact and reach. Communities should be looked to as incubators, innovators, and experts in knowing how and who to reach in their spaces and places. This is further complicated by a lack of understanding of the value Black-led spaces and a lack
of examination of the harmful experiences in school that created the need for these spaces in the first place.

Anti-Blackness is an antagonism to Blackness in which Black is a “despised thing-in-itself in opposition to all that is pure, human(e) and White” (Dumas & ross, 2016, p. 416). Stemming directly from chattel slavery in the United States which engrained a non-human image of Black bodies in the US imagination, it is different from White supremacy and is a step beyond racism. Anti-Blackness results in the dehumanization of Black bodies as objects and is evidenced through lived experience of social suffering and resistance. Because anti-Blackness is endemic in society, it is also endemic in education and shows up in the ways in which Black youth are hyper visible and invisible in learning spaces. Institutional policies and practices in education throughout history that are a product of anti-Blackness include anti-literacy laws, school (de)segregation, the perceived achievement gap, and school discipline. Anti-Blackness is sustained today through the prison-industrial complex and school-to-prison pipeline that result in the othering and often traumatization of Black students in classrooms. It also shows up in the limiting beliefs about what Black youth can do and who they can become. These deficit-based narratives about the capabilities of Black youth to engage in exploring, experimenting, tinkering, and playing create major obstacles to their full participation in creative learning experiences.
Moved by Mountains

“Mountaintop removal robs the earth of that dignity, it robs the folk who live in the cultural wasteland it creates of their self-esteem and divine glory. [...] the anguish it causes folk who must face daily the trauma of mountaintop removal; we who live away from this process are called to an empathy and solidarity that requires that we lend our resources, our spiritual strength, our progressive vision to challenge and change this suffering.” (hooks, 2008, p. 28)

Essential for one, beneficial for many

Current efforts to expand access to K-12 CS education have proliferated in recent years. While many of these efforts are well-intended, some continue to drive those furthest from educational opportunities away from the field by resulting in negative experiences and exposure. Computational tools have been developed to provide easier entry points for young people to get started programming. However, these tools have been intentionally designed to exist in learning environments where creative learning principles (the four P’s) are actively at play.

In this thesis, I aim to (1) examine the ways in which Black youth have been excluded from creative and playful educational opportunities to learn with and about technology, and (2) envision learning environments for engaging Black youth in these opportunities in a just and equitable manner. I will consider the ways in which fugitive spaces foster value-centered learning environments for technology-mediated learning experiences for Black youth. Importantly, these experiences adopt and apply creative learning and constructionist approaches. I develop a framework that informs how to design learning environments that cultivate creativity by centering one context and community serving Black youth. Although designed with a specific group in mind, the components of the framework will be widely applicable and beneficial to all learners, not just Black youth. The goal of the framework is not to be prescriptive of the ways in which learning environments should be designed but to offer a depiction of one example that informs the design environments that support radical imagination for others in the future.

Who benefits?

An equitable research process should contribute to and learn from the community it centers instead of being extractive. I do not aim to provide a single vision through an intervention, parachute workshop, or pilot study. Because the work is continual and sustained through relationships, this thesis is a snapshot of what it looks like to be actively engaged in the work of uplifting communities and amplifying stories through research. The inquiry process was organic and iterative, constantly changing and responding to the needs of the community to understand how an environment catalyzes and communicates a collective radical imagination grounded in values.
This thesis contributes to academic bodies of knowledge in learning theory and design, computing education, and Black education studies. In learning theory, it extends existing pedagogical approaches in constructionism and creative learning by advocating for the necessity of interrogating how the values that drive the traditional design of learning environments may negatively impact Black youth. The framework for value-centered learning environments is intended to be a resource for facilitators of experiences and learning designers to leverage as they seek to create environments that will be uplifting and meaningful for Black youth. It can also serve as the basis for the development of new initiatives to implement and study the framework in other contexts centering minoritized youth. An understanding and application of the conditions that cultivate value-centered liberatory practice at blackyard can help to provide the insight for these types of learning experiences to occur in other informal and formal learning environments (e.g., K-12 classrooms, post-secondary institutions, and professional workplaces). In computing education, leveraging critical research paradigms to explore alternative ways of thinking about how computing experiences might center joy and liberation exists in contrast to traditional post-positivist approaches to the field. Explicitly highlighting the stories of the blackyard learning community will contribute to discourse on movements around justice-oriented approaches in computing education and constructionism.

Additionally, this thesis advocates for the inclusion of Black experiences in design and education in ways that are asset-based and emancipatory in approach. It will convey the importance of supporting these types of informal learning environments and highlight the role they play in the lives of Black youth. The empowerment, joy, and in some cases healing that these spaces provide frequently goes unseen or unrecognized because of the communities they serve. My contributions draw from ideas around inclusive design and the curb-cut effect, which state that you will improve the experiences for all as a result of intentionally designing first for those who have been left at the margins (The Curb-Cut Effect (SSIR), 2017). This work focuses on Black youth specifically to encourage considerations about how the design of one context for learning can inform the design of others.

Thesis overview

Through an exploration of and engagement with the blackyard learning community, this thesis explores the following questions:

- How might we design learning environments that support Black youth in practicing radical imagination?
  - How can we be intentional about designing all aspects of the learning environment to support radical imagination?
  - What values ground a learning environment that supports radical imagination?
  - How do the values communicated by the design of the learning environment impact learning experiences?
  - How do the values communicated by the design of the learning environment impact the experiences of the Black youth and families they serve?

In this work, I delve into the exploration of how various elements of a learning environment - tools and materials, community culture, physical space, and pedagogy - communicate values of
accountability, authenticity, awareness, and adaptability. These values are essential for nurturing creative learning in out-of-school spaces, particularly for individuals who are marginalized. I begin by discussing the social and societal contexts that necessitate this work and then proceed to examine each component of the learning environment from a design perspective. Furthermore, I establish a framework for value-centered learning environments by identifying the values that underpin it and providing contextual examples for each value. By illustrating how these values are put into practice at blackyard, I demonstrate the practical application of the framework. Additionally, I explore the broader implications of this framework for creative learning and computing education, with a specific focus on its impact on Black youth. I conclude by reflecting on the findings and outline potential future directions for implementing the framework, particularly in relation to promoting inclusive learning experiences for individuals with minoritized identities.
Chapter 2 – Motivation and Background

A Place Where the Soul Can Rest

"A democratic meeting place, capable of containing folks from various walks of life, with diverse perspectives, the porch was free-floating space, anchored only by the porch swing [...]. A symbol of play, it captured the continued longing for childhood, holding us back in time, entrancing us, hypnotizing us with its back-and-forth motion. [...] As a revolutionary threshold between home and street, the porch as liminal space could also then be a place of anti-racist resistance." (hooks, 2008, p. 147)

New ways of thinking about old words

This section defines the key ideas used in this thesis and their significance. By situating the terms "fugitive" and "radical" as tools for empowerment and liberation, this thesis aims to explore how radical imagination and fugitive spaces might allow us to conceptualize and manifest creative learning environments that serve Black youth. These environments are rooted in values that challenge and disrupt anti-Blackness. The two definitions are interrelated and guide the development of a broader framework.

Fugitive space
This thesis draws on the idea of fugitive space to acknowledge that our current education system falls short in meeting the needs of all youth, and that a learning environment should serve as a place of refuge for learners with minoritized identities. One way to create environments that offer a sense of belonging and security for learners is by focusing on Black youth – youth who have historically been excluded from creative and playful learning opportunities due to the pervasive nature of oppression, namely anti-Blackness. Fugitive spaces, created in the margins by those who have been pushed to the margins, provide safety, comfort, wholeness, familiarity, fondness, and warmth for learners, serving as out-of-school places for dreaming and protection from anti-Blackness.

Fugitive spaces foster conditions for cultivating creativity by holding space for young people with non-dominant identities to engage in learning by doing. They support ideal conditions for designing creative learning experiences that help learners express themselves and make meaning of their own lives. These spaces honor and recognize that all learners bring their own set of knowledge and perspectives into a learning context. This alternative or prefigurative space for exploring identity, community, knowledge, care, and possibility is one that has been set into motion by other scholars. The lenses of (1) figured worlds, (2) microworlds, and (3) homeplace help to define fugitive spaces as purposefully constructed out-of-school spaces for practicing radical imagination.

Figured worlds are socially and culturally constructed realms that assign significance to certain acts and value particular outcomes over others, allowing people to formulate their identity and
agency through action and words (Holland, 1998). Children exhibit figured worlds particularly through play, manipulating everyday meanings of objects and spaces. Culturally figured worlds have their own markers, activities, and practices carried out by their collective of people and are shaped and reshaped by elements that are meaningful, relevant, and valued by those within them. Figured worlds are sensed through prolonged engagement and emerge over time as a social process. Individual and collective identities are formed as outcomes of being a part of figured worlds and their intersections. Researchers have conceptualized figured worlds in learning contexts such as education programs for children and families (Acosta & Duggins, 2018; Perez, 2020; Roque, 2020).

Microworlds arose out of a need to address the tensions that can occur in a constructionist learning experience where contradictions between previous and new knowledge surface. Microworlds are designed as a safe place for exploring. These “incubators of knowledge” allow (computational) ideas to serve as a tool for thinking about other phenomena (Papert, 1980, 120). They are intended to promote natural exploration of specific ways of thinking in a simplified, relevant, tinkerable, and accessible fashion. Microworlds, both digital and physical, have been designed and applied to learning environments in domains like mathematics, system science, and computer programming (Jenkins, 2010; Resnick, 1994; Tsur & Rusk, 2018).

Homeplace is conceptualized by feminist and scholar bell hooks, as being constructed as a site of resistance where people affirm each other while offering healing from the outside world in the process. Homeplace creates space for its inhabitants to turn away from societal messages that convey unbelonging and turn towards safety and comfort. These places where dignity and integrity of being are at the forefront, are typically curated, guided, and sustained by Black women. The homeplace hooks typifies exists within communities and families but is equally relevant in an education context. Having access to a private space free from oppression, subjugation, and aggression and sacred to those who understand the value of nurturing souls, allows Black youth to learn and exist in an environment that recognizes the fullness of their humanity (hooks, 1990).

These ideas are connected through their shared emphasis on creating alternative, empowering learning environments that challenge traditional models of education and center the needs and experiences of marginalized communities.

**Radical imagination**

Radical imagination is a term that has been used in social and political activism and education to describe the role of imagination in breaking away from the constraints of the status quo and envisioning new possibilities for the future (Robin D. G. Kelley, 2002). In this thesis, I explore what radical imagination looks and feels like in a learning context for Black youth, and why it is worth designing for. Radical imagination is typically considered to be a vague and abstract concept, but the goal is to make it concrete as embodied, explored, and manifested through unsuspecting environments and ecologies.

The Latin origins of the word radical mean rooted. This thesis connects with the notion of rootedness in two ways. First, problems that created the need for this work are systemic and deeply rooted (endemic) in society. Therefore, an approach to address them that achieves
sustainable and effective change should also be rooted. The second use of the word rooted focuses using values as a reference point to understand what lies at the root or foundation of learning environments that allow Black youth to thrive. Although typically looked down upon and cast as utopian or unrealistic, imagination can be practical, instrumental, grounded, and emancipatory. It is embodied and relational and requires that we honor the potential and power that it holds.

Theorists Haiven and Khasnabish, have explored radical imagination in the context of social movements. Their notion of the idea most closely aligns to how I perceive radical imagination in learning environments for this thesis. Appropriately, the context through which I explore radical imagination in learning is also directly connected to and exists within a social movement and Black liberation. Haiven et al. (2014) ask, how and where is the radical imagination manifest, and how can and do movements and communities nurture radical imagination in struggle? To explore these questions, they suggest two axioms that set the stage for their inquiry on social and political movements. I adapt their statements to fit my exploration of racial imagination. The adaptations are summarized in Table 1.

<table>
<thead>
<tr>
<th>Axiom 1</th>
<th>Adaptation</th>
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<tbody>
<tr>
<td>“[…] political life is not only the province of elites, parties, and formal institutions but belongs also to those of us outside the gilded halls who practice politics in a diversity of ways from prefigurative to contentious to insurrectionary and so much more. [...] politics is not something that only happens in authorized, hegemonic spaces but is woven through the fabric of our collective social life and can look like a parliamentary debate, a backroom deal orchestrated between elites, a riot, a revolution, or a grassroots experiment in radically democratic social planning.”</td>
<td>The most impactful learning is not something that only schools can provide through organized teachers and formal institutions but belongs to those in the margins who use their own perspectives and experiences to educate towards a more liberatory and just future. Education is not something that only happens in “authorized, hegemonic spaces but is woven through the fabric of our collective” community, interactions, and everyday lived experiences.</td>
</tr>
<tr>
<td>Axiom 2</td>
<td>Pedagogy, no matter how carefully constructed, is not enough in isolation to dispel, disrupt, and drive the drastic change in education that is necessary. We must interrogate the attitudes and beliefs that are deeply rooted as equally essential in thinking holistically about a learning environment.</td>
</tr>
<tr>
<td>“[…] grievances, no matter how deeply felt, are not enough to summon powerful social movements capable of driving social change into being. Acknowledging this is vital if we are to disabuse ourselves of the demobilizing and patronizing notion that movements emerge when the oppressed and exploited have ‘nothing left to lose’ or that they coalesce spontaneously when the time is right.”</td>
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In this thesis I conceptualize radical imagination by remixing the creative learning spiral (see Figure 2). Radical imagination is: the collective and cyclical process of envisioning the world for what it might become (dreaming), while recognizing the need for change with an awareness for what it currently is (describing), to engage in joyful work (creating). Not done in isolation, but through shared values, experiences, and ideas, radical imagination manifests through creating something else and creating it in community. Dreaming is fueled by telling stories of self, others, and community with a focus on speculation and possibility. Describing refers to the development
of critical consciousness by engaging in critical reflection, increasing critical efficacy, and pursuing critical action with the new knowledge. Creating connects to the constructionist spirit of learning that happens through the act of making. Necessarily, these pillars are supported and bookended by collective hope and celebration in communality with a set of shared values.

![Image: Creative Learning Spiral and Spiral of Radical Imagination]

**Figure 3:** (a) the creative learning spiral and (b) the spiral of radical imagination

**Emancipatory Learning Spaces for Black Youth**

When Black youth feel the need to conform to pre-determined norms and constraints imposed upon them, they are inhibited from engaging in imagination and creativity. For young people who have been traditionally furthest from educational justice (i.e., those negatively impacted by systems of power), the freedom to be playfully curious along with the confidence and safety to make mistakes can be transformative when offered in an environment that genuinely empowers them to do so. As learning humanizes the experiences of Black youth, creativity becomes emancipatory. This thesis will not be the first in research that seeks to “illustrate what is possible when early childhood research does not begin with the anti-Blackness that is pervasive in early childhood education” (Nxumalo, 2021, p. 1191). Inquiry will build upon prior bodies of work that have considered the design of learning environments to explore spaces for cultivating creativity that center Black youth.

The following review of literature will cover three main areas of research related to liberatory out-of-school spaces for Black youth to engage in creative technology-mediated learning experiences. In the first section anti-Blackness in traditional educational spaces will be addressed. In the second section there will be a discussion of how the concept of Third space and race has been explored to establish alternative spaces of learning for Black youth. The final section will focus on out-of-school spaces for cultivating creativity and interest in STEM for non-dominant youth.

*anti-Blackness in educational settings: theory and practice*

Prior work has explored how anti-Blackness is embedded into the US education system and the explicit and covert ways in which it impacts Black learners. With its roots in slavery, the lasting reach of anti-Blackness has been classified into three forms of assaults: interpersonal, curricular,
and environmental (Warren & Coles, 2020). These harms support the need for work that explores a holistic approach to the design of learning environments to address the often-conflicting messages communicated, ingrained, and internalized when there is a misalignment in values and beliefs about Black learners. In the US education context, many of these beliefs and perceptions stem from anti-Blackness.

Ross (2019) describes how anti-Blackness in education leaves Black students both hyper-visible and invisible in schools. They note the over-policing and discipline of Black youth as evidence of hypervisibility. Recognizing that there is no monolithic student of color, they address invisibility by pointing to the need for underscoring the specificity of Blackness while maintaining the uniqueness of individual experience. Other scholars have described and advocated for a theorization of Blackness in educational research and practice in English education and the American school curriculum (Brown & Brown, 2020; Mauldin & Johnson, 2021). This theorization has interrogated how education policy, school segregation, school discipline, and school suspension can be understood as systemic forms of violence facilitated and legitimized by anti-Blackness (Coles & Powell, 2020; Dumas, 2016; Dumas & Ross, 2016). In recent years discourse has moved into specific education and research fields. Jones et. al (2020, 2021) have conceptualized the role of anti-Blackness in computer science education. Their work offers justification for how computing education research should move beyond reform and emphasize more criticality in the pedagogical approaches in pursuit of abolitionist efforts. They focus on re-envisioning secondary and post-secondary education learning environments as the contexts of inquiry.

Dumas (2014) highlights the suffering and harm that is perpetuated by historical and current education policy through narratives from educators, leaders, and activists in Seattle, Washington. Through ethnographic interviews they surface themes that describe the cycle of suffering that marginalized students experience in school beginning when “students are told, despite evidence to the contrary, that participating in schooling is not suffering, but an opportunity to improve one’s life chances” (p. 8). This suffering is then compounded when Black students have experiences that contradict this notion and “as the group continues to suffer as a result of inequitable access to social and educational opportunities, that too is deemed not a legitimate form of suffering, but the inevitable and natural result of failure” (p. 8). Rather than leveraging the narratives to explore suffering in schools, my thesis will explore shared values in an out-of-school space that was intentionally sought after and created. Dumas’ work is inspired by the understanding and conviction that something had gone wrong that led to the current conditions that Black people were experiencing in educational settings. My thesis is the next step in this process that answers “what do we do now?”. After acknowledging and understanding the depths of suffering in schools, what can be and has been done to move towards the educational experiences that are hoped for.

Recognizing that reform is and has been a slow process, Ross (2019) highlights the importance of leveraging the “meantime in between time” to relieve Black suffering in schools and offer potential reparation by asking, “what kinds of educational environments might help Black students confront, navigate, refuse, and resist anti-Black violence and anti-Black racism in the larger society and in their schools?” The impact of this suffering has resulted in the perceived achievement or opportunity gap, which Ladson-Billings (2006) reidentifies as an educational
debt that has yet to be fulfilled. Emphasizing that reform of an anti-Black educational system is not the goal, Ross (2021) urges a move outside of the traditional forms of schooling in the direction of schooling in which Black students are taught by Black educators. This reimagining of a liberatory educational experience as a vision of educational justice for Black children pushes against standardized testing, punishment, and discipline to create space for content and curriculum that align with an authentic teaching of stories and connection of language to a lived experience and shared history.

Researchers have elevated the creative and innovative ways that Black people have used education as an opportunity to persist throughout time, pointing to periods of enslavement and the reparative and healing possibilities for the future of Black students. Focusing on radical hope, Grant (2020) considers the restorative possibilities of going beyond simple optimism to display humanity and uniqueness in the face of threats to freedom. They reference examples like the slave codes that made it illegal for Black people to gain literacy and the resulting Black Codes and Jim Crow segregation policies to concretize the structural nature of anti-Blackness. Consistent throughout those times, was a deep appreciation of humanity, a maintenance of existence, and a commitment to continue dreaming of better futures for Black people by Black people.

Love (2017) typifies the space of speculative vision with the Black ratchet imagination through an exploration of how Black queer youth form identity and spaces of agency. They leverage the word ratchet, a term with its roots in hip-hop and Black feminist culture, to drive their methodological approach of exploring the cultural practices of the community. The research typifies ratchetness, queerness, and Blackness in ways that humanize a group that is often marginalized because of the intersection of their identities. A key element of the Black ratchet imagination as a methodology is its inherent reflection of the creative capacities of Black youth in the stories it uplifts. In education, the embodied relationship between the intentional act of continuing to hope and pursuing the Black liberatory fantasy is similar to the embodied relationship in the Black liberation movement between the Black radical imagination and freedom dreaming (Robin D. G. Kelley, 2002). Freedom dreaming is defined as the "imaginative capacity to envision a world without domination and exploitation." Kelley argues that this liberatory fantasy is a powerful tool for inspiring radical political action and social change.

Scholars consider refusal to accept the status quo or stealing away to find safety from the reality of anti-Blackness as an act of fugitivity. Because formal learning environments are falling short of their promise, there is an opportunity for out-of-school spaces to fill the gap and provide this place for Black youth. This creation of an intermediate space for Black refusal draws from fugitive and abolitionist theories in education research. Fugitivity is inherently creative and requires collective imagining that inspires the action of abolition. The spaces that are created as a result are “markers of emancipatory existence” and are “centered in the funds of knowledge of the marginalized” (Coles et al., 2021, p. 106).

*Third space and race*

This thesis draws inspiration from scholars in various academic fields (environmental education, STEM education, and English education) who have conceptualized designing alternative spaces for Black youth to consider the ways of being, knowing, and acting needed to envision learning
environments that are fugitive spaces for cultivating creativity. The relationship between space and place has been studied to understand how education settings convey meaning and offer opportunities for creative expression and exploration in young people (Green & Turner, 2017).

Third space theory allows one to question the basic premise of the status quo by considering the area in between two or more contexts - in this case, space, place, and race (Jordan & Elsden-Clifton, 2014). In English education, scholars have explored how pedagogical Third space exists to blur lines between students’ lives and the classroom content (Kirkland, 2008). Within the context of this thesis, Third space reveals how racialized identity may be leveraged in conversation with space and place to suggest alternative possibilities that provide a pathway between the desired goals of true equity in educational systems and their current state. In an education system in which anti-Blackness is pervasive, Third space serves as a bridge of change between what has been and what can be. Scholars have applied this phenomenon in practice to physical spaces. Built on the founding idea of fugitive education spaces, these sites inspire possibility and encourage agency in the young people that occupy them (kihana miraya ross, 2020).

In response to anti-Blackness, Black educational spaces (BES) have been theorized by Warren and Coles (2020) as “physical location(s) in a school building or on a school campus [...] organized to facilitate black peoples’ well-being in an education institutional context that might otherwise be considered assaultive” (p. 383). Explored in the context of single-gender schools for Black boys, scholars argue that cultivating spaces that meet the needs of Black youth requires providing structures for the three dimensions of BES – facilitating self-determination, championing self-actualization, and encouraging self-efficacy (Warren & Coles, 2020). BES empower Black students with agency by intentionally considering how the space looks and feels. Other scholars have applied the three dimensions of Black educational spaces to conceptualize decolonized relational environmental education pedagogy using participatory methodologies (Moore, 2020). These dimensions connect to the values that form the basis of the framework for the design of learning environments in this thesis.

Nxumalo and ross (2019) analyze the ways in which dominant narratives in environmental education perpetuate anti-Blackness for young Black children by exploring tensions through the conflated impact of racial innocence, the afterlife of school segregation, and settler colonialism. Their work considers the possible realities of envisioning Black space that “resists both anti-Blackness and settler colonialism” through modes of speculative fiction storytelling (p. 507). They place an explicit focus on departure from exclusive and oppressive practices in environmental education to imagine a future in which Black educational fugitivity is manifested through the organization of Black space or “cadres” in which students and educators are aligned based on expertise and student interest. Nxumalo and ross also advocate for creativity and embodied play as essential parts of educational spaces that honor and uplift Black youth. In the current educational landscape, if encounters with technology are present as part of K-12 schooling for Black children, they are often positioned in terms of privileges that can be taken away or opportunities to consume content rather than as a creative tool.

Scholars have also explored the manifestation of bell hooks’ (1990) concept of homeplace in both out-of-school and in-school environments that offer refuge, security, and safety from the stifling of creativity and self-expression. Tanksley (2022) has examined homeplace in STEM as a
site of radical possibility for students of color. They studied academic homeplaces held by women educators of color that exist within oppressive spaces by understanding the programmatic features that foster resilience and how those educators leverage their identities and cultural funds of knowledge to sustain the learning environment despite the dominant narratives of STEM that exist in contrast to the goals of the counter-space. Additionally, Doucet and Kirkland (2021) studied Haitian clubs for high school students to understand how third space serves as a site of sanctuary, resistance, regulation, and protection of Blackness. They apply a longitudinal ethnographic approach to understand the relationship between the development of ethno-racial identity (ERI) and Black space. These spaces function as Third space where students “feel free to challenge, play with, and question complex ideas about themselves and their ERIs absent the distortions caused by the White gaze” (p. 618). Although their work focused on a space situated within a public high school, and my work is not connected to a formal school setting, this thesis builds upon Doucet and Kirkland’s work as they also apply BlackCrit to understand the success of Black space and its impacts on the young people it serves.

**STEM learning for Black youth in out-of-school settings**

Access to STEM learning experiences for racially minoritized children in the United States has been limited. Reforms and initiatives to address these discrepancies are frequently politicized to target urban schools with populations that serve predominantly students of color. Many institutionalized in-school approaches label youth as “at-risk” or “disenfranchised” and are deficit-based, reinforcing anti-Blackness and other dominant systems of power (Vakil & Ayers, 2019). There are, however, approaches to reimagine STEM learning in the context of race-specific visions of freedom and liberation that provide opportunities for Black youth to dispel the myth of lack and restore internal visions of their belonging.

Prior work has explored how learning environments might provide the space, material, and human resources for Black youth to learn about and with technology. Scholars recognize the potential for out-of-school settings to support empowering learning experiences by valuing and leveraging community in ways that formal schools may not be able to (Kafai & Burke, 2014). Madkins et al.(2020) advocate for a shift from a focus on access and achievement to social justice when considering how to infuse more equity in computer science education learning environments. They discuss culturally relevant pedagogy, culturally responsive computing, and culturally relevant to bring attention to the various ways in which equity may show up in pedagogical approaches. These three frameworks inform how to increase computational participation of minoritized students in STEM and computing spaces as well as the quality of the learning experiences that are offered. The authors emphasize that “using any equity pedagogy with fidelity requires teachers to simultaneously focus on learning and critical consciousness development [i.e., one’s familiarity with, recognition of, and desire to act upon inequities within sociohistorical and sociopolitical context]” (p. 4). Like creative learning approaches, my work calls for the need of an articulation and interrogation of values communicated towards and about youth who have been historically marginalized from these opportunities to fully thrive.

Computer Clubhouses were developed in the early 1990’s with the belief that solely providing periodic access to computers is insufficient for non-dominant youth, especially if those opportunities were focused on consumption rather than creation. The learning model of the Computer Clubhouse focuses on enabling youth members to express themselves with technology
by working on design projects around their interests in a supportive community of mentors and peers who are also doing the same (Resnick et al., 1998; Rusk et al., 2009). Today there are over 100 Computer Clubhouses in 20 countries. These clubhouses exist within community organizations like the Boys and Girl Clubs and Best Buy Teen Tech Center. They typically serve young people between the ages of 12 -18, offering free after-school programming that engages members in meaningful and relevant STEAM activities.

The clubhouse’s guiding principle of creating an environment of respect and trust is closely aligned with my work. It recognizes that the only way young people will truly follow their interests and develop the sought after technological fluency is if they feel psychologically safe to do so. This principle refers to the internal culture of the Clubhouse that is felt by the members and observed by visitors. Respect and trust are two elements that enable Clubhouse members to take risks without fear of punishment or judgment for failure. Respect refers to respect for materials and people while trust connects to the agency, safety, and time required for development of ideas. Although these values are stated as guiding principles of the Computer Clubhouse, there still exists an open question of how to feasibly create, support, and sustain that environment. My value-centered framework will expand on this fourth principle to make these abstract concepts more concrete and address the nuance of bringing creative learning opportunities to youth in out-of-school settings who may not be accustomed to receiving that level of freedom and choice.

Digital Youth Divas (DYD) is another example of a program designed to engage young people in computational making on interest-based open-ended projects. DYD focuses on providing equitable opportunities for middle-school girls of color (Black and Latina) to develop new perceptions around identity and new connections with computation and their personal lives (Pinkard et al., 2020). As a free program that focuses on sixth grade girls, DYD has been studied in support of the need for nurturing “computational perceptions alongside deepening knowledge and experience” particularly for young people who receive counter messages about their capability and belonging in computing (p. 358).

Like the Computer Clubhouse, learners in the DYD program work on self-paced personalized projects in an in-person community of peers and adult mentors. There is an intentional effort to offer examples of representation of role models that reflect the identities of the girls in the program. This is accomplished through an online social learning platform for sharing projects and interacting with others’ work as well as introducing projects through narrative stories that have characters with a diverse range of experiences and interests. Additionally, DYD leans on the support of home networks by connecting computational projects to the girls’ personal lives and providing resources and workshops for parents and caring adults to continue engaging the young people outside of the program. Erete et al. (2021) offer Digital Youth Divas as an example of transformative justice approaches to addressing inequities in participation for Black and Latina girls in STEM and computing informal learning spaces.

If implemented by other educators and designers, each of these contexts for supporting STEM learning have the potential to be fugitive spaces for cultivating creativity in Black youth. A key aspect of both programs is that they recognize the need to go beyond a simple revision of learning objectives and inclusion of content that is relevant to student experiences. They challenge and reframe the “underlying values, practices, and purpose of STEM disciplines”
(Vakil & Ayers, 2019, p. 456). This thesis seeks to name and describe these values that must be embedded in that learning environment.
Returning to the Wound

"[...] I believe that we can restore our hope in a world that transcends race by building communities where self-esteem comes not from feeling superior to any group but from one’s relationship [...] when we create beloved community environments that are anti-racist and inclusive [...] what matters is that should difference enter the world of beloved community, it can find a place of welcome, a place to belong." (hooks, 2008, p. 183)

This thesis takes a design-oriented approach to critical inquiry within the context of a local Cambridge community-based organization dedicated to nurturing and serving Black youth: blackyard learning community (blackyard). I explore the values that ground ways of being, knowing, and acting that foster creative and playful learning experiences. I work with an organization designed as a liberatory learning space to ask the question: how might we design learning environments that support Black youth in practicing radical imagination?

Through this exploration, I develop a framework for a holistic design of learning environments that centers those who have created fugitive spaces. These are spaces where Black youth are free to engage in transformative creative learning experiences that disrupt anti-Black narratives in education and embrace liberatory fantasy. The framework is focused on identifying the beliefs, attitudes, and perceptions that ground learning environments that enable value-centered approaches to creative learning. Methods explore the holistic design of the learning environment to understand what values are communicated, how they are communicated, and how they might manifest to support radical imagination.

To develop the framework, the first stage of the inquiry process involved designing and facilitating a creative learning workshop series with blackyard, after which I established a working definition of the components of the learning environment. This was followed by engaging in cultural immersion through active participatory observation, from which an initial set of values were developed and subsequently used to inform the design and facilitation of a second set of creative learning activities. My facilitation and reflection following each of the sessions illuminated how the values showed up in the learning environment. I conducted interviews with blackyard facilitators to search for themes that connected to these values and establish the framework.

This thesis models interdisciplinary research by leveraging BlackCrit as a theoretical lens to inform the design of learning environments that facilitate creative, playful, and empowering experiences with technology for Black youth. I apply an iterative design process that uplifts the stories of blackyard to inform a framework for designing and sustaining learning environments that cultivate radical imagination. By elevating the values that guide how learning takes place in spaces rooted in joy and liberation, I explore a new potential of learning for minoritized youth and re-envision a landscape for education that centers the humanity of the learners. Inquiry will elevate the beauty in resistance occurring within a community drawing upon the power of
counter-stories to challenge narratives about who is capable and worthy of creative learning experiences in a white supremacist society (Dumas & Ross, 2016; Williams et al., 2019).

Guided by theory

Informed by critical theoretical research paradigms, I highlight why understanding the knowledge, experience, and perspective of Black youth is essential to considering who we design learning environments for and who we design them with. I lean on Critical Race Theory (CRT) and Black critical theory (BlackCrit) to direct the work. My research approach aligns with the framings of BlackCrit and the tenets of critical race theory that challenge anti-Blackness by focusing on cultivating radical imagination and creativity in Black youth.

Critical Race Theory
CRT builds upon critical legal studies and radical feminism with aims to address the institutionalized forms of how the U.S. society organizes along racial lines. CRT speaks to the specificity of individuals and groups in the ideological and cultural contexts of race stating that racism is a permanent and embedded characteristic of American society. The basic tenets of CRT assert that race is a socially constructed concept serving to benefit the interests of white supremacy by creating a binary that others anything in opposition to whiteness. CRT challenges liberalism as a viable method to catalyze the social change necessary for addressing racial inequities, and critiques camouflaged multiculturalism that is colorblind or race neutral. Because oppressions are unique and intersectional, CRT also urges for the avoidance of essentialism and generalization about individuals and Black experiences, analogous to how each race and people have their own origins and history (Delgado & Stefancic, 2001). In research, this uniqueness of experiential knowledge is often shared through (counter)storytelling. Ladson-Billings (1998) conceptualized CRT in the context of education by describing how the historical permutations of race show up with new labels and language in the areas of curriculum, instruction, assessment, school funding, and desegregation.

Guided by CRT, my inquiry methods recognize the validity of voice and perception in shaping realities and making meaning of the world. This thesis aligns with the analytical standpoints of CRT to uphold anti-essentialism through avoiding generalizing experiences for the sake of scale. While the design of a framework will be representative of the value-centered approaches of blackyard, it offers implications for other learning environments that are not prescriptive but are useful in considering alternatives to what is already being done.

BlackCrit
This thesis is both informed by and focused on the standpoints presented by BlackCrit. BlackCrit was conceived as a subset of CRT as a theory that confronts anti-Blackness as a social construction and antagonism to Blackness. It highlights the ways that CRT relies on the Black experiences of racism without the specificity of Blackness to explain and explore “how Black bodies become marginalized, disregarded, and disdained, even in their highly visible place within celebratory discourses on race and diversity” (Dumas & Ross, 2016).

BlackCrit has three central framings. First, anti-Blackness is ordinary, endemic, and ubiquitous in society in a way that is fundamental to how we make sense of all aspects of life. The theorists
distinguish between racism against Black people and anti-Blackness in that anti-Blackness is a general antagonism to Blackness and refusal to recognize the humanity of Black people. They draw from the theory of Afro-pessimism that states that in the afterlife of slavery, Black bodies exist and have existed in U.S. social minds as objects and not subjects. The second framing posits that Blackness exists in opposition to the neoliberal-multicultural imagination. This framing is supported by the societal belief in a post-racial culture and meritocracy where all people have equal opportunity and access (to educational opportunities) because racism is no longer a barrier. In the multicultural imagination, Black people are in the material conditions that they are in because of their inability to work hard and their lack of determination. The third and final framing of BlackCrit proposes the embracing of a “Black liberatory fantasy” (Dumas & Ross, 2016). It refutes a revisionist history in the distortions, erasure, and omissions of stories of Black pain and suffering imposed by a white supremacist “master script”.

blackyard Learning Community

In 2018, after months of organizing in and around Cambridge Public Schools in support of the Black Student Union and the humanizing of Black youth in Cambridge, blackyard founder, OMITTED, decided enough is enough. blackyardLC was birthed from a desire to see Black youth treated with dignity and given a learning environment that sees and acknowledges them in the fullness of their humanity. It seeks to create an environment that visibilizes white supremacy and how it has manifested in schools, disposing of even the youngest of our Black children.
blackyard, sets out to cultivate a learning environment driven by accountability, where young people and those that support them are held in the fullness of their humanity through a commitment to self work, transformative justice, and humility. – blackyard website

blackyard Learning Community is a grassroots organization based in Cambridge, MA with the stated mission of honoring the brilliance and power of all Black young people, by cultivating a learning community, rooted in personal transformation and transforming power. It was founded as a co-op homeschool with a philosophy of de-schooling to “rethink what and how young people learn, and the pace at which they do it” by providing a healing and grounding educational space (Fisher, 2020). blackyard currently offers after-school programming twice a week to around eight (predominantly Black) youth between the ages of six and 13 years old. Embracing a village approach, the greater blackyard learning community includes young people, and their caregivers and families, and extends to the collection of people and organizations that support learning and organizing efforts that move local and global communities of Black people towards liberation. Families are centrally a part of the organizing structure and invited to engage in community through self-work and active participation in community gatherings.

The people and the places of blackyard
In the context of this work, blackyard serves as an example of a fugitive space that fosters conditions for cultivating creativity by holding space for Black youth to engage in learning by doing, rooted in joy and liberation. These places serve as homeplaces supporting learning experiences that allow young people to work on projects, inspired by their passions, in collaboration with peers, in a playful spirit while expressing themselves and making meaning of their own lives (Resnick, 2017). They also honor and recognize that all learners bring their own set of knowledge, lived experiences and perspectives into a learning context.
Inquiry and engagement with blackyard primarily took place in two locations: a repurposed garage in the backyard of the founder’s house, and at the MIT Media Lab in the Lifelong Kindergarten research group space.

“The garage” (see Figure 4) refers to the repurposed garage where the majority of blackyard afterschool programming is held. It is where the workshops and creative learning activities were facilitated. Inside the garage is a shelved wall full of games and materials (e.g., Apples to Apples, UNO cards, wooden blocks, etc.) that are available for the young people to use. The space also has a table that the young people gather around to have conversations and group circle time. There is a self-serve corner that has food and snacks that have been provided by the families for the young people to eat when they get hungry. There is a microwave and a mini refrigerator, both at a child’s height for easy access and agency. The garage has a pool table that was switched out for a foosball table halfway during the time spent there. Outside of the garage is a paved area with a basketball goal and a trampoline situated towards the end of the driveway. Next to the garage is an open grassy area commonly used for games or other organized activities.

![Garage Interior](image1)

![Wall of Activities](image2)

![Central Gathering Table](image3)

Figure 4: (a and b) Photos of the wall of activities inside blackyard garage. (c) the central gathering table at blackyard.

“The Lab” refers to the Lifelong Kindergarten research group space. Three of the creative learning workshops in both series took place here. The Lab has a large wooden table that serves as a communal place for the young people to gather around. There is also a large wall of LEGO bins and a television screen monitor to show slides and examples during the workshops.
The young people are in elementary or middle school with the youngest being six years old and the oldest being 13. English is the primary language spoken at blackyard. Families are located throughout the Cambridge, Massachusetts area. Many of the young people attend the same school, but some transitioned to different schools during our time. Throughout the duration of this work the group of young people at blackyard fluctuated. When we first began our time together in April 2022 there were nine young people. All identified as boys or gender non-conforming and all but one was Black. With the shift in the school year in September 2022, and again in February, 2023, two young people stopped coming to the afterschool programing, and six joined (four boys and two girls). Because there was a shift in the group in addition to other external changes happening that would impact blackyard, convenience sampling was used that included who was available (and interested) at the time of the workshops and activities. Cultural immersion with me as an active participant in the space included observation of any of the young people who were physically present at the time of observation. I invited blackyard facilitators to voluntarily participate in interviews via email and text.
Chapter 3 – Methods

Take Back the Night – Remake the Present

“Consequently, most Black people did not see themselves as victims with no power to choose the quality of their life. [...] Creating joy in the midst of adversity was an essential survival strategy. More often than not peace and happiness were found in the enjoyment of simplicity. [...] These simple pleasures created the context for contentment.” (hooks, 2008, p. 208)

Design-based critical inquiry

This thesis leverages ethnographic methods to explore blackyard as a learning environment that fosters radical imagination. The research approach pays special attention to lived experiences and focuses on the aspects of learning environments that are not only physically evident but also affective and imaginative. Research methods included one-on-one semi-structured interviews with blackyard leaders, creative learning workshops with the young people that introduced and incorporated technology-based tools for exploring computing and STEM, and cultural immersion into the learning community as an active participant.

Because the research question refers to both the concrete and abstract aspects of a learning environment, interviews and immersion provided a more complete picture of understanding how values were conveyed and expressed through conversation and everyday behavior. Immersion focused on embodied relationships with physical space and materials, while interviews leveraged language and stories to illuminate and validate values of the learning environment as a fugitive space. Furthermore, iteratively designing and facilitating workshops based on the emerging values enabled me to involve the entire learning community of blackyard as active participants in the inquiry. The director and lead educator of blackyard played a vital role in providing feedback on the design and assisting in facilitation of the learning activities in addition to providing suggestions and review of interview questions and analysis of responses.

The four parts of the design process occurred in the following order: creative learning series 1, cultural immersion, creative learning series 2, interviews. Each part of the design process built upon previous parts. After every phase, data (facilitation notes from series 1, observation notes from cultural immersion and the second series of creative learning activities, and interview transcripts and notes) were reviewed for insights that would contribute to the cumulative and iterative design of the framework. After the first series, facilitation notes were analyzed to garner an understanding about the various aspects of the learning environment. These components formed the observation lens for immersion at blackyard. I analyzed observation notes for stories and experiences that established the initial set of values. The values helped me to design the second series of activities and established the frame of reference for post-session debrief notes. Finally, these values were connected back to themes that emerged through analysis of the interviews.
Creative learning series 1
This research focused on finding ways to allow the young people of blackyard to experience radical imagination by considering how to design and facilitate creative learning experiences for an environment that already centered Black youth. Activities took place at blackyard’s after school programming space, and the MIT Media Lab. This setting distinction added a level of necessary nuance because I was able to explore how to cultivate value-centered learning experiences regardless of the physical location of the learning experience. It is also further substantiated by the connection between the learning environment and values. The values establish the foundational components of the learning environment and should be evident across different settings.

I designed the activities of the first workshop series, “Dreaming through Code”, with little knowledge about the blackyard community other than general demographics of the group. There was one initial visit to the garage to see the space and meet the young people and facilitators prior to beginning workshops. During that visit I noticed a chalkboard panel on which the youth developed community values were written (see Figure 5). The theme of dreaming that the series focused on arose from an initial conversation that I had with blackyard organizers about the interests of the group and their current area of focus as a community. I collaborated with other members of the MIT Media Lab to design the sessions and was assisted in co-facilitating some of the workshops with other members of the Lifelong Kindergarten group. The workshops were held in May and June. Due to summer travel and holidays, there was a two-week gap between the first and second session, but the subsequent sessions occurred once a week. To be cognizant of messages communicated to the young people and honor and respect the resources of blackyard, I chose not to take external materials taken to sessions that took place at the garage. All of the resources that we used during each of the workshop sessions were local to the location of the workshop.

Figure 6: Values written on a chalkboard in the blackyard garage. They read: listen w/ a calm body, patience, focus, kindness, sharing, sympathy, empathy, love.

“Dreaming through Code” was designed to introduce coding and creative learning through opportunities for computational making using digital tools. The four one-hour sessions engaged
young people in critical reflection, self-efficacy building, and critical action through workshop themes on community dreaming, role models and superheroes, dreaming about the future, and time travel 1. The final workshop was a showcase and backyard community gathering that included families to celebrate the work the young people had done in earlier sessions. A remix of the creative learning spiral (Resnick, 2017), each session was organized into four parts: describe, dream, create, and celebrate. This format was also motivated by the conceptualization of radical imagination. The first two workshops introduced the Scratch programming language and online community and the following two introduced OctoStudio, a creative coding app for mobile devices. The necessary technologies for using both tools (i.e., Google Chromebooks for Scratch, and Android tablets for OctoStudio) were provided by the backyard community.

To aid in explaining each of the parts (describe, dream, create, celebrate), I use the second workshop on role models and superheroes as an example for what they each looked like in practice. Describe began by introducing the workshop topic and inviting the young people to have a small group discussion about their initial thoughts on it. This typically occurred at a central gathering spot with everyone sitting around a table. For example, we began by asking “who is your favorite superhero” and “what makes someone a role model”. The conversations were informal and although they had a starting prompt to open the conversation, they were not bound by time or direction. The next part of the workshops, dream, involved a physical making activity that incorporated questions to generate ideas that connected the topic directly to backyard or to the young people’s personal lives. In this portion, the young people were invited to draw a picture of their role model or favorite superhero and to list all the things they had in common with them.

Create is where most of the activity time was spent. This was where the young people were invited to make a project based on the workshop topic. In the second session, the making prompt was to use Scratch to make a story, game, or animation about a superpower they wish they had and how they might use it to help people. During this time the young people explored bringing the ideas that they had considered individually or collectively into a digital form. Each workshop concluded with a celebration portion in which everyone was invited to share what they worked on during the session and talk about what they were proud of. This phase occurred in various forms throughout the series. Some were in the form of a group discussion where we went around the room to each person and the rest of the group gathered behind them to see their project. At the second session we stood in a circle in the concrete area outside of the garage and bounced a ball to one another to reflect what was being celebrated and what might be done in the future.

The outcome of this creative learning series informed the formulation of the components of the learning environment and understanding of radical imagination. It also set the stage for asking how the learning environment was value-centered to allow these creative experiences with technology to be empowering and joyful for Black youth in a way that is not necessarily always the case in other spaces and situations.

Cultural immersion
Immersion at backyard involved a period where I did not facilitate any activities. Instead, I spent general time in the space with the young people over games and conversation. Spending this time

1 See appendix A for complete workshop design and facilitation outline.
in the immersion was critical in establishing a strong relationship and building trust among backyard community members, young people, and families. The goal of the research was not to identify a set of specific steps or principles as a solution to a perceived problem but to establish a framework that is malleable and focused on the necessary components that would inform other people’s approaches. This distinction is similar to the way that Dumas and Ross (2016) conceptualize BlackCrit in the form of “framings” and not tenets. The offerings turn away from the fixedness of traditional research outcomes and instead “leave space for further scholarship and collective deliberation”. Therefore, rather than conducting interviews with the young people about directly their definition of radical imagination and how they interpret backyard as a value-centered learning environment that allowed them to engage in activities that fostered it, I chose to understand what radical imagination looked like in everyday practice.

Immersion in backyard over the span of five months (September through January) allowed me to focus on the role of relationship building in critical inquiry by contributing to and become a part of the learning community. Backyard holds afterschool programming twice a week on Mondays and Wednesdays. I attended once a week (typically on Wednesdays) and participated in whatever activity the young people were engaged in at the time. This included things like capoeira, African drumming circle, card games, and playing basketball. Epistemological perspectives of critical theory recognize that the researcher is not a third-party observer and should not assume objectivity in the research. Because backyard emphasizes the importance of community and trust, it was important for me to show up authentically in a way that signified my commitment and interest in the people. Relationship-building was integral to this thesis and set the groundwork for intentional observation and reflection. Documented observations involved the young people and facilitators during afterschool programming. The goal was to identify how interactions and dynamics within the community took place and how the various aspects of the learning environment impacted those interactions. This allowed me to establish a preliminary set of values to use in the development of the framework for supporting the practice of radical imagination. After each visit I spent time doing explicit note taking and documentation. Reflections and notes focused on things like:

- How and when do the young people interact with the physical space setup?
  - What materials are utilized and what is not?
- How do people interact in the learning environment?
  - What are the conversations that take place?
  - What are the norms and traditions?
  - What topics are addressed and how do they come up?

Spending time in the backyard community allowed me to develop an initial set of values that ground the learning environment. These were values that emerged from conversation, observation, and participation in the community and its activities.

*Creative learning series 2*

The second series of creative learning activities took place after identifying the different components of the learning environment in the first workshop series and formulating the initial set of values during my immersion at backyard. These cumulative experiences significantly and purposefully impacted both the activity design and facilitation approach the second time around. This series of activities were intended to promote the surfacing of the values of creative learning.
Having understood the values that were identified, the objective of the second series was to better understand how to design new learning opportunities that are grounded in those values and integrate new tools and technologies in the process that align and build upon them.

The second series also had four 45-minute sessions and was held in February and March. The goals of this series were to (1) leverage computational media as a tool to engage the young people in emancipatory creative learning experiences that embodied the initial values identified in the first part of the work, and (2) understand how they showed up in each part of the learning environment. Each activity was facilitated with only the young people once a week for four consecutive weeks. I use the word activity intentionally here because the feel of the second series was much more informal and aligned with the cultural norms of blackyard. I will elaborate on this distinction in my discussion of the framework for a value-centered learning environment. Two activities took place inside the blackyard garage; one used Scratch on the Google Chromebooks and the other used OctoStudio on iPads that I brought with me for the session that afternoon. The third activity took place at the neighborhood park, also using OctoStudio on iPads. The young people visited the MIT Media Lab for our final session.

Unlike “Dreaming through Code”, there was no specific structure for each of the sessions. Like documentation after each visit during cultural immersion, I documented facilitation notes immediately after each session. Notes were recorded using a combination of audio and written forms depending on convenience. They included my observations on the interactions of the young people, important ideas and situations that occurred during the activity, as well as my own reflections on what could be improved for future sessions. The plans for each of the activities were developed only after the previous one was completed and reflected upon. Often, the implementation of the activity did not look exactly as planned so my post-session reflections also included perspectives on the intended idea versus how the session actually went. In discussion of the framework, I will share how this shift in my process reflects how the values show up in the pedagogy of the learning environment.

*Interviews*

Semi-structured interviews were conducted as the final step of the iterative design of the framework for value-centered learning environments. They were used to further evolve the set of values that had emerged from observations during both creative learning series and cultural immersion. Facilitators of the blackyard learning community participated in 1:1 semi-structured interviews. Because a significant part of how I define the learning environment as experienced and conceptualized connects to factors external to singular creative learning experiences and after-school programming, it was essential to highlight voices of all contributing community members. Interviews provided a more complete experience of the learning community by unpacking individual perceptions of how blackyard serves as a space that uniquely facilitates engagement with radical imagination. Interviewees had the option of choosing to participate virtually or in-person. Interviews were approximately 45 minutes long and asked a total of 11 questions including:

- What first brought you to blackyard?
- What values are most important to you? How have you seen them show up in this space (if at all)?
• What impact has this community had on you?
• How have you found this community to be similar or different to other learning spaces?
Chapter 4 – Results

Earthbound: On Solid Ground

"We create and sustain environments where we can come back to ourselves, where we can return home, stand on solid ground, and be a true witness." (hooks, 2008, p. 120)

Principles as the goal

Constructionist learning theory posits that people learn by actively constructing knowledge and meaning through hands-on experiences, creating things that are personally meaningful to themselves or the communities they care about. Seymour Papert believed that people learn best when supported to create things in the real world, as opposed to consuming information delivered from a perceived singular source of knowledge. Overall, constructionism emphasizes hands-on, experiential learning and encourages learners to be creative, collaborative, self-directed, reflective, and engaged in real-world problem-solving.

Creative learning is an approach derived from constructionism that states people learn best while working on projects, inspired by their passions, in collaboration with peers, in a playful spirit. The learning process is guided by the creative learning spiral where learners “imagine what they want to do, create a project based on their ideas, play with their creations, share their ideas and creations with others, reflect on their experiences – all of which leads them to imagine new ideas and new projects” (see Figure 4) (Resnick, 2007, p. 1). Creative learning involves the freedom and curiosity of self-expression to learn new things and is driven by making things based on the interests of the learners.

The principles of creative learning – the 4P’s - establish a frame of reference for what it means to apply creative learning in practice (see Figure 5). However, the way these principles have been implemented and facilitated in various contexts has led to outcomes that do not align with the original intentions and values of creative learning. This thesis seeks to be explicit about the design of learning environments that allow these principles to cultivate the conditions for creativity to thrive. My goal is to not suggest that the creative learning principles be abandoned, but to acknowledge that all implementations of creative learning are not meeting their fullest potential for the young people who could benefit from it the most: those who have been pushed to the margins in society. The values offered in the framework support the existing principles of creative learning. The design of the framework for value-centered learning environments will come from naming, identifying, and elevating what works for the blackyard learning community.

Values as the foundation

I aim to highlight the nuances between principles and values, and to point to the importance of values in disrupting and dismantling anti-Blackness in education. Values may be viewed as foundational starting points, rather than standards to be measured against. Values are highly
dependent on the context and situation, and the people that occupy them. In learning environments, values manifest as an atmosphere of belonging, and for that reason are not something to be easily assessed.

The framing of values has been misused in ways that often perpetuate anti-Blackness and reinforce harmful societal norms or capitalistic corporate agendas at the expense of marginalized groups. Often camouflaged as character education, this misuse of values results in the “educational survival complex” for Black youth (Love, 2019). While seemingly positive on the surface, values like grit, resilience, and excellence are rooted in white supremacy, highly individualistic, and focus on maintaining the status quo by telling students that they need to overcome their perceived disadvantages as opposed to encouraging them to critique and disrupt the systems of injustice that they face. Rather than aiming to achieve or measure against values of the individual, I focus on acknowledging and cultivating values in every aspect of the learning environment that recognize, honor, and empower those who have been othered.

The implicit beliefs about who is capable of creativity and worthy of learning represent the values of a learning environment. Values are the catalyst that allows us to answer the question: what does a learning environment feel like? More specifically, what does a learning environment feel like to those who have been placed in the margins? Understanding the values of creative learning helps to make clear and achieve the why of creative learning, which ultimately aims to offer experiences with learning that are joyful and empowering based on the belief that all young people, regardless of their age, race, or background, deserve the right to express themselves and develop their creativity and curiosity.

In considering learning environments that foster creativity for individuals historically impacted by oppressive systems, it is crucial to return to the fundamental reasons behind creative learning. Such an approach necessitates a holistic examination of the practices, content, activities, mindsets, and pedagogy at play within these environments. As such, BlackCrit encompasses not only pedagogical aspects but also ontological and epistemological dimensions, emphasizing the need for a comprehensive examination of the problem. It is not uncommon to encounter situations where values rooted in anti-Blackness contradict the purported use of culturally relevant approaches. For instance, an educator may incorporate names and stories that resonate with their Black learners, such as those related to hair-braiding or dance. However, it is essential to recognize that these experiences can still be rooted in deficit-based ideas about the learners, perpetuating the notion that they need to be controlled, managed, and disciplined. These underlying values directly relate to anti-Blackness and can manifest as structural and systemic factors within educational systems.

Designing a learning environment requires interrogating the underlying values that shape the environment. Values are what remains when the lesson plan fails, and they are often overlooked when new technologies are introduced into a learning context. In the subsequent section, I begin my description of the iterative design process with blackyard by defining the learning environment through the first creative learning workshop series.

A holistic learning environment
From May 2022 – June 2022 I, along with the help of other people in the MIT Media Lab and Lifelong Kindergarten, designed and facilitated a workshop series entitled “Dreaming through Code”. Dreaming through Code was an opportunity to get to know the blackyard community and generate ideas about how to carry this work forward in a way that would be meaningful and mutual for those involved. The workshops introduced important questions about the role of psychological safety, agency, and values that are at stake in learning environments especially with Black youth. There was an opportunity to consider how to think deeply about creating spaces for more of this to occur. As the first stage of inquiry, many of the ideas that came out of Dreaming through Code laid the foundation for the motivations of this thesis in seeking to understand a more holistic design of learning environments.

In exploring the research question, how might we design learning environments that cultivate radical imagination for Black youth, it is important to first clarify what is meant by a learning environment. After Dreaming through Code, I identified the four components of any learning environment: tools and materials, physical space, pedagogy, and community culture. Each of these individual parts will be defined and personified through stories of experiences and situations that occurred during Dreaming through Code. Dreaming through Code demonstrated that, as learning environments, fugitive spaces can be cultivated in both a garage and a research lab.

**Tools and materials**

The first component of the learning environment is the tools and materials. Tools and materials refer to the digital and physical resources that are available (e.g., craft material, Play-Doh, technological devices, etc.). In a learning environment there should be options in materials that support both a diversity of thought and diversity of interest. The design of the technologies, tools and materials considers how learners perceive, use, and refer to them. Additionally, the design of tools and materials should rightfully question and acknowledge the sources from which they came (e.g., where does ownership lie).

In the context of the learning environment for Dreaming through Code, the tools and materials included the technology devices used during the creative learning activities: Google Chromebooks, Android tablets, and iPhones. All the tools and materials available at blackyard came from sources within the community. Examples included: lawn chairs and outdoor folding chairs used as seating, two main tables of various heights that had been repurposed for making, a large trunk filled with snacks provided by families for children to easily access whenever they were hungry, and a wall of shelves housing a collection of community sourced games, workbooks, and other learning materials and activities. The Chromebooks used during Dreaming through Code had also been gifted to blackyard by a grandfather of one of the young people. In blackyard, there is an explicit intentionality in recognizing and communicating to the young people the message that *everything we need, we have within our community.*

Creative learning using technology describes an idea of “hard fun” but there is a fine line between the productive struggle that arises from solving a problem and the struggle that can be felt from tools and materials that get in the way of getting started (Papert, 1980). For example, during the Dreaming through Code workshops that utilized Scratch, the initial setup of the computers to begin the activity (i.e., logging in to the device, connecting to Wi-Fi, battery power) caused one student to miss out and become discouraged about the activity altogether. In
the digital age that we currently live in, young people have grown up alongside technology and devices. Many of them know how to use touch screens from a very young age (Haddon & Vincent, 2015; Lin, 2019; Radesky et al., 2020). In parallel with the use of these devices is the view of them and their purpose. Seymour Papert advocated for the need of young people to view the computer as a tool to learn with (Papert, 1993). Creative learning places technology and programming as a tool to create with, making it analogous to using a pen to write with (Resnick, 2017). Technological tools and materials should facilitate tinkering with ideas in a low stake, high reward environment.

A comparison of the third and fourth Dreaming through Code workshops demonstrates the vital yet nuanced role that the tools and materials play in shaping a learning environment. The planned theme for the fourth session was to invite the young people to use the OctoStudio app to make projects about what they might put in a time capsule that would represent an important piece of them and represent who they want to be in the future. As the final session of the workshop series, the workshop was held at the MIT Media Lab and families were also present. The young people had already been introduced to OctoStudio during their third session that was also held at the Lab and there was a clear interest in using OctoStudio and focus on making projects that were playful, social, and exploratory. However, the differing perceptions of the technology created vastly different experiences. The major difference between these two sessions was the devices that were used.

The third session used Android tablets that were given to the young people at the end of the session as gifts, whereas the fourth session used iPhones that we already had at the Lab for workshops and visitors. Most of the young people of blackyard are of elementary age which means that few (if any) of them have access to their own personal mobile phones. Most of them do, however, do have access to or regular experience with tablets. This difference in perception manifested in the contrasting ways that the devices were used during the sessions. In the fourth session, the young people were very excited to be handed a mobile phone and after a short time using OctoStudio realized that there were other apps on the phone that they could use. Many of them began using the external Camera app to take photos, and some tried to use the Maps and Facetime application. When planning the workshop as facilitators, we focused on how the young people would perceive OctoStudio. Until this happened, we had not considered how young people would perceive the device that OctoStudio was on. For younger children, tablets are more often associated with learning or entertainment whereas mobile phones are typically used for communication by older youth and adults. Therefore, their reactions and behavior during the session was not because they were misbehaving, disinterested, or distracted; it was simply a demonstration of how much the choice of tools and materials used in a learning environment matters in the context of the learners.

Physical space
The next component of the learning environment is the physical space. Physical space encompasses the physical setup of the learning environment and includes things like the organization of furniture, and what is on the walls. The physical setup should suggest possibilities, be accessible, and be approachable. Agency of the learners over their own body is one that is often overlooked in designing learning environments. In a physical space that supports radical imagination, the work of learners is often visible and on display for inspiration,
celebration, and idea generation. The design of physical spaces can support creative learning when there is an understanding of the learners.

In our Lifelong Kindergarten research group space, we often see how the design of our space influences workshops that happen there; sometimes for the better and sometimes for worse. Allowing (dis)engagement from an activity by taking space - the ability to physically and mentally distance oneself from an activity- means there should be signals in the design of the physical space that affirm this. A subtle example that occurred in the Dreaming through Code workshops that were held at blackyard was that the door to the garage always remained open. The young people were able to not only step away from the activity whenever they felt led, but they could physically leave the learning space if they wanted to. I noticed this same phenomenon of bodily autonomy playing out in the workshops that were held in our research space at the Media Lab. One young person who appeared to take longer than the others to connect with the activities, frequently leaving to go play basketball or ride the bike outside, seemed to experience the same “garage door agency” away from blackyard. At one point during our OctoStudio session they got up from the wooden table and went to play with the nearby assortment of LEGO bricks housed in a wall of buckets nearby. Shortly after collecting the pieces that they needed, they migrated to the green couches that were behind the LEGO brick wall and proceeded to start working independently on their own creation. Although they could no longer see what was happening at the wooden table, they were still in audible distance. After hearing the invitation of excited sounds of other young people sharing their discoveries while making their projects, the curious young person was compelled to return to the larger group.

Where the body can go and what the body can do in a learning environment are essential. Designing the physical setup of a space considers whose bodies belong, what the space looks like, and how learners organically engage with (non-human) things in the space. Communication of whose bodies do, or do not, belong was exhibited during the final workshop of Dreaming through Code that doubled as a community gathering and project showcase. During the session, we encouraged parents and caregivers to join in the activity and create projects with their young people. One of the young people was joined by a grandparent who used an electric wheelchair. In creative learning environments, there is typically a central gathering place that is used and shared by the community; we used a wooden table (Rusk et al., 2009). As a result of the inaccessibility of the physical design of the space, their grandparent could not fully participate in the workshop because their chair would not be able to move through certain areas around the wooden table. Aspects of the physical space of a learning environment largely contribute to how creative exploration and experimentation take place and who gets to participate. Spaces should be conducive for social interaction, explicitly encourage collaboration, and promote agency and inclusion for the whole learning community.

The physical space and tools and materials work together in a learning environment to create the surface level of a learning environment. These are the components that are often more concrete and tangible, thus are usually where people stop when thinking about a learning environment. Nonetheless, only focusing on these two aspects in the design of a learning environment is not sufficient to disrupt and challenge the disparities in educational opportunities that youth with non-dominant identities face. This reality has been observed in the historical outcomes of the maker education and makerspace movement that still has not “adequately wrestled with the cultural, political, and economic tensions and contradictions reflected across the narratives
introduced above, leading at times to the reproduction of historical inequities” (Vossoughi et al., 2016, p. 213).

**Pedagogy**

The third component of the learning environment is pedagogy. While the first two components (tools and materials, and physical space) may be designed to encourage interest-based learning, this does not mean that there is no facilitation taking place in how the learning experiences occur, nor does it guarantee equitable encounters within the space (Schwartz, 2016). Pedagogy includes not only the topics being covered, but also the facilitator’s attitudes, techniques, and approaches. A comprehensive view of pedagogy considers where knowledge comes from, whose knowledge is valued, how knowledge is shared, and how new knowledge is learned. In a learning environment that fosters radical imagination for minoritized youth, there is a prioritization of empowering learners to examine structures of power as applicable to their own lives and interests, a recognition and appreciation of diversity of perspective, and an encouragement of active participation and collaboration through creation and reflection. Ladson-Billings (2014), hooks (1994b), Freire (2000), and Love (2019) each capture the essence of this approach to pedagogy in their conceptions of culturally relevant, engaged, critical, and abolitionist pedagogy respectively. Each approach strives towards achieving educational justice by centering the needs and experiences of those who have been historically marginalized. They seek to create a synergy in the learning environment that challenges oppressive power structures by disrupting the image of the educator as the all-knowing expert.

The process of my own reflection as a facilitator was integral in how Dreaming through Code evolved as a creative learning series. After the very first workshop on dreaming about community, I noticed a few key things that would shape how I approached the following sessions. First, incorporating storytelling at the beginning of each workshop during the dream and describe phases would provide more context for the young people around each session’s themes as opposed to jumping in with the assumption that they knew what I was talking about. Second, I noticed that there was a need to use more accessible language for describing concepts and experiences with the young people. For example, many of them struggled in stating what the word community meant to them when asked directly but could easily describe their neighborhood and the groups of people that they spend time with. Another noticing was that the original prompt for workshop reflection “what are you celebrating today?” was also not in language that was meaningful for the young people. In subsequent workshops, it was changed to “what are you most proud of today?”. Making these minor changes based on new understandings allowed me to cater the pedagogy of the learning environment specifically for the learning community I was working with.

The third workshop (held at the MIT Media Lab) with blackyard also demonstrated the role of pedagogy in supporting a learning environment that engages and motivates learners to apply their creative ideas to real-world challenges. Because many of the young people had not been to MIT’s campus before, we began the visit by walking around the Lab and giving them a small tour of various research groups. They saw social robots, technology that could augment your vocal cords, and artwork made entirely by code that could interact with the body through computer vision. Being exposed to different technologies and project demos was generative for their making during the workshop. The original plan of the workshop was to invite the young
people to imagine who they wanted to be in the future but, upon hearing the reflection of the young people after the tour, we pivoted the activity in another direction.

As they reflected on their experiences in group conversation a few major ideas surfaced. They were curious about who gets access to the types of technology that is created at places like MIT and why, how the technologies worked and what their limits were, and how and if the inventions they saw might actually benefit other people. When it became time to work on OctoStudio projects there was very little hesitancy in getting started. One young person was very excited about using LEGO bricks and craft materials to make an extendable robot arm that would help blind people up the stairs. They were adamant about making sure that the tool they designed would be “free and not expensive” like the robot they saw on the tour, sharing that they “weren’t trying to make a lot of money and just wanted to help people”. Radical imagination as the collective process of envisioning the world for what it might become (dreaming), while recognizing the need for change with an awareness for what it currently is (describing) and engaging in joyful work (creating) was enabled by the pedagogy of the learning environment.

The pedagogy in a learning environment captures another depth of complexity for the deliberate and subtle ways in which creative learning experiences are facilitated. Although some approaches to pedagogy incorporate ideas around project-based learning that are intended to be playful and exploratory, many still fall short in successfully achieving this vision of learning particularly for Black youth.

**Community culture**

The fourth and final component of the learning environment is the community culture. This refers to the norms and traditions that characterize a learning community and make it unique. Community culture is the deepest layer of the learning environment and is a channel through which the other three components receive contextual meaning. In creative learning, community culture connects to the practices and beliefs that promote discovery and exploration in tinkering. Community culture is what determines how the tools and materials are used and perceived. Seymour recognized this importance in *The Children’s Machine* (1993), “Designing Lego-Logo was a small but instructive step toward knowing how to provide material that will serve well as a technological infrastructure for suitable learning environments. But the more important side of the problem is nurturing that right kind of culture of learning” (p. 123). Community culture is formed, negotiated, and reformed by everyday interactions within the learning environment. For this reason, learning environments that foster radical imagination are not those that have a “one and done” approach. Multiple opportunities for positive experiences and exposure allow the community culture to be first learned, and subsequently nurtured. Community culture is sustained throughout each learning experience and is built over multiple encounters. It is shaped by expectations (spoken and unspoken) that are exhibited without prompting, and interactions between community members. The community culture of the learning environment directly contributes to the formation of fugitive spaces for learning that operate as figured worlds, microworlds, and homeplace (Holland, 1998; hooks, 1990; Papert, 1980).

At blackyard, the community culture is shaped by the facilitators, the young people, families, and the broader learning community: the village. In out-of-school contexts like blackyard, it is essential to recognize that young people exist and operate within different microcultures as they move throughout their day (i.e., school, friends, home, etc.). Furthermore, they may have
positive or negative associations and experiences within those individual cultures that impact how others are viewed, accepted, and/or rejected.

As previously stated, I had little previous knowledge about blackyard before beginning Dreaming through Code, and because of this there was a pre-established culture that I was unaware of but was entering and more importantly being invited into. It was not until after the first Dreaming though Code workshop that I learned that all the young people who attended afterschool at blackyard did not attend the same school. This piece of information was crucial for our time together because as a result, during our creative learning workshops there was a period of adjustment for the young people that had to take place as they transitioned between cultures, stepping out of one community culture and into another.

As a facilitator, I did not view my role as one that sought to change what was already set in place. Although there is a microculture that we seek to create during any creative learning activity, it is also important to recognize that this culture must fit into a larger community culture, particularly for a group of young people that already know each other in a case like blackyard (Papert, 1993). The first workshop exemplified how the broader community culture of a learning environment impacts the design of learning experiences and can create misunderstandings or tensions if not properly aligned. While facilitating the session at the blackyard garage, there were multiple occasions when a young person would get up and leave the activity to go place basketball or go get a snack. Considering these in isolation, one might assume that the young person was distracted or not interested in the activity; however, as the session progressed, it became evident that this was not the case. An important aspect that characterized community culture at blackyard, is the normalization and encouragement of youth to disengage by taking time and space if they wanted to. This is one of the ways that blackyard community culture creates feelings of safety and comfort in the circumstance of risk for the young people and supports radical imagination in the learning environment.

Community culture as a component of the learning environment brings the tools and materials, physical space, and pedagogy into conversation with one another rather than as isolated pieces. It creates a throughline that considers the impact of the design of the learning environment and not just the intent. Community culture points to the experiences and feelings that are embedded when the other components of the learning environment are not proving to be as effective. In centering the voices and perspectives of Black youth, community culture is where values that dismantle anti-Black narratives reside.
Habits of the Heart

"Explaining further her understanding of a culture of belonging, Flinders writes: 'The values of Belonging are, in effect, the symptoms of a particular way of being in the world. Together, they form a dynamic whole - a syndrome if you will, or an orientation or ethos, within that whole, each value reinforces and all but implies the others, and the source of their power as a constellation is the synergy between them.' Flinders asks readers to think of the values of belonging as 'points on a circle, windows onto a single reality.'" (hooks, 2008, p. 217)

To cultivate radical imagination for young people who have been historically impacted by systems of oppression like anti-Blackness in education, the design of the learning environment must be aligned intentionally to communicate a core set of values. Therefore, it is crucial to consider and actively engage with the underlying values that shape the learning environment to ensure that they are aligned with the goal of cultivating creativity and fostering radical imagination. By paying attention to and intentionally designing for values that are anti-oppressive and liberatory, we can create learning environments that empower and support all young people to express themselves and develop their creativity and curiosity. In this section I shift from focusing on the components that make up a holistic learning environment, to the values that lie at the foundation. I continue in the iterative design process by defining the initial set of values as outcomes of my cultural immersion and examining how these values showed up in the design and facilitation of the second creative learning workshop series.

I argue that if certain values are evident as the basis for the learning environment, technology-mediated creative learning experiences will happen in a way that encourages and empowers young people to think and act critically and creatively about their own lives and futures. In essence, if you establish the values first as fertile ground, the seeds of creative learning will blossom as a natural progression and the learners will thrive as a result. When considering how to design learning environments that foster radical imagination for Black youth, these values should be evident in the design and implementation of tools and materials, physical space, pedagogy, and community culture of creative learning experiences. The framework is based on four central values, which I refer to as the four A’s of creative learning:

- **Accountability**: Learning is a social process that occurs when people feel accountable to and for others in the learning environment. Accountability encourages mutuality, promotes reciprocity, and empowers young people with the psychological safety to play, tinker, and explore within a community where they are invested in those that are invested in them.
- **Authenticity**: Learning environments that uplift honesty and transparency allow learners to see the connection between what they are learning and their real lives. Opportunities for critical discussion about real-world topics that are relevant to the learner are intentionally integrated as much as (if not more than) opportunities for using technology.
• Awareness: Learners thrive when they feel seen - awareness in a learning environment allows learners to be held in the fullness of their identities and humanity without being invisible or hypervisible.

• Adaptability: Learning environments that are flexible and responsive to the context - specific needs of a community create the space and freedom for playful interest-based encounters to occur -- adapting to the distinct needs of the learner rather than enforcing that the learner conform to the pre-established requirements of the learning environment.

These values are inspired by and deeply connected to Warren and Coles (2020) theorization of Black Education Spaces (BES) that conceptualizes the “physical locations, cultural practices, traditions, and opportunities for Black students and educators to: (a) heal from the racialized assaults resulting from anti-Blackness; and (b) strategize resistance to manifestations of anti-Blackness” (p. 382). The four A’s work in conjunction with the learning environment to support radical imagination for Black youth and create fugitive spaces for cultivating creativity. The values are meant to complement the creative learning principles which emphasize the importance of supporting and encouraging learning opportunities for young people to develop as creative thinkers as they navigate unfamiliar experiences, experiment with new ideas, and collaborate with others (Resnick, 2014, 2017). They support the four P’s to create value-centered creative learning experiences. People learn best when working on projects, based on their passions, in collaboration with peers, in a playful spirit. For Black youth, this occurs in learning environments grounded in accountability, authenticity, awareness, and adaptability.

In the following sections I discuss the various ways in which experiences at blackyard were shaped by this core set of values. I tell stories of each of the values in practice through narratives observed during time spent immersed at blackyard and experiences facilitated at the second set of creative learning activities. The examples provided help to identify the components that allow radical imagination to be experienced as well as how the values might show up at different times in various forms. I observed the values surface by focusing on the holistic learning environment. My conceptualization of each of the values is not intended to be representative of all possible experiences of Black youth in out-of-school spaces but to highlight key aspects of blackyard to introduce and make concrete the center of the framework.

Accountability

In designing a learning environment, accountability should be a central consideration, encompassing both accountability to and for others. This involves a sense of connectedness and responsibility to others that recognizes their humanity, honors their dignity, and validates their worth within the community. Mutual and reciprocal vulnerability are essential components of relational accountability (Kohli & Pizarro, 2016). Accountability challenges the anti-Blackness often rooted in traditional formal education settings, encouraging the pursuit of solidarity and collectivity over independence, ownership, and individuality. For Black youth, creating a culture of accountability and relationality "begins with wellness in the heart and home space(s) that we create and cultivate for ourselves and one another, as well as for and with one another" (Coles et al., 2021, p. 106). To communicate accountability, the tools and materials of the learning environment should be designed with this value in mind. Physical spaces can promote communal
activity and engagement, while pedagogy should embrace the social aspects of learning and promote agency within individuals and the group, such as helping others and sharing ideas.

Accountability is integral to a learning environment's community culture. It values unity over empathy and is the difference between simply feeling for someone and actively standing with them. A culture rooted in accountability recognizes the power of collectivism in promoting personal growth and agency in learners. This aligns with creative learning's emphasis on voice and self-expression, which extends beyond physical speech to encompass the choice of how, when, and with whom to engage. During my time immersed in the blackyard culture, I witnessed accountability embodied in the learning community's deference to young people as the norm. For example, during a discussion on boundaries, trust, respect, and community, the young people shared their thoughts on each concept and how it related to their time together. This exercise was repeated with parents and caregivers the following week (see Figure 7). Accountability fosters a community culture that encourages such conversations, inviting and supporting both young people and families in the learning environment. Designing learning environments with accountability in mind can create a space where individuals thrive, learn, and grow together.

Figure 7: An image of the discussion notes from the activity. The blackyard families' responses are on the left white paper and the responses of the young people are on the right white paper.

Authenticity

Authenticity is the third value that should be at the core of any learning environment. This is especially true for Black youth, who often encounter inauthentic and performative technology-mediated learning experiences. Authenticity means intentionally creating learning opportunities that connect with learners' real lives, are co-constructed and localized for the community, and allow for individualized experiences. To uphold authenticity, facilitators should design the learning environment to recognize the value of what is already available in the community and honor each learner's unique background and experiences. Expectations should be
learner-led and interest-based, and facilitators should be open to integrating and reframing learning experiences based on the present context. Authenticity requires intentional and deliberate design, but ultimately leads to meaningful, relevant, and engaging learning experiences.

In many cases, people assume that young people lack the ability to comprehend and engage in discussions about real-life issues. Consequently, educators often avoid or shut down challenging or uncomfortable conversations. However, it is essential to provide young people with the space, language, and tools to learn from and process their own lived experiences, as this supports radical imagination. During my time at blackyard, I noticed a unique aspect of how these conversations naturally arose to introduce new concepts or address matters relevant to the lives of young people and larger society more broadly.

I return to the opening story of this thesis to highlight an example of this authenticity. While the young people were making ducks out of LEGO bricks, one of them became visibly upset and frustrated upon realizing that another person's duck resembled theirs. They started accusing each other of copying and stealing ideas. In response, I intervened with a question: “aren’t there enough ideas to go around?” This led to a moment of reflection, and the accused person responded, "I wasn't trying to copy you; I just really liked the way your duck looks." Another young person not involved in the debate remarked, “It’s kind of like remixing in Scratch or remixing a song but in real life!”

I then followed up, asking about the distinctions between remixing and copying and whether anyone can truly "own" an idea. Gradually, others around the table joined the conversation, still focused on their own projects. Through group deliberation, they reached a consensus recognizing that there are numerous valuable ideas in the world, but instead of sharing them, people often monetize them, leading to accusations of idea theft if credit isn't given. One of the young people concluded, "it’s really all because of money!"

At this point, the lead facilitator of blackyard interjected, pointing out that the discussion was touching upon aspects of capitalism. In their own way, these young people were grappling with societal norms and constructs that they had never challenged before, yet they now made complete sense in their view of how the world should operate. The value of authenticity in a learning environment allows young people to articulate their questions and solidify their dreams in a space that recognizes all voices and experiences as valid.

Awareness

Awareness is the third core value. The learning environment should be designed to communicate and promote an awareness of the identities and needs of the learners. This requires knowing the individual as well as the larger community. bell hooks (1994a) states that “awareness is central to the process of love as the practice of freedom. Whenever those of us who are members of exploited and oppressed groups dare to critically interrogate our locations, the identities and allegiances that inform how we live our lives, we begin the process of decolonization” (p. 248). The value of awareness applies to a self-actualization process that takes place in all parties involved in the learning community. Inspiring self-actualization, awareness implies a
responsiveness to learner needs based on their identities and attending to those needs as a default way of occupying the environment. Awareness contributes to a community culture in Black educational spaces that is intentionally inclusive by encouraging learners to consider and express all parts of their identities and making room for them to unapologetically be (Warren & Coles, 2020).

Creative learning empowers learners by allowing them to explore their interests and needs. A learner-led environment must be aware of the unique interests and needs of everyone. To foster a sense of identity and self-expression, tools and materials should be culturally representative and accessible to learners at all levels. This means that both physical and digital tools are valued for the affordances that they offer. Equally important in the conception of the learning environment is the awareness and discernment to do what Meredith Broussard refers to as use “the right tool for the task” (Broussard, 2023). Too much of a focus solely on the digital may follow technocentric views of education that believe that simply providing access to these tools and materials is enough to address the problems that continue to persist and exacerbate in equities in education settings. Unfortunately, digital tools can exclude learners who do not fit the default mold of what a learner should look like or who the tool was designed for. It is important to consider the intersecting identities of learners when designing learning experiences.

I worked with a diverse group of young people at blackyard across age, gender, ability, interest, socioeconomic status, and ethnicity. As the group continued to grow and fluctuate during our time together, awareness was key in knowing how to best support the individual learners and also honor the community culture. Knowing the group and power dynamics at play as a designer and facilitator of learning experiences was top priority to understanding and educating myself about their needs and creating opportunities for them to explore their identities in creative and joyful ways. This level of awareness can be developed over time and in conversation. During the final session of the second creative learning workshop series, the young people returned to visit the Media Lab. After having spent the past eight months with them, I knew it would be very different from the first time they came to visit. Subtle but differences in facilitation style like my choice of snacks to provide and to focus on videos as examples rather than using any formal slides were a direct result of knowing the community more intimately. The invitation to make was intentionally open: make something that represents what or who you want to be when you grow up. With their own choice of material, the young people made projects using LEGO bricks,
MakeyMakey, OctoStudio about growing up to be a contestant on a game show, a musician, a train engineer, a game and graphic designer, and a make-up artist.

Adaptability

Adaptability is another value that should ground learning environments to support radical imagination. In a learning environment some components, like the pedagogy and physical space, should be adaptable in the moment while others, like the community culture, should be adaptable over time, adjusting to the changing dynamics and growth of the community. Adaptability implies a certain fluidity and relinquishment of control that is often met with contention in the constraints of traditional education settings. Papert (1993) argues that instead of demanding strict obedience and conformity, educators should embrace permissiveness, allowing learners the freedom to explore their interests and pursue their own learning goals. As a value, adaptability can be a powerful tool for learning that encourages risk taking, experimentation, and comfortability with making mistakes.

The ways in which adaptability manifests in a learning environment varies. For example, adaptability can be incorporated into the design considerations of the tool and materials that are present in a learning environment. The malleable nature of technology to empower and encourage creativity alludes to the multiple pathways that exist within the wide walls, low floors, and high ceilings of creative learning experiences (Resnick, 2017). Although these paths exist, it is important to also allow learners to change their mind and explore the things they are curious about, even if it is not originally what they set out to find. Adaptability reinforces the interdependent relationship of the individual aspects of the learning environment. Tools and materials that communicate the value of adaptability necessarily requires pedagogy that also supports adaptability. Being iterative, flexible, and accommodating are all ways in which adaptability might be practiced by a facilitator in the learning environment.

The informality of blackyard as an afterschool space allows a culture of adaptability in the way each day unfolds. Because the young people know that they are entering an environment that is free from the pressure and pace of the classrooms that they attend school in, they move through the space with an expectation of freedom. During the second creative learning series, adaptability at blackyard looked like being willing to let go of certain plans and responding to the current contexts and conditions of the moment on multiple occasions. Sometimes this meant finding ways to engage in creativity in a new location: OctoStudio at the park after picking up pizza for dinner (see Figure 9). Other times it looked like thinking quickly to encourage new perceptions of the activity. In one of the sessions, my plan was to do an activity with OctoStudio in which the young people explored the question “what is good here?” by walking around the garage and backyard space taking photos and making a project about them. However, due to the weather earlier that week the activity pivoted to an indoor informal drop-in session exploring OctoStudio. We started with three young people and then two more showed up who immediately started playing foosball. Rather than interrupting trying to redirect their interest to the activity at hand, a learning environment that values adaptability allows for a reframing of the goal of the learning and figures out ways to integrate into what the young people are already doing. I took the opportunity to take the iPads, to where the young people were and find a useful implementation of OctoStudio in their activity which resulted in us making a project that allowed the young
people who were spectators of the foosball game to keep score (see Figure 10). This approach to facilitation and learning that “reads the room” is the sustaining, responsive, and relevant pedagogy that recognizes learners as assets and not liabilities (Ladson-Billings, 2014). To manifest adaptability in a learning environment, it is essential to allow learners the freedom to explore their interests and pursue their own learning goals, to create a culture that adapts over time to the changing dynamics and growth of the community, and to design tools and materials that communicate the value of adaptability.

Figure 9: A photo of the young people using OctoStudio on ipads at a picnic table in the park.

Figure 10: A screenshot of the OctoStudio project made to keep score of the foosball game.
Chapter 5 – Discussion
Piecing it All Together

“Creativity is not quiet. I often experience the urge to create as a rumbling within the depths of my being. [...] I can move into the imagination as though it is a fierce wave that will sweep me away, carry me to another plane, a place of ecstasy. The root meaning of the word ecstasy is to stand outside - that's what creativity does, it allows the creator to move beyond the self into a place of transcendent possibility - that place in the imagination where all is possible.” (hooks, 2008, p. 162)

In this section, I lay out the final step of the iterative design process and analyze how values were articulated in interviews. I establish a framework for value-centered learning environments by combining the key aspects of this thesis: radical imagination, fugitive space, values, and the learning environment. Other frameworks have been developed for designing learning environments for non-dominant youth, focusing on creativity, computing education, and values separately (Kapor Center, 2021; Mills et al., 2021; Mims et al., 2022). However, they do not completely address the pervasive impact of anti-Blackness in education settings. To conceptualize a value-centered learning environment, I analyze semi-structured interviews conducted to discuss and present the framework.

blackyard serves as both a fugitive space and a liberatory space, providing support for young people to recognize, process, and challenge systems of oppression (Mernick, 2021). The conception of a value-centered learning environment reveals the central connection between radical imagination and the learning environment, which consists of tools and materials, physical space, pedagogy, and community culture. Each component builds upon the other, impacting the learning experience. This thesis argues that to support Black and other minoritized youth in technology-mediated creative learning, the core of the learning environment must incorporate values that acknowledge and disrupt anti-Blackness. The values are accountability, adaptability, authenticity, and awareness.

A value-centered learning environment

To be present in the learning environments, values need to be present and prioritized in the people first. In response to the question, how might we design learning environments that cultivate radical imagination in Black youth, I propose a framework for value-centered learning environments. As discussed in earlier sections, these learning environments communicate a set of shared core values. In discussion of the framework, I leverage interviews with two adults in the blackyard Learning Community: the founder (AH) and the lead teacher (RD) to discover what it means to be value-centered by design.

- AH is a former Cambridge public-school educator who now works in a Massachusetts private school as an arts and theater teacher. They lovingly describe themselves and their family as “a bunch of humans trying to do this life...
together”. Their professional experiences working in charter schools as the main disciplinarian of students, and personal experiences with their young child’s harmful experiences in school drove AH to collaborate with other parents who were experiencing similar stories to envision blackyard in 2019.

- RD is a Sudanese, Toronto-born person who attended high school in Cambridge. They were first connected to AH in 2021, having participated in organizing with their high school’s Black Student Union. Upon beginning their first year of undergrad, they began working with blackyard’s afterschool program in 2021. RD is an after-school teacher at blackyard and provides independent childcare for blackyard families.

blackyard as a fugitive space

Fugitive spaces are purposefully constructed out of school spaces for practicing radical imagination. These spaces challenge power structures and offer opportunities for self-expression, agency, and liberation. Designing a learning environment as a fugitive space involves cultivating inclusive practices that prioritize empathy, care, and the centering of minoritized identities. It disrupts dominant narratives and hierarchies. Fugitive spaces for cultivating creativity are value-centered. While this work focuses on experiences within blackyard, which exemplify BlackCrit's liberatory fantasy outside the confines of traditional schooling, it's important to note that fugitive spaces are not confined by time or space—they are shaped by individuals. The following section will apply key themes from conversations with AH and RD to establish a framework for value-centered learning environments through a BlackCrit lens, reintroducing the theoretical concepts of radical imagination and fugitive space.

Within educational settings, anti-Blackness manifests through explicit and implicit impacts, revealing a disturbing pattern of discrimination, violence, marginalization, and suppression of Black students' experiences and voices. This served as the catalyst for envisioning blackyard as a fugitive space and escape. In their interview, AH shared, “There were other families who were experiencing the same things in different ways, kids being violated horribly. So, we all came together.” Reflecting on that time, blackyard was noted as a healing place where families could slow down. Recounting personal events, AH shared direct impacts of anti-Blackness on their own child, including instances of violence and exclusion in the classroom, which align with the theorization of BlackCrit, emphasizing the hypervisibility and over-discipline of Black youth (Dumas, 2014; Dumas & Ross, 2016).

Creativity and anti-Blackness cannot coexist in a learning environment. As an educator, AH highlighted punitive actions such as revoking recess privileges, questioning the need for such measures that were witnessed working in schools. Amplified by the structural nature of the educational-survival complex, these were often instances where suspensions were imposed for minor infractions, thus reflecting the normalization of carceral systems and violence on children. Values that do not actively disrupt anti-Blackness uphold systems of oppression and power. AH referenced other implicit indicators of anti-Blackness. “Every picture on the wall was a white kid or non-descript” and “for two years in a row they did not promote any of the Black co-instructors to be leads.” Through the lens of BlackCrit’s third framing that refutes revisionist history and erasure that reinforces harmful stereotypes, marginalizes Black voices, and perpetuates systemic
When considering how to put values into practice, AH and RD emphasized the concept of “doing the work”. Upholding the value of accountability, doing the work involves both internal and external aspects. Externally, it means focusing on relationship building and using language that upholds values, as AH explained: "Using that word [accountability] with young people and myself seems to be something that young people and old people really understand." Living accountability for oneself and others allows these values to manifest across different contexts. In
challenging situations, such as organizing efforts, AH reflected on the need for courage in their interactions with children, families, and fellow organizers.

AH also provided a personal example of how doing the work translates into their interactions with young people, highlighting the importance of accountability within her own family dynamics. They shared an incident where they had to address anger towards their child, acknowledging a mistake in taking away something that had been earned. This internal work involves introspective reflection and unlearning previously held beliefs that hinder value-centered engagement.

Doing the work internally requires constant self-reflection and examination. AH emphasized the necessity of questioning ourselves, our biases, and assumptions, particularly when encountering beliefs from other educators or youth workers that seem problematic. The focus is on ensuring that we continuously evaluate ourselves to provide the care and adaptation necessary for all children. AH stated, "Children need us constantly to be examining ourselves."

Both AH and RD acknowledged that doing the work is an ongoing process that unfolds unexpectedly. AH mentioned the initial self-doubt (alluding to internalized anti-Blackness) when centering Black youth in blackyard but recognized the importance of personal growth. This internal work plays a crucial role in how situations and events are perceived and responded to when engaging directly with young people.

In education settings, anti-Blackness often leads to the adultification of Black youth, resulting in disciplinary actions based on biased beliefs. RD emphasized the importance of grounding interactions with young people in values, supporting their exploration, and recognizing their developmental stage. AH echoed this sentiment, viewing their actions as a natural part of growth and not taking it personally.

Encouraging accountability, both for oneself and others, establishes the foundation for building a sense of community in a learning environment. Respect and trust, as promoted by the guiding principles of the Computer Clubhouse, are difficult to cultivate without accountability (Rusk et al., 2009). Naming accountability as a value also underscores the importance of honesty. Despite the discomfort that accountability may bring, it serves as a catalyst for personal growth for both young people and adults engaged in the internal and external work.

Showing up

"When you name [honesty] as a value it really shifts the way everybody shows up [...] there is just something that can bring great discomfort which means that in discomfort is growth." - AH

A value-centered learning environment is created through the focus on "showing up." Showing up encompasses the physical, emotional, and intellectual act of being present and aligns with the value of authenticity. For RD, showing up at blackyard meant more than just physically being present; it also involved being whole and healed. RD shared an experience where they recognized the need to maintain their values and make the decision to leave if necessary. "I really like being here [at blackyard] because you show up when it's good for both you and for the
children.” Despite potential challenges, showing up authentically becomes possible after doing the internal and external work.

In a learning environment, the question of who gets to show up raises questions of identity, inclusivity, and belonging. Authenticity as a value ensures that everyone is welcome to exist in their full humanity. As a fugitive space, blackyard acknowledges the tensions that arise when young people bring conflicting societal, familial, and cultural ideals into the space. AH emphasizes the importance of not shying away from these conversations, stating, "we are all going to get to be allowed to be in this space."

Furthermore, showing up authentically requires constant consideration of who might be excluded. blackyard intentionally centers Black youth and families, supporting them within both traditional and nontraditional education systems. AH highlights the intentional effort in ensuring inclusivity by questioning who is being centered, such as Black queer youth, Black trans youth, dark-skinned youth, and youth aged 19-21. Creating a value-centered learning environment necessitates being aware of whose bodies are present and the experiences they will encounter. Authenticity as a value goes beyond transparent connections between learning and real-life experiences. It also involves challenging the notion of adults as faultless experts and demonstrating vulnerability in front of young people. Being authentic as an educator means operating authentically, deviating from the traditional norm where adults hold all the expertise. In blackyard, facilitators prioritize authenticity, striving to create joyful, playful, and empowering learning experiences for Black youth. This requires showing up authentically, and acknowledging and addressing the systems of power and oppression that manifest daily.

**Checking in**

> "Am I in the moment making decisions that are showing I am value-centered, and are people watching someone knowingly or unknowingly act in a way that I would appreciate?" - AH

"Checking in" emerged as another significant theme in our conversations. It represents moments where the value of awareness is embodied through being mindful of the learner's needs and self-awareness of the messages conveyed about belonging and who is included in spaces. AH highlighted the ongoing practice of awareness by regularly checking in, asking questions, and reflecting on one's actions and intentions. When individuals in a learning environment show up with value-centeredness, it transforms the potential and impact of the learning experience. Leading with values and modeling them from the beginning allows the learning environment to be shaped by the community's culture, influencing other aspects. AH emphasized the importance of honesty, avoiding ageism, being aware of one's power, showing love and dignity, and ensuring that neither children nor oneself cause harm.

Checking in is often motivated by the desire to create different experiences for young people than what one may have had in the past. RD reflected on their own childhood encounters and how those experiences influenced their approach and presence at blackyard. They expressed a commitment to not replicating negative moments rooted in racism, colorism, and featurism that marked their childhood after-school memories. RD's goal is to shape young people into
oustanding individuals by avoiding any actions that might hinder their growth. They stated, "I'm not going to show up if I feel like I'm going to get in the way of that."

RD further emphasized the importance of being aware of learners' needs and backgrounds to effectively engage with them. Observing interactions within the Black and brown space of blackyard, they noted how it reveals the faults in our society, particularly when it comes to dealing with dark-skinned and low-income children. While this awareness reinforces RD's existing worldview, it also fosters empathy and understanding, promoting less punitive actions. RD highlighted the value of working with children in multiple contexts (e.g., as a babysitter), which deepens their understanding and compassion, benefiting their personal relationships as well. This awareness underscores the need for approaches that prioritize understanding and support over retribution. Mindfulness of learners and self-reflexivity are essential in fostering a value-centered learning environment, where one considers and values the experiences, dignity, and humanity of all.

**Embodying change**

“I really believe that we can’t have ANY spaces with young people without people being in transformation in different places. Some people may be at the very beginning. For some people that may be realizing we need to let go of some stuff around power and the way that we talk to children. But either way you’ve got to be in motion.” - AH

“Embodying change” emerged as the final theme in conversations with AH and RD. It encompasses the idea of doing things differently, both in the short and long term, and emphasizes the goal of transformation. This theme directly relates to the concept of the "meantime between time" of embracing a liberatory fantasy (Ross, 2019). Embodying change can be summarized by the value of **adaptability**, which goes beyond conforming to existing structures and involves becoming something new. Blackyard serves as an example of adaptability as a fugitive space. As described by RD, “It's so so different. It's genuinely a community space. I don't feel like I'm an after-school teacher. I have a genuine personal relationship with each of the children because I've known half of them for two years. And the newer ones I do a lot of care for them as well. I know their parents and their family and everything. It's just, it's very different […] It's more personal.” Both aspects of embodying change suggest a necessary shift in mindset to enable everyday actions inside and outside the learning environment to be different.

Embodying change in the short term involves making adjustments or modifications to better align with specific situations or environments. AH exemplifies this through changing how they individually communicate with young people, being thoughtful of their experiences and speaking carefully. It also involves considering not only what is said but also how it is said. “I’m talking about not embarrassing and shaming children but also naming things as we keep going along [because] the way we treat children and elders speaks volumes on who we are when no one is looking.” On a communal level, AH shares the example of a practice in blackyard of "a weekly community meeting where we collectively are deciding and acting and living a certain way and determining what we’re working on." This practice, which actively involves young people, is uncommon in traditional schools today.
In pursuit of long-term transformation, embodying change values adaptability as a process of fundamentally altering the nature, structure, or form of something. AH envisions blackyard shifting from centering youth to being youth-led, serving as a space for middle school, high school, and college students to think, meet, and hang out. The process of embracing newness and departing from the old can be uncomfortable but is crucial for dreaming and envisioning a different future. AH draws parallels between educational limitations and societal constraints, stating, “It’s like people who are like ‘I really want to believe we can’t have police, but I just can’t imagine what’ll happen to all the bad people’. This is why you don’t get to dream in school and why they tell you what you need to know so you can’t imagine a world without it.”

To design learning environments that embody change and empower those furthest from educational justice, we must consider how to foster youth agency in spaces where it is not the norm of their lived experiences. This is where radical imagination becomes essential. AH and RD acknowledge the role of creativity and radical imagination in creating a future for themselves and the young people of blackyard. AH emphasized, “If we don’t dream about stuff, it ain’t gonna happen in our lifetime. Imagine if our people didn’t imagine being free.” Dreaming plays an integral role in radical imagination. RD clarifies what this looks like at blackyard, “seeing people, specifically Black people, queer people live their lives in the way that makes you […] able to see yourself in them. […] Imagining your life outside of the norms of the society that you grow up in. Realizing that there are rules to how you live, and in this society once you recognize them, you can break them and do whatever you want. Being able to imagine and picture and theorize what and who you can be outside of social norms.” Both forms of embodying change require adaptability and doing things differently. By doing the work, showing up, checking in, and embodying change we can create value-centered learning environments that promote playful, joyful, and empowering experiences, ensuring that creativity and curiosity flourish for all learners.
Chapter 6 – Conclusions and Future Work

A Community of Care

"Communities of care are sustained by rituals of regard." (hooks, 2008, p. 229)

In this thesis, I have explored the necessity and relevance of addressing systemic barriers and oppressive systems within educational settings to foster creativity, curiosity, and equitable learning experiences. Driven by the misalignment between intended and perceived values in the introduction of creative learning technologies, I have proposed a framework for value-centered learning environments that draws upon the liberatory practice of fugitive space to cultivate radical imagination in Black youth.

The design of the framework underscores the need to challenge the contradictions in beliefs about learning and creativity, by considering the systemic oppressions that serve as barriers to young people’s experiences with technology-mediated learning. Applying BlackCrit as a framework to understand the historical and social contexts and recognizing the pervasive impact of anti-Blackness society and education, this research amplifies the importance of centering Black youth and their communities in the design of learning environments.

I focus on the ideas of fugitive spaces and radical imagination, to highlight the need to challenge anti-Blackness and provide spaces of refuge that foster safety, comfort, and a sense of belonging for Black youth. Fugitive spaces like the blackyard learning community are ideal contexts for cultivating creativity because they exist as spaces that already heal, hold, and value knowledge and humanity of learners. Radical imagination acts as a transformative tool through which young people can envision new possibilities and break away from the limitations and labels imposed upon them by society. By dreaming, describing, celebrating, and dreaming again we can move towards our own visions of liberatory fantasy of education and empower young people to do the same (Dumas & ross, 2016).

I applied an iterative design process to critical inquiry to explore my central research question: how might we design environments that cultivate radical imagination in Black youth. I focus on values to recognize the rootedness of educational problems and underscore the importance of creating learning environments that center the needs and experiences of Black youth and challenge oppressive norms and constraints. The core values introduced – accountability, adaptability, authenticity, and awareness – provide a foundation for the creative learning principles to reside. It is my hope that this work has amplified the central role of fugitive spaces in nurturing creativity, and shed light on how we might ultimately contribute to a more equitable and inclusive learning ecosystem by seeking out opportunities to design learning environments from the inside out.

Relationship building
It has been a deep privilege and honor to engage in the work of this thesis. Very rarely are you welcomed as a member of a community in the act of research. As I reflect on what it means to be involved in research as an ethic of love, I am reminded that this is one of the outcomes (hooks, 1994a). So often in research or academic spaces in general, people enter communities seeking to change or study them without first taking the time to know and understand them. Relationship building was a crucial part of this work. I spent five months just going and being in community at blackyard. Although not a formal part of the design of my inquiry process, the impact that this time had on the work cannot be understated and it can be thought of as “step 0”. As a result of this commitment to consistently showing up to spend time without any ulterior motives, and intentionality in building trust and respect with each of the members of the community, I was able to gain community in the process of research. A gift I could have never anticipated receiving.

Applying the framework for a value-centered learning environment to engaging in research that embodies change means doing the work of relationship building before you show up and continuously checking in while you are there. When engaging with communities where people have been sustaining and creating things for and by themselves for years, namely Black, brown, and indigenous communities, it is essential not to show up as a researcher who is the assumed expert. Humility and transparency are essential. This also means ceding control to the community to determine when, how, and if the collaboration occurs.

In computing and education research at large, many people design interventions or workshops and go into communities to implement them in ways that are not well received and short-lived at best, or deeply problematic and harmful at worst. They wonder why they don’t do well while failing to realize that they did not take the time to engage in relationship building. Relationship building also allows the work to be sustainable beyond the life of the research or the project. Not only has there been an investment, connection, and commitment made to the life of the work but relationship building ensures that same commitment to honoring the community. In working with blackyard, I had to practice the art of getting to know and being known. People learn from people they like. Children learn from people they trust, know, and respect in conditions of love, affirmation, care, and expectation all of which can only be built through relationships.

Reflections

When engaging in work with communities, it is important to acknowledge and accept that things may not go as planned. I will use this space to reflect on parts of the research process that did not go as intended and those that created tension for me as a researcher. In my time with blackyard, I originally intended to include all community members into the inquiry process. This meant including parents and families in the exploration of values through their experiences within the blackyard community. I know that these additional perspectives would have captured a layer of nuance that has created a limitation in my work. Particularly in discussions of figured worlds, homeplaces, and community culture, having the narratives of blackyard families would have helped to reinforce what it means for young people who operate in different contexts throughout the day to find refuge in fugitive spaces outside of school. Although parents were invited, I did not receive a response or invitation from them. Community gatherings are part of blackyard’s founding structure but they did not regularly occur as intended during the time that I was
reaching out to parents. Because I involved the young people of blackyard in making activities rather than semi-structured interviews, I would have also liked to involve the adults in an arts-based activity to uplift the importance of valuing different ways of knowing and building knowledge in a way that the traditional interview style may have missed (Leavy, 2009).

To establish inter-reliability, I shared my discussion of the value-centered framework back to blackyard and used iterative member checking and respondent validation during the data collection and analysis phases. The blackyard community was involved in the mean-making and articulating of the values that were identified. It was important for me to practice reciprocity and ensure that I was conducting research in a way that accurately reflected the community, honored how they want to be represented, and did not take ownership but amplified their stories. This approach aligned with the framings of BlackCrit by intentionally resisting revisionist history of stories. Although I had presumptions about what values existed in the community, I focused on allowing the themes to emerge naturally to better center the voices of blackyard.

One validity threat present in my work is that the nature of my research question assumes that there is something inherent about the design of the learning environment that leads to the practice of radical imagination. Although I did find that this assumption was true, it does not mean that there are other factors that also contributed to this. While it is important to have focal points for study, this research bias may have caused me to overlook important data or viewpoints that do not fit my interpretation of what was communicated during interviews or what I observe because I was only looking for values (Maxwell, 2013). I draw upon anti-essentialism to note that the goal of this thesis work does not attempt or claim to provide a one-size-fits-all approach to designing learning environments for cultivating radical imagination (Delgado & Stefancic, 2001). Instead, I have chosen to highlight the unique experience of blackyard as a single context to draw connections and understand the impact of the processes and ways of being in the space that might help others.

Dreaming about the future

With this work, I have analyzed the ways in which anti-Blackness manifests in education and negatively impacts young people’s opportunities to think and act as creative beings. Through this lens I have explored designing a learning environment by focusing on what lies beneath the surface. The core values of a learning environment are what drive and determine the experiences that those impacted by systems of oppression will encounter. After having identified the components of the learning environment, named the values, and discussed them in practice to establish the central framework for value-centered learning environments as sites of radical imagination, the next logical question is: what comes next? The central research question of this thesis, how might we design learning environments that cultivate radical imagination for Black youth, is a question that also poses how might we design for dreaming?

In thinking about the future of this work, I wish to return to my earlier adaptations of Haiven & Khanshbish’s (2014) axioms:

1. The most impactful learning is not something that only schools can provide through organized teachers and formal institutions but belongs to those in the margins who use
their own perspectives and experiences to educate towards a more liberatory and just future. Education is not something that only happens in “authorized, hegemonic spaces but is woven through the fabric of our collective” community, interactions, and everyday lived experiences.

2. Pedagogy, no matter how carefully constructed, is not enough in isolation to dispel, disrupt, and drive the drastic change in education that is necessary. We must interrogate the attitudes and beliefs that are deeply rooted as equally essential in thinking holistically about a learning environment.

While I have offered a conceptual framework for designing fugitive spaces for cultivating creativity, the reality is that doing it is hard. Although the aim of this work is not to provide a solution that would copy, paste, or scale it in another context with another group of young people, the intent is also not for the framework to exist in a vacuum and never see light again. Future approaches and contexts will necessarily look different with a different community, but the work of exploring radical imagination should still start from the same place.

“[…] radical imagination often emerges most brilliantly from those who encounter the greatest or most acute oppression and exploitation, and is often stunted and diluted in those who enjoy the greatest privileges” (Haiven & Khasnabish, 2014)

The accessible and colloquial language used in discussion of value-centered learning environments is intended to help make abstract ideas tangible and practical. My hope is that this work encourages others to seek out opportunities to learn from and with communities who have been pushed to the margins in ways that will inform how we move everyone towards educational justice. For those who seek to apply the framework I wish to bridge the gap between the “could” and the “can” in the same way that encouraging dreaming in young people connects what is “potential” and “possible”. This work continues to inspire me to dream differently. I know that the beauty of connectedness is that all things (including ideas) have the potential to grow. This thesis has explored learning environments, but one might now consider what it looks like to have a learning ecosystem that is value-centered? How might you have a collection of learning environments that are aligned around a core set of values that uplift and honor those with non-dominant identities. I dream of a learning ecosystem as the goal: that is, a series of encounters that form an experience, an assortment of experiences that form an environment, and a collection of environments that form an ecosystem.
Appendices
DREAMING THROUGH CODE:
CULTIVATING RADICAL IMAGINATION THROUGH COMPUTATIONAL MAKING

How can we use computing to re-imagine the world?
How can learning computing allow us to engage in critical making?
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**INTRODUCTION**

**Produce**
Produce tools that disrupt and reject deficit narratives about students of color and technology through imagining possible futures

**Introduce**
Introduce technology in a non-intimidating way

**Incorporate**
Incorporate ways of thinking critically about racial/ethnic identity and community that promote critical action

**Engage**
Engage young people in group discussion around aspects of identity, community, and systems of power

**Build**
Build belief in individual and collective ability to enact change

**Create**
Create computational artifacts that reflect lived experience and tell stories of self and others

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Dreaming through Code a series of workshops designed for an after-school program for elementary aged children of color aimed at cultivating radical imagination through computational making. The four 1-hour sessions are designed to offer opportunities for students to engage in critical reflection, identity exploration, self-efficacy building, and critical action through making using digital tools. Dreaming through Code focuses on providing non-intimidating opportunities for using imagination and meaningful digital creation by encouraging young people to hope and dream. The workshop themes are community dreaming, role models, playful imagination, and stories of your name. The workshop flow is designed to allow reflection to contribute to the creation of a larger artifact for students to have after the completion of the program (photo quilt, collage, video, slideshow, etc.). Each workshop is organized into 4 parts: describe, dream, create, celebrate.
OVERVIEW

Workshop 0 is an opportunity for facilitators to meet the students that will be participating in the programs in a non-intimidating way. Facilitators can begin to establish trust with the students and learn about what they are interested in. This initial workshop is intended to inform the design of the subsequent sessions and provide grounding centering the activities around their interests and passions. Because the workshops are happening in an established space where young people already gather, it is important to ensure that facilitators make themselves aware of and respect and honor any existing norms, customs, and dynamics already existing in the the learning space.

Things to consider:
- How do students interact with one another?
- What (tech and non-tech) materials are available to use during the sessions?
- What are the current values and rules of the space?
- How are power dynamics handled and addressed?

Workshops 1 – 4 are where the main program content is delivered. The workshops begin with a short description and check-in for the day, followed by a small group discussion and activity on a topic that will serve as the point of emphasis for the dreaming prompt. While beginning of each workshop follows a more structured format, the bulk of the time during the workshop should be spent in the learner-led project making. Facilitators may assist students when needed or work more closely to overcome challenges during the creating process. Students should also be encouraged to help one another on their projects to promote collaboration and openness of sharing. After creating, we invite learners to do a video reflection of the workshops’ activities. Learners are invited to participate as they see fit and are not required to participate every week. Those who do not wish to make a video make reflect through written responses or sharing verbally with another person. The goal is to have an opportunity for at least one video reflection from each learner throughout the sessions. Reflection is centered around the following 3 questions:
- What did you dream about today?
- Tell us about your project.
- What are you proud of?
- What would you do next if you had more time?
Throughout each session, facilitators also take photos of the learners' projects and interactions to document the learning process and give learners an opportunity to share the progress of what they have made.

Workshop 5 is the concluding session that serves as a final showcase for the work that has been done over the previous 4 sessions. Members of the community and family should be invited to view the students' projects. The showcase is meant to be a low stakes opportunity for celebration and sharing.
Intentions and Outcomes:

- Learners meet facilitators and begin to form familiarity with them.
- Facilitators view the space and meet leaders of the organization.
- Facilitators introduce themselves to learners and set learners expectations for what to expect moving forward.
- Facilitators gain insight on about learners’ previous experiences and interests.
- Facilitators assist learners and leaders in technology setup.
- Learners begin exploring Scratch interface.

Workshop 0: Welcome and Setup

Session Duration: 30 – 45 minutes

Equipment and Materials:
- Computer with internet access
- Writing utensil
- Paper
- Scratch
WORKSHOP 0: WELCOME AND SETUP

- Introduction:
  - Introduce yourself and any other instructors
  - Allow learners to introduce themselves
  - Short intro about the program and why we are here

- Background Information:
  - Ask learners about their interests
    - What are some things you like to do?
    - What are your favorite activities?
  - Ask learners if they have heard about Scratch and their experience with it
    - Emphasize that previous experience with Scratch is not necessary
  - Invite a learner to explain what Scratch is to other students
  - Invite a learner to explain what they do in the afterschool program and what it means to them

  NOTE: ensure that learners know this is an open space to share. We are here to have fun and make things. Invite them to listen to their bodies and engage how they best see fit throughout each session.

- Technology Setup
  - Assist learners in creating a Scratch account
    - Encourage them to write it down so that they don’t forget it
  - Verify that learners who already have a Scratch account can login

- Explore
  - Invite learners to begin looking at projects on Scratch via the homepage “Featured Projects”, the “Explore” page, or the search bar.
  - As they are exploring:
    - Encourage them to use the “See inside” button
    - Ask them what they liked about the project
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  • As they are exploring:
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    • Ask them what they liked about the project
Intentions and Outcomes:

- Learners will discuss what community means to them and what they hope for their community.
- Learners will imagine what they want their community to look like.
- Learners will create Scratch projects that capture, depict, or represent an aspect of their community.
- Learners will engage with creative learning and making through Scratch programming language.

Workshop 1: Community Dreaming

Session Duration: 30 – 45 minutes

Equipment and Materials:
- Computer with internet access
- Writing utensil
- Paper
- Scratch
- Camera for documentation and reflection
WORKSHOP 1: COMMUNITY DREAMING

• Describe:
  • Review last week's topic
  • Review community values and their meaning
  • Show Scratch studio of projects about community

• Dream:
  • Group discussion
    • What does your community look like? (Is it a physical space? A group of people?)
    • Who is a part of your community?
    • What do you care about? What do you love about it?
    • What is good about your community?
  • Draw a picture/ build a representation of your community
    • Using writing utensils and paper
    • Share with the person next to you

• Create:
  • Look at Scratch studio for inspiration
  • Use Scratch coding cards for getting started
  • Imagine a world

• Celebrate:
  • Reflect on what you made today
    • What did you dream about?
    • Tell us about your project.
    • What are you most proud of?
    • What would you do next if you had more time?
Intentions and Outcomes:

- Learners will discuss and investigate individual and collective identity.
- Learners will explore the various roles they hold in their life.
- Learners will analyze identity and engage in critique of identity through computational making.
- Learners will create Scratch projects that depict and reflect their aspects of their identity.

WORKSHOP 2: EXPLORING IDENTITY

Session Duration: 30 – 45 minutes

Equipment and Materials:
- Computer with internet access
- Writing utensil
- Paper
- Scratch
- Camera for documentation and reflection
WORKSHOP 2: IDENTITY AND ROLE MODELS

- Describe:
  - Review last week’s topic.
  - Identity Mapping: Who do you say you are? Who does society say who you are? Who do you want to be?
    - Learners draw a map with their name in the middle and 4 branches coming out from the center (school, personal, community, family)
    - Add 2 “I am” statements for each context (e.g., son, brother, student, Black etc.)
    - Look at example projects in Scratch studio
      - What is the message?
      - What does it suggest about identity?
      - What are the common themes?
Intentions and Outcomes:

- Learners will imagine the ways in which they may be like the person they admire in the future.
- Learners will create Scratch projects that highlight a role model in their life and their relationship to them or create a project.

Workshop 2: Role Models

Session Duration: 30 – 45 minutes

Equipment and Materials:
- Computer with internet access
- Writing utensil
- Paper
- Scratch
- Camera for documentation and reflection
WORKSHOP 2: ROLE MODELS

• **Describe:**
  - Review last week’s topic and activity on community.
  - Practice daydreaming about superheroes (in real life and fictional).
    - Draw a picture about all the things you have in common with your role model or favorite superhero.
      - Using writing utensils and paper
      - Share with the person next to you

• **Dream:**
  - **Group discussion**
    - Who is your favorite superhero? What do you like about them? What makes them super?
    - What is a role model? Who is your role model?
    - What superpowers do you wish you had and why?

• **Create**
  - Using Scratch make a story, game, or animation about how you might use your superpower to help other people.

• **Celebrate**
  - What did you dream about today?
  - Tell us about your project.
  - What are you most proud of?
  - What would you do next if you had more time?
Intentions and Outcomes:

- Learners will explore the Media Lab through a walkthrough or scavenger hunt.
- Learners will imagine what play will look like in the future and/or who they want to be in the future.
- Learners will create OctoProjects that represent some aspect of the future and incorporate the environment into the project.
- Learners will engage in their own experiences with play and education and reflect on what this means in the context of their identities.

WORKSHOP 3: IMAGINE A FUTURE

Session Duration: 30 – 45 minutes

Equipment and Materials:
- iPad/mobile phone
- Assorted craft material
- Paper
- Octo mobile app
- Camera for documentation and reflection
WORKSHOP 3: IMAGINE A FUTURE

• Describe:
  • Review last week’s topic
  • Give tour of Media Lab
  • Introduce Octo app

• Dream:
  • Group discussion
    • Tell immersion story about the future (tour Lab).
    • What does the future look like in your mind?
    • Who do you want to be in the future?
    • What do you hope the world will look like?
    • What would you invent in the future?
  • Based on what you have seen, what is something you might invent in the future?
    • Use craft material
    • Share with the person next to you

• Create:
  • Use the Octo app to make a project that represents how you might use what you have made it help other people.

• Celebrate:
  • Reflect on what you made today
    • What did you dream about?
    • Tell us about your project.
    • What are you most proud of?
    • What would you do next if you had more time?
Intentions and Outcomes:

- Learners will discuss the power and meaning of names with a close adult family member.
- Learners will imagine creative ways to depict and represent their name for others.
- Learners will create Octo projects with a family member that tell the story of their name.
- Learners will engage in investigation of their own identity and make meaning of their lived experiences through making.

Workshop 4: Stories of Your Name

Session Duration: 30 – 45 minutes

Equipment and Materials:
- iPad/ mobile phone
- Assorted craft material
- Paper
- Octo mobile app
- Camera for documentation and reflection
WORKSHOP 4: STORIES OF YOUR NAME

• Describe:
  • Review last week’s topic
  • Invite students to introduce their families

• Dream:
  • Family Discussion:
    • What is your favorite name, and why?
    • What does your first name mean?
    • What is the ethnic origin of your name?
    • What name does your family call you?
      • Where did it come from?
    • What do you know about your family name?
    • What name do your friends call you?
  • Draw a picture/ build a representation of your community
    • Using writing utensils and paper
    • Share with the person next to you

• Create:
  • With a family member use Octo app to make a project about a story of your name

• Celebrate:
  • Reflect on what you made today
    • What did you dream about?
    • Tell us about your project.
    • What are you most proud of?
    • What would you do next if you had more time?
Intentions and Outcomes:

- Learners will present project to larger community that represents a portion of what they have done during the program.

- Learners will imagine future ways to continue making using Scratch or the Octo app after the program concludes.

- Learners will celebrate the time together and the completion of the workshops.

WORKSHOP 5: COLLECTIVE DREAMING

Session Duration: 30 – 45 minutes

Equipment and Materials:
- Computer with internet access
- Writing utensil
- Paper
- Scratch
- iPad/ mobile phone
- Octo mobile app
- Food
WORKSHOP 5: COLLECTIVE DREAMING

Outline:

• **Describe:**
  • Thank community and families for coming.
  • Introduce format of session

• **Dream:**
  • Meal served – over conversation discuss what it means to dream to adults and children.

• **Create:**
  • Young people present one or more projects made during the previous sessions and share what they made

• **Celebrate:**
  • Facilitator presents and shares artifact of previous workshops.
References


**KQED.**


