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**The Radical Imagination: Exploring the Intersection of the Youth-led Climate Justice
Movement and Education**

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A Capstone Paper submitted in partial fulfillment of the requirements for a Master of
Intercultural Service, Learning and Management at the SIT Graduate Institute in Brattleboro,
Vermont, USA.

Dr. Alla Korzh

May 2, 2022

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Abstract

This paper explores the crossover of the youth-led climate justice movement and education, utilizing The Experiment Digital *Climate Change & the Environment* as a case study to investigate this crossover globally and locally. A 6-week virtual exchange program designed to connect 100 high school students from 23 countries, The Experiment Digital *Climate Change & the Environment* aimed to equip youth with radical tools to address the scale of the climate crisis. The study drew on the neo-institutionalism and systems thinking approaches to globalization. Employing qualitative research methods, including a questionnaire and individual interviews, the findings revealed that international relationships improved critical thinking and collaboration. In combination with systems change curriculum, the program spurred increased action in the youth-led movement. Findings confirmed that there is no one solution for educating on climate justice. Communities need to tailor their systems and pedagogy to their geographic locations, demographics and cultures. The study's key contributions to scholarship include comprehensive systems change curriculum, the solidified connection between education and increased activism, and documenting perspectives on climate justice from exceedingly diverse participants.

Dedication

I dedicate this research to the participants of The Experiment Digital *Climate Change & the Environment* program – for dreaming up big, radical and beautiful futures for us all and fighting for them every day. Thank you for changing my life in every way.

And to my grandmother, Muriel Sneller, who was exuberantly proud at the mere *thought* of me getting my master's degree, let alone actually doing it! I wish you could be here to see it. Thank you for being my biggest unconditional supporter. This one is for you, Grandma. “Oh, I love you too, sweetie!”

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Introduction

The climate change crisis is reaching a devastatingly dire point where human activities are undermining the planet's capacity to regulate itself. The world is inching closer to the ecological limits set by Earth's finite natural resources as we experienced the second-warmest year on record in 2019. The dangerous effects of climate change are here. Global warming produces dangerous droughts, heat waves, floods, wildfires, storms, and hurricanes (Denchak, 2018). As these impacts magnify over time, the children and young people of today will face the worst effects. Rather than sit back and be passive victims, young people all over the world have begun to fight back on a scale never seen before.

Six out of seven U.S. youth ages 13 to 17 told a recent Washington Post-Kaiser survey, "human activity is causing climate change," and four out of five called it a "crisis" or "major problem" (Males, 2019). Among high school students, 40% say they have taken steps to reduce their carbon footprint, and one in four say they have participated in direct action. Youth activists are not only addressing climate change but are advocating for climate justice as the end goal for their movement. For the purpose of this paper, I will utilize Bartholomew's (2015) definition of climate justice: "Climate justice is the fair treatment of all people and the freedom from discrimination in the creation of policies and projects that address climate change as well as the systems that create climate change and perpetuate discrimination" (para. 2).

If a steep decline in carbon emissions is not demonstrated across the world by 2030, the effects of global warming will be inevitable. With eight years remaining to reverse the life ending effects of climate change, the world needs to drastically change our approach. On December 2, 2020, the UN Secretary-General, António Guterres (2020) urged all member countries to make these pivotal changes, stating:

Making peace with nature is the defining task of the 21st century. It must be the top, top priority for everyone, everywhere. In this context, the recovery from the pandemic is an

opportunity.... But there is no vaccine for the planet. Nature needs a bailout... We must deliver a breakthrough on adaptation to protect the world and especially the most vulnerable people and countries from climate impacts. (Guterres, 2020)

In his speech to the United Nations, Guterres presented examples of achievable breakthroughs, including the social mobilizations of youth and education connected with community engagement.

As referenced by Guterres (2020), international youth activism and environmental and sustainability education (ESE) are two innovative breakthroughs towards climate justice. Both ESE and youth activism contribute enormously to climate justice, and in combination, the concepts can amplify and radically improve each other's outcomes. ESE is complementary to youth activism in its approach to educational spaces and curriculum. Wals & Benavot (2017) define ESE as, “education designed to increase citizen engagement and participation in sustainable development issues, better student’s understanding of the connections between the environment, economy, culture and ecology, connect today’s actions to future generations and conjoin global citizenship with local identity” (p. 406). The intended impact of ESE is to transition towards a society based on values and structures that make sustainable living the default.

Youth movements for climate justice, along with education in general, have the power and potential to serve as the mechanism to implement the ideals of ESE. Climate activists have achieved great milestones like divesting funding from fossil fuels, creating critical cultural shifts and inspiring community-based approaches to upend oppressive systems, offering a path to sustainability. As both ESE and youth-led activism are effective mechanisms to reach climate justice, I seek to better understand how the two phenomena interact and evolve because of those interactions. My study examines the intersection of education with youth activism for climate

justice by evaluating The Experiment Digital *Climate Change & the Environment* as an educational model that supports systems change through direct action. Designed to connect young people across the globe, The Experiment Digital *Climate Change & the Environment* aimed to successfully equip youth with radical and effective tools to address the scale of the climate crisis through critical systems thinking and direct action. The 6-week virtual exchange program provided over 100 high school students from 23 countries with an opportunity to grow their essential leadership skills, community organizing tactics and global friendships that will enable them to become trailblazers in the fight for climate justice.

By examining The Experiment Digital *Climate Change & the Environment* as a case study, this research also garnished findings on how youth make meaning of climate justice based on their diverse backgrounds, further situating the findings on education in their specific cultural context. The study is guided by the following research questions: How is climate justice education and activism conceptualized and experienced by participants from diverse contexts? Focusing on The Experiment Digital *Climate Change & the Environment* as a case study, how can these conceptions best inform educational opportunities to support and guide youth movements for climate justice?

My findings provide insight into the intersection of education and climate justice and the role of both formal and informal education in supporting youth-led climate activism. I sought to understand how participants make meaning of climate justice based on their experiences and ideas around education, culture and activism. In the examination of the participants' backgrounds, I also discussed key motivations for their involvement in the climate justice movement that informed the recommendations of this study, especially in relation to the field of education. By studying The Experiment Digital *Climate Change & the Environment* in the context of both the global youth movement for climate justice and ESE, this research study seeks

to advance the conversation on how educational spaces can better support youth activism for climate justice, closing the gap between social movements and school. Gaining a better understanding of the relationship between education and youth activism for climate justice advances the overall field of education as it responds to the realistic needs of this generation.

The study also holds an opportunity for practical applications through the evaluation of The Experiment Digital *Climate Change & the Environment*. By assessing how the program prepared the participants for direct action individually and collectively, this study identifies which resources are most effective or obsolete. Possible practical applications include updating the curriculum from The Experiment Digital *Climate Change & the Environment*, developing best practices for practitioners in general and guiding policy recommendations for the application of ESE in school systems or informal educational spaces. It is imperative that education and youth-led climate justice movements come together as cooperating actors to create lasting change in how future and current generations view our natural resources, each other, and our world.

Framed by globalization theory, the literature review will introduce the concepts of instrumental education and the emancipatory approach as key assumptions of ESE that advance climate justice. I will then discuss the importance of developing both global and local conceptualizations of sustainability for students to illustrate the need for best practices from the international arena that can be applied in communities. Subsequently, I will discuss how youth activism suggests a possible link between critical thinking curriculum and actively dismantling systems that perpetuate climate change. I will then highlight the qualitative methodology, my ethics, the data analysis and credibility of my study. By surveying and interviewing alumni of The Experiment Digital *Climate Change & the Environment*, I delved into how study participants conceptualize climate justice through their experiences with education, activism and

motivations for engagement in the movement. Their meaning making of climate justice provided context for the findings of the case study and general discussion on the crossover of climate justice movements and education. I placed the key impacts of *The Experiment Digital Climate Change & the Environment*, including the importance of international networks, systems change curriculum and education spurring increased direct action, into the discussion of the crossover of education and the climate justice movement. I then considered how cultural context is crucial in incorporating ESE into both formal and informal educational opportunities while recognizing information gathering as the crucial first step in activism. Lastly, I extrapolate on my research questions, discuss gaps in the existing literature and propose future inquiries.

Literature Review

The study is framed by globalization theories as a guiding principle. Defined by Stromquist and Monkman (2014), globalization is “an exaggerated form of global capitalism; in the view of others, it is a wake-up call to look for alternative forms to the new social and cultural arrangements that are being both spontaneously and deliberately generated by globalization” (p. 7). Transitioning the world away from consumption and cultural homogenization to environmental protection and centering frontline communities’ knowledge requires an emphasis on critical thinking and intentionality. The importance of both global and local influences in ESE reflects the essential paradox of globalization. To build on that paradox, I will discuss two divergent perspectives of globalization, neo-institutionalism and systems thinking, that illustrate the contrasting implications of the globalization process.

Globalization inherently builds shared norms and promotes homogenization, but from a dominant culture that marginalizes local knowledge. Neo-Institutionalism demonstrates that western ideas, practices and patterns are institutionally diffused across the world and are being accepted by nation states (Meyer & Ramirez, 1992). Neo-institutionalism has influenced theories

and conceptions of education and society in three broad areas: the worldwide institutionalization of mass and higher education, schools as ‘institutional’ organizations with conformity to rules, and the impact of education and schools on society. Mass schooling became increasingly common in Western societies post World War II and has now spread to the world as a central feature of the model nation-state and development. Today, schools promote political incorporation through building a shared identity nationally and globally. Political incorporation involves including marginalized populations in schools and creating shared norms in a society through congruent curriculum. The proliferation of western research, degrees, credentialing, school models and market-based models serve as evidence for neo-institutional expansion. Finally, the deepening link between school credentials, mass schooling and the labor market demonstrates how greater institutionalization for educational change creates a deep pattern steeped in capitalism and competition, effectively reducing educational access that the concept once sought to improve (Baker & Letendre, 2005).

As previously stated, globalization is a paradoxical process, promoting both homogenization and indigenization simultaneously. Indigenization is the process of naturalizing Indigenous knowledge systems and making them evident to transform a service, idea or perception (Steiner-Khamisi & Waldow, 2014). The systems thinking approach to globalization centers indigenization, advocating to bring culture, context and system back to the study of globalization. Systems thinking highlights the complexity of political, economic and social contexts within which educational changes take place. This framework critiques the political and economic drivers involved in the processes of education policy adoption in a global setting, including analyzing the role of governments in transferring policies and questionable motivations of international organizations in influencing their member-countries' decisions. Instead of understanding the local as a simple recipient of global policy processes, systems thinking focuses

on power dynamics that are inherent in education policy translation, as well as on the role of domestic actors as both interpreters and creators of new policy meanings (Steiner-Khamisi & Waldow, 2014). Essentially, systems thinking transcends the dichotomy between local and global and views local as a layer of education that is different from global and more crucial to educational change.

Globalization is a process with contrasting implications, with the potential to both spread globally shared ideals and systematize local culture and knowledge. The contrasting approaches of neo-institutionalism and systems thinking demonstrate the need for critical thinking to navigate globalization. Carnoy (2014) stated, “Above all, perhaps, the philosophical and ethical conception of globalization promotes an expanded notion of literacy for effective participation as world citizens – a form of literacy based on social justice,” (p. 27). Global citizenship has the potential to connect people to each other through social justice in an unparalleled way, inspiring young people to strive for social justice not only in their communities, but also understanding how their local situations relate to justice on a global scale. Educators, therefore, must develop comparative perspective taking expertise and foster the same in students. The challenge before education will be to shape cognitive skills, emotional intelligence and cultural sophistication of youth whose lives will be both engaged in local contexts and responsive to international affairs.

The many roles of education in society are important for sustainable development, climate justice and protecting the balance of global and local. I am keenly interested in the intersection of the youth-led climate justice movement and education, examining how education could meet the great needs of youth to process their experiences with climate justice and value their knowledge as activists. In the following literature review, I will examine both ESE and youth activism for climate justice to identify crossovers and gaps in existing research and to situate the study in the current conversation on these topics.

Environmental and Sustainability Education

Development of Global Skills in Local Contexts

In addition to instrumental and emancipatory approaches, ESE endorses thinking globally about climate justice but acting locally. Evidence reveals that generalized educational interventions that focus on local, tangible, and actionable aspects of environmental stewardship are most successful (Pizmon-Levy, 2011). When examining global or national approaches to ESE, teachers, policy makers and activists are crucial in appropriately interpreting an educational goal and applying it locally. Wals and Benavot (2017) take the importance of local particularization one step further by stating, “There is no single model of education and learning for environmental sustainability, nor should there be. Different communities and institutions should tailor content and pedagogy to the interests of different audiences, as well as different political, economic and social circumstances and geographic locations” (p. 410).

Climate justice is connected to world citizenry, pushing youth to work for justice not only in their communities but also on a global scale for all humans. What does climate change mean for youth today? By the year 2050, a child born in 2000 is likely to be living with 8.4-11.3 billion others on a planet that is almost 3 degrees Celsius warmer. Recent research shows that if only 16 percent of high school students in high- and middle-income countries were to receive climate change education, we could see a nearly 19 gigaton reduction of carbon dioxide by 2050. When education helps students develop a strong personal connection to climate solutions, as well as a sense of personal agency and empowerment, it can have consequential impact on students’ daily behaviors and decision making that reduces their overall lifetime carbon footprint (Kwauk & Winthrop, 2021). Allison Anderson (2013) from The Center for Universal Education at The Brookings Institution states that the policies and decisions made today will influence outcomes over the remainder of this century and beyond, and youth today have a large stake in this future.

When young citizens address the issue of climate change, they must grapple with tough questions about how society collectively deals with complex global problems. In engaging with climate justice, youth are entering debates that involve dissenting from prevailing norms, like consumption, fossil energy use, and the unjust use of power, not just in their home communities, but across the world.

Education for Action and Critical Thinking

In order to prepare students to dissent, education must equip youth with critical thinking skills and within that vein, prepare them for protest. Climate science education, as it is often taught today, does little to address the intersectional social, cultural, political and economic components of a complex system that perpetuates climate change (Busch et al., 2019).

Traditional education systems lag behind, preoccupied with the “what” and “how” of climate change, rather than engaging with the social issues in which students themselves are implicated (Holdsworth, 2019). Students around the world walk out of school on various occasions to protest inaction on climate change, highlighting the urgency displayed in now 19-year-old activist Greta Thunberg’s speech at the 2019 World Economic Forum. Thunberg stated:

Adults keep saying, ‘We owe it to the young people to give them hope.’ But I don’t want your hope. I don’t want you to be hopeful. I want you to panic. I want you to feel the fear I feel every day. And then I want you to act. I want you to act as you would in a crisis. I want you to act as if our house is on fire. Because it is. (Thunberg, 2019)

If education systems are accountable to the youth that they serve, there must be a shift to focusing on achieving justice through action (instrumental skills) and critical thinking (emancipatory) skills.

Given the challenges of mitigating climate change, it is essential to prioritize knowledge and skills that are linked to 21st century livelihoods, adaptation, and best practices from global

experts. These skills include critical thinking, problem solving, relevant content knowledge on environmental education, disaster risk reduction and preparedness, sustainable consumption and lifestyles, and green vocational training. Two key approaches of ESE, emancipatory and instrumental education, encompass many of these skills and are crucial to youth's success in the classroom and the climate justice movement. Instrumental education aims to develop specific behaviors that are deemed right and necessary. Emancipatory approaches focus on education that develops autonomous, responsible, and reflective citizens as agents for change in their communities. In practice, these approaches are not mutually exclusive and often exist concurrently in educational spaces (Wals & Benavot, 2017).

A study in the United States discovered that students feel supported in understanding environmental issues, but that their curriculum is missing a crucial piece that enables them to act on these issues, or instrumental education. Holdsworth (2019) describes a disconnect between future oriented schooling/experiences and the enormous urgency of climate change. Education possesses deferred outcomes, which lose meaning as animals become extinct as students sit and read their Zoology textbooks. To further discuss emancipatory education, opportunities should foster shared and collaborative partnerships between youth participants and adult facilitators to promote intergenerational co-creation of knowledge and power sharing. This is crucial for youth as they serve as climate change activists, then return to class as students and share their knowledge gained. Education must recognize young people as change-makers and active citizens now by equipping them with skills to work together to bring about change, rather than tokenizing or excluding them (Holdsworth, 2019). To bolster youth in their fight for climate justice, educational spaces should create links with the environment across social, political and economic components in order to create holistic, cross-curricular and transformational learning experiences.

The Youth-Led Global Movement for Climate Justice

The demands on education to reverse climate change are ambitious, ranging from incorporating global strategies and contextualizing them locally, to empowering students to change the system while ensuring they participate in it. Youth-led global movements are another important site to develop youth knowledge, collective action skills and move towards climate justice. Youth activism can work hand in hand with education when both are utilized effectively. Youth are creating a network of sustained direct action to reorder our world around climate justice (Connect4Climate, 2020). The international movement has taken on many names, including School Strike for Climate, Climate Strike or Youth Strike for Climate, all of which represent the international movement of school students who skip Friday classes to participate in demonstrations to demand action from political leaders. The best umbrella term and name for this action is the Fridays for Future Movement (FFF). FFF is a movement that began in August 2018 after Thunberg and other young activists sat in front of the Swedish parliament every school day for three weeks to protest the lack of action on the climate crisis. Thunberg posted their actions on Instagram and Twitter, which soon went viral (Fridays for Future, 2021).

The FFF movement is now present on all continents of the world, including 7,500 city chapters and more than 14,000,000 people. The movement's goal is to overcome the climate crisis and create a society that lives in harmony with its fellow beings and its environment through intersectional and intergenerational action. Their demands include creating a safe pathway to keep the global temperature rise under 1.5 degrees Celsius compared to pre-industrial levels, ensuring climate justice and equity, uniting behind the best science currently available and following the Paris Agreement. Direct participation in political protest has been shown to provide youth with the social support necessary for expressing dissent from prevailing norms (Obrien et al., 2018). Youth dissent is expressed through actions ranging from symbolic acts to

political mobilization, including challenges to business-as-usual economic and social policies, like emphasis on economic growth above all else. This includes attempts to shift political and economic power away from the fossil fuel industry through divestment campaigns, boycotts and legal actions that emphasize climate justice (O'brien et al., 2018).

The Experiment Digital *Climate Change & the Environment* Program

From March to May 2020, 100 youth aged 15-18 from public and private high schools in 23 different countries participated in The Experiment Digital *Climate Change & the Environment* virtual exchange program. The program was privately funded and provided full scholarships to all participants. Participants collaborated on Canvas and Slack, two online learning and communication platforms, to complete six weeks of climate justice and cultural exchange coursework. Under the guidance of program management and our skilled Digital Facilitators, participants learned about climate justice, leadership development, understanding the root causes of climate change and the importance of grassroots activism.

Participants were recruited from the network of global youth exchange organizations in World Learning's The Experiment in International Living Federation. Ten countries/organizations were selected to recruit for the exchange and World Learning also opened the application online, offering any youth the chance to apply and promoting the application to our extensive alumni network. As the program manager, I prioritized geographic, cultural, racial and ethnic diversity in our finalist pool. Notably, all participants were required to have an intermediate level of English to participate in the program. The 23 countries ultimately represented by the participants included Algeria, Argentina, Bolivia, Brazil, Canada, Chile, Costa Rica, Ecuador, Egypt, Germany, Guyana, Iraq, Jamaica, Mexico, Morocco, Panama, Peru, South Africa, South Korea, Spain, Sri Lanka, the United States, and Vietnam.

The key text of the program's curriculum was Movement Generation's *Strategic Framework for a Just Transition* Zine, which is a training tool that offers a framework for shifting to a living economy that is ecologically sustainable, equitable and just for all its members. Movement Generation (2016) states, "At the heart of any economy is a deceptively simple set of relationships: we take natural resources, which we combine with human work (a particularly precious natural resource) towards some purpose" (p. 27). The Just Transition framework outlines four pillars of a living economy including resources, worldview, purpose and governance. Culture and governance are also key aspects of an economy because they determine the worldviews and the structures that surround the economy, producing interwoven decision-making and rule-making contexts that serve the purpose of the economy. The Just Transition framework discusses the importance of pulling power down into the communities and creating a deep democracy in which workers and communities have control over the decisions that affect their daily lives, reflecting the systems thinking approach to globalization.

Movement Generation's Just Transition Framework calls for a radical reshaping of not only our economy, but how we build community, live our daily lives and orient our values:

Constructing a visionary economy for life calls for strategies that democratize, decentralize and diversify economic activity while we damper down consumption, and (re)distribute resources and power. Just Transition initiatives shift the economy from dirty energy to energy democracy, from funding highways to expanding public transit, from incinerators and landfills to zero waste, from industrial food systems to food sovereignty, from gentrification to community land rights, and from rampant destructive development to ecosystem restoration. (Movement Generation, 2016)

The Just Transition calls for a total renaissance by building a visionary economy.

The program culminated with a capstone project called the **Radical Imagination Vision Board**, which asked participants to dream up the most beautiful, radical, and climate just world that they could imagine. The project was intended to push participants to think outside of the systems that dictate our world today and envision a bolder, brighter future. There was no set structure to the project, as it was intended to be free form to best complement participant learning styles and to promote creativity. Participants created Padlets, videos, art projects, spoken word pieces and organized community protests. Please find the final Radical Imagination Vision Boards for the program available on this [Padlet](#).

This study brings together youth activism for climate justice and education in both formal and non-formal settings. There is ample research on ESE application in school systems through policy, the youth movement for climate justice and numerous theoretical frameworks to explain the gap between possession of environmental knowledge/awareness and displaying pro-environmental behaviors. However, there is a dearth of research in climate justice education specifically, and the crossover of youth activism for climate justice and education. Finally, climate change education research tends to focus on northern and western contexts. Considering the global nature of the climate crisis, it is critical to explore educational strategies across diverse yet interconnected contexts. This study seeks to fill that gap by analyzing *The Experiment Digital Climate Change & the Environment* as a case study, determining both how diverse youth conceptualize climate justice and how education can support and guide youth movements and actions for climate justice.

Despite the paucity of research in this area, I located a recent study that analyzed an international education project in which 99 students from 13 countries joined virtually in a climate change learning experience, culminating in the collaborative presentation of a paper to the 2018 IPCC Cities and Climate Change Conference. Karsgaard & Davidson (2021) explored

how to best incorporate youth into policy making decisions on climate and education as a result of the experiences of the participants on their virtual exchange program. They framed their research with critical global citizenship education, drawing out implications for education policy from the key themes that emerged in their study: justice, individualization and emotionality. While this study took a different approach, the parallels between the program model and international nature offer an opportunity to add to the existing field of research with differing ideas, approaches and results.

My study fills a gap in the literature regarding international and experiential education programs and will generate important lessons that could apply to formal educational spaces. The geographic representation of The Experiment Alumni is also compelling within the research on this topic, providing findings that may be applicable across the world, as well as nuanced examples of climate justice education and activism in local contexts.

Research Design and Methodology

Methodology

To answer my research questions of “How is climate justice education and activism conceptualized and experienced by participants from diverse international contexts?” and “Utilizing The Experiment Digital *Climate Change & the Environment* as a case study, how can these conceptions best inform educational opportunities to support and guide youth movements for climate justice?” I utilized qualitative research methodology to study the experiences and opinions of alumni of The Experiment Digital *Climate Change and the Environment*. Their insights shed light on the crossover between activism and education, which are social phenomena that occur in the natural world, thus justifying qualitative research (Marshall & Rossman, 2016). This study is designed in a flexible manner, utilizing various qualitative methods to best capture participant’s context, personal experiences, and interpretation of those experiences.

Site and Participants Sampling

I used purposive sampling to select participants from alumni of The Experiment Digital *Climate Change & the Environment*, which served as the site for the study. I recruited volunteers from the entire cohort of alumni who successfully completed all program requirements, striving to include a sample with reasonable variation in the settings and people represented in this program (Marshall & Rossman, 2016). In the end, I received 35 survey responses from the youth participants representing 58% of program alumni. To align with my conceptual framework and to best answer my research questions, I monitored survey responses to ensure that participants from diverse regions of the world and varied socioeconomic and cultural backgrounds participated. Out of 23 countries that participated in the original program, 17 countries are represented in this study throughout the survey and interview processes.

Methods of Data Collection

Survey

To better understand how educational opportunities best support and guide youth movements and actions for climate justice, I administered a survey to alumni of The Experiment Digital *Climate Change & the Environment* to understand their experiences, perceptions, and recommendations. The survey was administered through an online questionnaire, combining both open and close-ended questions, which allowed me to understand the nuance behind data patterns. The survey required one hour of time to complete.

The sample size for the survey responses was 35 respondents (N=35). Twenty-seven respondents identified as females and eight respondents identified as males. In terms of age, 18 respondents are between 15-17 years old, and 17 respondents are between 18-20 years old. Out of 23 countries that participated in the original program, 17 countries are represented in this study throughout the survey and interview processes. The respondents represent 17 countries,

including Argentina, Brazil, Canada, Costa Rica, Ecuador, Egypt, Germany, Guyana, Iraq, Jamaica, Mexico, Panama, Peru, Spain, Sri Lanka, the United States and Vietnam.

Figure 1

Map of survey respondents' country of residence



Questions in the surveys were grouped into three categories: Background and Motivations, Case Study and the Crossover of Climate Justice and Education. The survey responses formed the base of the data collected and findings, shaping not only the results but informing the interview questions. Of the 35 participants, 21 respondents took the next step to volunteer their time for an in-depth interview.

In-Depth Interviews

Following the survey method, I utilized in-depth interviewing to further examine how educational opportunities can best guide and support youth activism for climate justice. In-depth interviewing is a “construction site of knowledge” where I will better understand this social phenomenon by gaining insight into the participants’ experiences, thoughts, and opinions (Kyale & Brinkmann, 2009, p. 14). Guided by the study’s research questions, I utilized semi-structured interviews to achieve a systematic and iterative gathering of data. Interviews were

conducted on World Learning’s Youth Exchange Unit Zoom account, which is a secure, password protected platform. My questions were arranged in a protocol that evoked rich answers, but also allowed for cross-comparisons of answers and analysis (Marshall & Rossman, 2016). I developed interview questions in conjunction with the survey data, utilizing the survey data to detect patterns of learning and climate justice activism to be able to edit interview questions based on preliminary trends.

I conducted seven semi-structured interviews with survey respondents that lasted approximately 40 minutes each. The interviewees hail from six regions across the world, including the Caribbean, Europe, Latin America, Middle East Northern Africa (MENA), North America and South Asia. In order to protect the identity of the interviewees, I elected to qualify their responses by their region only. Demographics and educational backgrounds of the interview participants are included in Table 1 below.

Table 1

Interview Participant Data

Pseudonym	Gender	Region	Ethnic/Racial	CJ Education in School?	Educational Background
Alvita	Female	Caribbean	Afro-Caribbean	Yes	IB high school, 1 exchange program
Karla	Female	Europe	Ugandan/Black	No	Public high school geared towards university preparation
Hernan	Male	Latin America	Hispanic	No	Technical Public high school, 1 exchange program, public university
Sofia	Female	Latin America	Hispanic/White	Yes	Public high school, 2 exchange programs, public university
Layla	Female	MENA	Arab	No	International private high school, attending university internationally
Kevin	Male	North America	White	No	Charter and public schooling, 2 exchange programs, public university
Sharv	Male	South Asia	Asian	No	International private high school

As previously mentioned, questions in both the surveys and interviews were grouped into three categories: Background and Motivations, Case Study and the Crossover of Climate Justice and

Education. The survey responses formed the base of the findings, while the interviews provided an opportunity to dive deeper into survey responses and to pull out more cultural, regional and personal context that offered key nuance to the case study of the program.

Ethics of Research

Using ethics as my guiding force, I took the following actions to protect my participants' privacy and confidentiality and to provide them with an adequate understanding of the study. While there is no inherent risk in this research, the participants in my study were between 16-20 years old, and I followed ethical practices to protect minor participants. First, I ensured their privacy and confidentiality during our interactions online and throughout the production of my study. The anonymous questionnaire collected demographic information and personal vignettes, but not participants' names. The final survey question asked if participants would like to volunteer to be interviewed more extensively for the study and contact information would be collected at that time. I provided my participants and their parents/guardians with an adequate understanding of the study through extensive consent/assent forms, informal conversations on their understanding of them and messages that addressed the inherent power dynamic between myself as the program manager and them as the Alumni of the program. The 35 study participants and their parents/guardians signed an informed consent/assent form, including an explanation of voluntary participation and their right to withdraw from the study at any time. Pseudonyms were used to avoid any identifiable information. My research design and the ethics that guided it engaged in a symbiotic dance that adjusted and flowed as the study unfolded.

Researcher Positionality

As the researcher in this study, I feel very strongly about the climate justice movement and how educational opportunities can empower youth in their work as activists. I acknowledge my positionality, my social views, White racial identity, and middle-class socioeconomic

background. Additionally, I acknowledge that the site of my research study, which is a network of alumni, is inherently reflective of my personal relationship with several of the participants. To mitigate the effects of bias on my study, I acted in the following ways to maintain ethics. First, I remained cognizant of the language I use in the survey and interview questions, ensuring that inquiries are not emotionally charged or leading. During the interview process, I responded neutrally and naturally. Questionnaires did not include identifying information and interview data were entirely anonymous, encouraging respondents to answer honestly and avoid social desirability bias, which involves constructing false answers they would deem more favorable to others (Grimm, 2010).

Data Management

Data was managed through various strategies of systematic collection, organization, and transcription. Data was stored in a password protected document and on secure Google and Microsoft Office servers until the completion of this project. Afterwards, it was deleted and will not be used for any future project. I transcribed the interview through an online program and deleted it from my online profile afterwards. I created codes and coded data in Dedoose, an online coding program which is password protected. I also mapped out research themes on post-it notes and block paper, which was shredded after the project is complete.

Data Analysis Procedures

I connected with the analogy LeCompte (2000) used when describing data analysis as being similar to taking apart and reassembling a jigsaw puzzle. During a preliminary analysis, I organized the data into broad categories, just as one gathers puzzle pieces of similar color or straight edges. Grouping data by many different attributes slowly deepens understandings and leads to connections between the groupings.

Utilizing the survey data, I selected seven participants for interviews who can best answer the research questions. Through a purposive sampling, I looked for survey participants who critically analyzed their educational opportunities and how they relate to climate activism. To discern which participants could offer adequate data, survey respondents were sorted by the variety of their educational opportunities and their level of activity in climate movements. I also prioritized selection based on the diversity of age, region, and gender, choosing interview participants who represented seven different countries and six unique regions of the world. This prioritization will ensure data quality through participants' knowledgeability, subjectivities, and candor (Marshall & Rossman, 2016).

Data analysis unfolded continuously during data collection and interpretation, following the recommendations of Johnson and Christensen (2008). I read my data multiple times before starting analysis, noting major themes and answers to questions. Before coding, I outlined preliminary themes on post-it notes and poster paper to synthesize the data fully. I coded my data inductively to account for surprising information, and then deductively to capture anticipated concepts (Marshall & Rossman, 2016). The conceptual levers of ESE attributes and climate activism, among others, guided the development of categories for codes. The resulting coding system included relationships among coding categories and created sub-codes for further analysis and theme development. I utilized in-vivo codes to best capture outliers that will lead to deeper clarifications and alterations of my data analysis (Marshall & Rossman, 2016).

Credibility

Various strategies were employed to render the study credible, including the conceptual framework, the acknowledgement of previous biases, and transactional and transformational validity (Marshall & Rossman, 2016). The literature review and conceptual framework employ historical examples and incorporate multiple theories from diverse sources, ranging from

peer reviewed journals to news articles discussing the social phenomena of climate justice.

Furthermore, the acknowledgement of my biases as a researcher in my positionality statement also situate my assumptions and position on the topic.

Transactional validity is an interactive process between the researcher, the researched, and the collected data. Cho & Trent (2006) argue that the central procedure to ensure transactional validity is to perform member checks, which is when data or results are returned to participants to check for accuracy and resonance with their experiences. I performed member checks by sharing transcriptions of the interviews with each interviewee and allowing them to double check my record of our interaction. At the end of the study, I will invite participants to confirm my findings and welcome their feedback on my results. To further ensure transactional validity, I employed multiple method research, critical reflexivity, and peer reviews. Multiple method research enables the qualitative researcher to study relatively complex entities or phenomena in a way that is holistic by employing multiple methodologies (Marshall & Rossman, 2016). My wide range of interconnected interpretive practices, including survey results, interviews, and a strong conceptual framework, allow me to totally immerse myself in the material and produce case-study centered research on *The Experiment Digital Climate Change & the Environment*.

Critical reflexivity works hand in hand with acknowledging my researcher positionality, as it requires me to constantly evaluate how I am functioning as a finely tuned researcher, whose personal talents, experiential biases, and insights will be used mindfully (Marshall & Rossman, 2016). For example, as I collected and analyzed data, I paused to self-reflect and ensured that I was not being overly subjective or reversely, not critical enough. I also called upon my community of practice and critical friends in our capstone cohort to peer review my study and

encourage my reflexivity. They reviewed multiple drafts of my thesis at the proposal, data collection and analysis stages.

Transformational validity requires researchers to design their study with an emancipatory approach, meaning that research results contribute to societal transformation and can be catalysts for a widened understanding of the human condition (Cho & Trent, 2006). My study promoted transformational validity through advocating for better education to promote climate justice, which requires the protection of vulnerable populations, namely frontline communities threatened by the climate crisis.

Limitations

Limitations, or weaknesses, of the study include a limited recruitment network and inherent power dynamics. I utilized the network of alumni from *The Experiment Digital Climate Change & the Environment* as the sample for the study, which is inherently limited due to its size and the shared interest of participants in climate justice. Alumni were extremely responsive, with over half of the Alumni cohort responding to my study, but the sample size is smaller than larger scale studies. While not every program Alumni identified as an activist before or after the program, they each shared enough interest and volition to successfully complete a climate justice themed program. It is important to acknowledge that the data reflects the fact that each participant is already interested in climate justice and learning more about this topic.

In terms of data collection methods, interviewing has its limitations due to relational dynamics. Interviews are intimate encounters based on trust and rapport. While I have an established rapport with my interview participants, there is also a power dynamic at play, as I was the manager of their program and responsible for them during the six weeks of implementation. I am also older than my interview participants, which at times can contribute to a power dynamic as well. To combat this dynamic, I shared messaging that encouraged Alumni

to participate in the survey if they felt like they had the capacity and interest to do so, reiterating that it would not jeopardize their Alumni status in any way if they chose not to participate.

Findings

I examined the relationship between education and the youth-led climate justice movement in the case study of The Experiment Digital *Climate Change & the Environment* and through study participants' conceptualization and experiences with climate justice. These conceptualizations offered crucial context into their education, activism and motivation to fight in the youth-led movement as well as framed the ways that educational opportunities guide and support activism. The study found that international relationships improved critical thinking and collaboration and that combined with systems thinking curriculum, the program spurred increased action for climate justice.

Participants' Conceptualization of Climate Justice

In order to answer the first research question: "How is climate justice education and activism conceptualized and experienced by participants from diverse contexts?" I sought to understand the backgrounds and experiences of participants with climate justice in order to understand the ways in which they derive meaning from the topic. The major themes that emerged included ideas and stories related to education, activism and motivations to fight for climate justice. The participants' meaning making of climate justice, or the way that they construe, understand, or make sense of life events, is critical in understanding how educational opportunities best support youth's climate activism and guide youth in their creation a new, radical world.

Education

In terms of background on climate justice education, most study participants cited self-education as their main source of learning about these topics. The majority of study participants

attended public schools and 22 respondents did not have climate justice as a part of their formal educational background, while 13 replied that they did. Many survey respondents noted that if climate justice was a part of their curriculum, it was only because the specific teacher decided to incorporate it, rather than the system supporting them. Participants stated that they learned about environmental sustainability informally, from conversations with their families, outdoor activities, volunteer opportunities like Girl Scouts or trash clean ups, or from information on social media, rather than in school. Self-education on climate justice was a uniting thread amongst this motivated group of participants. For one, they all successfully completed a voluntary virtual exchange program on climate justice. In addition to the program, references to self-education in the surveys included TED-Ed Talks, YouTube videos, following activists on social media, reading non-fiction books, visiting museums, Model UN debates and other international exchanges, like CISV Villages and virtual programs. CISV Villages are international camps that bring 11 years old's together to take part in a variety of educational, cultural, and fun activities. Each Village welcomes delegations from 10-12 countries (CISV International, 2019).

Despite these informal opportunities to learn about climate justice, study participants emphasized that environmental schoolwork focused on stewardship of nature and the negative effects of climate change, rather than climate justice or root causes. For example, a survey respondent from Latin America, stated:

Unfortunately, at school we only saw climate change as an environmental problem and not as a political, social and economic one. For example, we mostly saw topics about the consequences of global warming, like the glaciers are melting and that polar bears are being left homeless. Another example is that we only saw solutions like recycling or

reusing, which are important, but they are not the only way to approach this problem.

(Anonymous, Survey, 2022)

Many study participants gained their first exposure to climate justice through The Experiment Digital *Climate Change & the Environment*, like Hernan, from Latin America, who stated:

I wasn't aware that something called "climate justice" existed until I participated in The Experiment Digital *Climate Change & the Environment*. I entered this program because I have been very interested in environmental matters since around three years ago, when I came across a news article about the Fridays for Future movement... You could say I became interested in climate justice because of my interest in climate change and also in social issues. (Anonymous, Interview, 2022)

Activism

As study participants had varying levels of knowledge on climate justice from differing sources, they also demonstrated different levels of activism for climate justice upon joining The Experiment Digital *Climate Change & the Environment*. Ranging from formal engagements like clubs, organized protests through FFF, presentations at school and designing curriculum on changing personal consumption patterns and having conversations with community members, numerous survey participants agreed that there are no small or invaluable initiatives when it comes to fighting for climate justice. Sofia, from Latin America shared her level of activism:

I have been a formal member of a few climate justice-oriented organizations in my town, and I have also participated in more “informal” settings, like attending rallies/protests or helping with projects such as the cleaning of beaches or the installment of trash cans for cigarette butts on our town’s coast. I would also say that I’m active in the climate justice movement in my daily life: every time I recycle, every time I don’t eat meat and every

time I take some time to consider what is the best I can do to protect our future.

(Anonymous, Interview, 2022)

Kevin, from North America, summarized the importance of actions of any scope :

I believe involvement in a fight of this magnitude can be done by anyone. I admit, there are times when I probably do not do the absolute best I can, but that doesn't mean I am not involved to any extent. It is important to note that action can be conducted in many different ways. For example, through the use of social media, I make sure my opinion is heard by making many calls to action. On top of this, I also love to exchange ideas and opinions with those around me and those who are far away through international exchange. I truly believe everyone can make an impact if they choose to. There is no such thing as a small or meaningless initiative. (Anonymous, Interview, 2022)

Barriers to Activism

Despite the support for actions of any size or kind, ample barriers remain to participation in the youth-led climate justice movement. Survey respondents and interviewees alike commented on the difficulties of organizing direct actions in the pandemic due to social distancing guidelines and general health and safety protocols. “Because of COVID, I don't have the possibility to volunteer locally. I do my part by following pages of organizations that are always writing letters to find a solution, so I sign the letters and share them with friends,” shared a survey respondent from Ecuador (Anonymous, Survey, 2022). Participants also shared that another major barrier is being busy at school: “You start to forget about the enormity and urgency of the climate crisis because you are so stressed, distracted and busy every day,” stated Layla from MENA (Anonymous, Interview, 2022). Finally, several survey respondents described a lack of culture around protesting and organizing in their communities, and that in some countries, the government bans resistance. For example, Sharv from South Asia shared, “I would

have a lot to lose if I protested. My family would be mad, and I could get into legal trouble. I try to engage in conversations with trusted people and honestly, become more involved in international spaces that are more accepting of my ideas,” (Anonymous, Interview, 2022).

Motivations

Considering the lack of formal climate justice education for most study participants, varying levels of activism and barriers to participation in the youth-led climate justice movement, youth are still dedicated to fighting for a more radical and just world in the face of dire climate change challenges. Analyzing the data across surveys and interviews, three major themes of motivation emerged: hope for a beautiful future, inspiration from fellow youth activists, and fighting for justice for everyone.

Hope for a radically better future unites alumni of The Experiment Digital *Climate Change & the Environment*. Rather than feel overwhelmed by all that will be lost in the climate crisis, 23 survey respondents mentioned hope for a more beautiful future as one of their main motivations to learn about and fight for climate justice. Sofia, from Latin America, shared the following sentiment:

I'm hopeful that we will learn from every mistake, and we will advance to a point where I won't have to be in a constant state of desperation. I'm hopeful that I will be able to brush my teeth and not feel miserable about the few seconds that I forgot to close the faucet. I'm hopeful that I will be able to feel the heat in summer and cold in winter. I'm hopeful that I will be able to become a mom without the fear of not knowing how bad the future will be for my children. I'm hopeful that I will feel safe and comfortable in the world I live in. (Anonymous, Interview, 2022).

The electrifying energy of the youth-led climate justice movement inspires study participants to continue learning and engaging in the fight. Twenty survey respondents cited the

importance of friendships and community in their quest for resources, information, inspiration and radical social change. For example, a participant from Latin America stated, “What motivates me is that more and more people are part of this movement, so I know that little by little we will continue to make changes to our planet. If we are not part of the solution, we are part of the problem” (Anonymous, Survey, 2022). Other respondents also referenced feeling empowered by community and changes they see in themselves and their peers, as well as larger systems level changes across the movement.

The third theme of motivation is fighting for justice for everyone, including nature, frontline communities, their own futures and the entire world. Kevin, from North America, stated:

This is oftentimes one of the hardest battles I must fight with myself. Why should I continue to fight for a cause that sometimes seems to fall into the backseat of the political sphere? Why should I continue to pay for an education if my world is going to be filled with despair, pain, and hardship when my degree will be useful? The answer is simple: I fight for everyone. I fight for myself, to preserve a future for myself. I fight for the future well-being of my younger siblings, my children, and grandchildren. I fight for all those who can't find the fight themselves, such as the many species that roam our Earth, unevenly feeling the impacts of a crisis they have hardly contributed to. I fight for those who do not want to fight. I continue to find courage in adversity. I continue to fight so those around me do not have to live in fear. A fear that one day, these disasters will hit home, as it is only a matter of time. (Anonymous, Survey, 2022).

Alvita, from the Caribbean, summarized the feeling of the injustice of climate change and complexity of living on an island nation. She stated that trash from around the world washes up on her island nation, a constant physical reminder of the privilege of people in regions more

buffered from the effects of climate change, who don't care about her life in one of the locations most vulnerable to climate change. Meeting participants in *The Experiment Digital Climate Change & the Environment* who deeply cared about climate justice for the most vulnerable populations greatly motivated her to fight as well.

In summary, the study participants made meaning of their climate justice experiences by evaluating their educational backgrounds and their role in the activist sphere. Despite relying on self-education and overcoming numerous barriers to engagement in the movement, participants remained motivated to make a difference. They cited hope for a beautiful future, inspiration from fellow youth activists, and fighting for justice for everyone as their main motivations.

Educational Opportunities to Inform Climate Justice Activism

Understanding how youth interpret climate justice is critical in answering my second research question: Focusing on *The Experiment Digital Climate Change & the Environment* as a case study, how can educational opportunities best support and guide youth movements and actions for climate justice? Their meaning making of climate justice directly informs how educational spaces could expand and galvanize their activism. To answer my research question, I will analyze *The Experiment Digital Climate Change & the Environment*'s curriculum and overarching impacts. In the curriculum evaluation, study participants rated each curriculum, with systems thinking, dialogue sessions and collaborative group work identified as the most effective and top-rated curricula. Zooming out, participants identified three overarching program impacts: the international exchange improved critical thinking; systems change curriculum as a highly effective tool; and an overall increase in actions taken for climate justice as a result of program participation.

Case Study: The Experiment Digital Climate Change & the Environment

Overall, The Experiment Digital *Climate Change & the Environment* received overwhelmingly positive feedback from program alumni. One participant from the Caribbean stated, “This program changed the trajectory of my fight for climate justice, allowing me to see things from a different perspective and get inspired by peers around the world while learning about the things that my school failed to teach me” (Anonymous, Survey, 2022). In addition to program alumni satisfaction and curriculum evaluation, I evaluated The Experiment Digital *Climate Change & the Environment* within the ESE framework, assessing how each key topic area was incorporated into our curriculum, which are listed in the chart below. Survey respondents were asked to rate the level of competency they reached for each skillset. Overwhelmingly, respondents self-rated themselves as *Extremely Competent* or *Competent* in all key areas, except for *The precautionary principle (taking action even if there is no definitive scientific proof)* and *Environmental stewardship*, which each had one respondent that did not feel competent in that area.

Notably, the key topic areas of *Global Citizenship*, *Think Critically (value various issues)* and *Individual consumer/political decisions have a global ripple effect* had 100% response rates of *Extremely Competent* in survey responses. Linking The Experiment Digital *Climate Change & the Environment* to key topic areas of ESE supports the case study by situating the program curriculum within a tested and internationally recognized educational approach. Despite ESE not having a set curriculum or mode of implementation in formal or informal education settings, the key topics guide climate justice curriculum standardization on a micro scale within educational opportunities. Thirty-three out of 35 of survey respondents accomplished competency in all ESE key topic areas, demonstrating overall program efficacy. Key Topic Areas of Environmental and Sustainability Education are outlined in Table 2 below.

Table 2

Key Topic Areas of Environmental and Sustainability Education	
Communicate effectively	Considering multiple viewpoints from multiple stakeholders
Think Critically (value various issues)	Realizing that Technology alone will not solve all of our problems
Move from awareness to knowledge to action	Individual consumer/political decisions have a global ripple effect
Work cooperatively	The precautionary principle (taking action even if there is no definitive scientific proof)
Inquire, act, judge, imagine, connect, and value	Intergenerational perspectives
Humans having universal attributes (wanting what's best for their children)	Environmental stewardship
Social justice and fair distribution	Respect for limits
Systems thinking and interdependence	Importance of local place
Economic alternatives	Green Energy Sources
Nature as a model and teacher	Global citizenship

Curriculum Evaluation

Survey respondents were asked to specifically evaluate the overall curriculum and specific program activities of The Experiment Digital *Climate Change & the Environment*. Overall, alumni greatly valued how the program focused on teaching youth the most effective tools to make change for climate justice, with 100% of survey respondents agreeing that the program offered them effective and practical tools for their work as an activist. The curriculum pieces that had the highest rating in terms of impact were the **Just Transition Framework and Systems Change Thinking**, the **Radical Imagination Vision Boards**, **Sustainable Cities Group Work** and **Debunking Myths Dialogue** curriculum. Each curriculum piece was scaffolded to introduce topics in an effective manner. Please see Appendix A for the full program curriculum flow and a summary of the Sustainable Cities Group Work and Debunking Myths Dialogue curriculum and Appendix B for a summary of suggested program improvements garnished from this study.

The **Just Transition and Systems Thinking** curriculum formed the base of the program, introducing the concept of a regenerative economy and leverage points, or where a system can be

changed. One participant from Latin America agreed that evaluating the oppressive systems that perpetuate climate change was crucial, stating:

I first thought that technology was the answer to every problem related to climate change. However, after The Experiment Digital *Climate Change & the Environment* program, I realized how vital it is to tackle this huge problem through the philosophy of the “regenerative economy pillars.” Now that I’m studying medicine, I feel very proud of the awareness I’ve acquired in the last couple of months. I’m able to start the conversation about how health professionals can take these elements into their daily practice and the health system: world views, sacredness, deep democracy and cooperative work.

(Anonymous, Survey, 2022)

The importance of the **Just Transition and Systems Thinking** curriculum will be discussed again in this paper within the context of the Crossover of Climate Justice and Education.

One specific site visit was essential in typifying the systems thinking curriculum. [Youth vs. Apocalypse](#) joined the second program workshop for a virtual site visit. They are a diverse group of young climate justice activists working together to lift the voices of youth, in particular youth of color and working-class youth. Their collective action aims to fight for a livable climate and an equitable, sustainable, and just world. They have led many successful movements, most notably organizing a 30,000-person direct action march that led to the California Teachers Association divestment of public teacher’s retirement funds from fossil fuel companies (Youth vs Apocalypse, n.d.). This virtual site visit with Youth vs. Apocalypse links back one of the main motivations that keeps alumni engaged in the climate justice movement, which was feeling inspiration and community from fellow youth activists.

Key Impacts of The Experiment Digital *Climate Change & the Environment*

Building off the specific outcomes from the curriculum assessment, I will now outline key impacts and takeaways of the program that continue to answer the second research question: Focusing on The Experiment Digital *Climate Change & the Environment* as a case study, how can educational opportunities best support and guide youth movements and actions for climate justice? These key impacts guide outside educational opportunities in determining the most thought provoking and effective elements of a program and contribute greatly to better understanding on how education supports the youth-led climate justice movement.

International Exchange & Networks

Study participants emphasized time and time again that the international nature of The Experiment Digital *Climate Change & the Environment* was the crystallizing force behind their positive and unique experience in the program. Participants referenced multiple lasting impacts of the global nature of the program and the ability to experience and conceptualize climate justice with diverse peers from 23 countries. The most salient takeaways from the global setting of the exchange program include improved critical thinking and global viewpoints on climate justice, community building and solutions sharing. Study participants concluded that they advanced their critical thinking skills through the exchange of ideas and experiences on an international scale. They gained a holistic understanding of climate justice that included diverse observations, experiences, arguments and new facts that challenged and expanded their previous awareness of climate justice. One survey respondent noted that their newfound international friendships contextualized information and scientific facts about the climate crisis on a level that is not usually attainable in educational opportunities.

An example of this occurred during a moving moment that I witnessed during a dialogue session, when a participant from Germany brought up how they were concerned that the US, as a global leader, continues to let the quest for fossil fuels dominate our foreign policies. A

participant from the United States responded that they also felt similarly but felt that their schooling hadn't prepared them for this conversation and that the opinion was not common in their hometown. Mentally, I noted that participants in Germany joined the exchange program with a higher level of comfort in discussing the climate movement in comparison to their international peers, perhaps due to a strong cultural consensus around sustainability in Germany. A participant from Iraq chimed in, stating that they want to move away from an extractive economy but worry that they would be unable to do so without decimating their national economy. The conversation continued until a participant from an island nation in the Caribbean added regarding how these conversations between nations are important but do not really support their immediate need for relief from the catastrophic effects of climate change, like increasingly severe hurricane seasons.

This moment encapsulated the importance of international friendships in personalizing and illustrating climate justice around the world. Another survey respondent added a personal touch to that sentiment, sharing that now when they think of a country, they think of a person's name and when they think of climate justice, they think of their peers' faces. Kevin from North America elevated this point, adding in how these relationships challenged his opinions and improved his critical thinking on climate justice:

I feel like the tools that were given to me and that were further developed as a result of me completing this [program] were exponential. Not only were my communication tools expanded, but my lenses that I use to identify differences in opinion and culture were expanded, and not in a bad way. I realized furthermore that all cultures and people are different, but all have very meaningful and beneficial ideas that we can use to help combat this crisis. (Anonymous, Interview, 2022)

International relationships and the community around climate justice activism are crucial in motivating youth to join the climate justice movement and sustaining their efforts, as evidenced in the previous findings on motivations. Many of the alumni of The Experiment Digital *Climate Change & the Environment* program continue to keep in touch on social media, WhatsApp and through personally facilitated language exchanges. One alumna is also planning to host a reunion for the one-year anniversary of the program in May 2022 to bring the cohort back together in our shared fight. Participants reported feeling less alone in the fight and less scared for the future after realizing that many of their peers are working together to create a more beautiful world. “An experience like this is really motivating because it allows us to meet new people who are interested in the same goal, who live in a different place with different cultures and conditions but who want to fight for the same cause,” shared a survey respondent from Latin America (Anonymous, Survey, 2022).

Solution sharing and gaining cultural nuance for climate solutions was also a decisive advantage of the global reach of the participant group. The participants shared local solutions and discussed how they could work in their own communities or apply them to their activism on a global scale. The concept of global and local is emphasized throughout ESE as one of the most effective tools to combat the climate crisis. Solutions sharing is impactful in the way that it spreads knowledge and tactics to reach climate justice, but the amplified impact lies in the community that it creates around the fight for climate justice.

Systems Change Curriculum as a Highly Effective Tool

Outside of the high ratings that the **Just Transition and Systems Change** and **Youth vs. Apocalypse** site visit curricula received, it challenged participants' emphasis on individual actions and realigned them to focus on one of the most effective tools for climate justice: systems change. While participants agreed that individual actions for sustainability are still important, the

Just Transition framework was deemed a more effective tool for climate justice because it builds a more sustainable solution in the shift from an extractive to a regenerative economy. The Youth vs. Apocalypse site visit confirmed this idea and provided an example.

During the program, participants generally agreed with ranking systems change as a more effective tool in achieving climate justice over individual actions, but there were a lot of questions throughout the program on how individual actions could contribute. Our curriculum consultant aptly shared a metaphor to illuminate this discussion in one of our workshops. They stated that, “If you put a bunch of individual rocks in a river, the river won’t change course. But if you change the course of the river, those individual rocks will follow the course of the river. If we focus on system change, individual actions will often fall in line. But if we focus on individual actions, most often that systemic shift will never occur.” Systems change thinking prepares youth to focus their precious time and efforts on the most effective solutions, as the clock continues to tick on climate change.

One year after the program began, study participants continued to advocate for systems change and apply the Just Transition framework to their advocacy. A survey respondent from Latin America stated:

After [the program] I realized that big changes are needed. Taking action on your own isn't enough anymore, so we need to stick together to fight the system that relies on damaging the environment for the sake of money. Being a climate justice advocate can be scary and dangerous but if more and more people join the movement, it will be easier.

(Anonymous, Survey, 2022)

A fellow survey respondent agreed with them, referring to the Youth vs. Apocalypse site visit where they discussed their success in divesting California teacher’s pensions from fossil fuel companies:

I totally believe that the program offered me the necessary tools to work as an activist. First, and I would even say most importantly, is that we were provided with a huge inspiration; getting to meet Youth vs. Apocalypse members was just an experience out of this world. I couldn't believe what I was hearing. Was it possible that a group of kids held a public pressure movement to stop capitalist forces through the government? Well, now I know it's in fact possible and that just makes me be brave and put into practice all the theory we acquired and all the discussions that took place during the programs for the benefit of our communities. (Anonymous, Survey, 2022)

The importance of individual actions and inspiring one's community to join in should not be entirely discounted, as study participants emphasized the importance of all actions previously. However, as evidenced, a more radical approach is warranted to meet the looming timeline of the climate crisis.

The participants of The Experiment Digital *Climate Change & the Environment* demonstrated their understanding of prioritizing systems change in their **Radical Imagination Vision Boards**, sharing examples of redesigned egalitarian education systems to promote equity, mutual aid networks, the people serving as the power base of politics through dialogue with politicians and anti-lobbying laws, restorative justice for frontline communities, job growth in clean energy, universal health care and cultural consensus around caring for the environment. Their shift from focusing on individual actions to systems change shows the true potential for the climate crisis to become a radical renaissance of our entire world's way of living.

Program Spurred Increased Action for Climate Justice

This study established a crucial link between participation in the program and increased actions to fight for climate justice. Thirty-one out of 35 respondents increased their participation in direct actions in the climate justice movement, with 19 respondents significantly increasing

their participation and 12 somewhat increasing their participation. A survey respondent from Latin America shared, “Previous to the program I did not do much concerning climate change, overall, only individual actions. After it, I felt a deep concern and desire to grow more into action, so I started looking for groups and ways to participate in activities locally” (Anonymous, Survey, 2022). Other survey respondents agreed that program empowered them to act, citing examples of organizing an Earth Day event, creating an online educational resource database with information on environmental education and building an updated carbon footprint calculator that includes systems change actions in its calculations. Sofia from Latin America strengthened the connection between information on climate justice and action:

With the program, I learned a lot of new things that made me want to investigate more and find out the real iceberg of climate change/justice. I really enjoyed sharing this newly acquired information with other people and further spreading it. Thanks to the program I also made wonderful connections with truly amazing people that shared their climate justice projects with me. These projects inspire me to keep being an active member of my community and to increase my engagements. (Anonymous, Interview, 2022)

Furthermore, survey respondents mentioned that the information they gained in the program also improved their understanding of climate change through the lens of justice. Rather than learning about the impacts of climate change, multiple respondents noted that they learned to discern climate change as a complex, multifaceted social issue, rather than a scientific phenomenon. A deepening understanding of climate justice that encompasses both the social and environmental impacts of climate change strengthen the movement.

Crossover of Climate Justice and Education

With the research question of *Focusing on The Experiment Digital Climate Change & the Environment as a case study, how can educational opportunities best support and guide youth*

movements for climate justice? guiding the discussion, the study shifted focus to placing the impacts of the case study and the experiences and conceptions of climate justice into the discussion on the crossover of education and the climate justice movement. Does the climate justice movement have a place in educational opportunities or vice versa? The participants' meaning making of climate justice coupled with their impressions of an educational opportunity in the case study serve as the base for extrapolating to the larger question of how education and social movements interact. Two main findings emerged in this inquiry, including viewing information gathering as the crucial first step toward activism and the importance of considering context when incorporating ESE or climate justice into traditional school systems.

Information Gathering Crucial First Step for Activism

The strong linkage discovered in the case study between *The Experiment Digital Climate Change & the Environment* leading to increased actions in the youth-led movement is a compelling argument for augmenting educational opportunities in both formal and informal settings. Interviewees confirmed that the increased activism experienced after their program could be extrapolated to a larger conversation on how information spurs actions in general. In the interviews, I asked, "What would you say to someone who is hesitant to fight for climate justice? What could be their first step?" After pondering the question for a moment, unanimously all seven interviewees cited gathering information and increasing their understanding of the climate justice movement as the first step. Layla from MENA stated:

When you are entering an activism space, you need to be prepared with knowledge to participate intentionally. Solid information, preferably from an educational source or experience is essential. Reversely, information can also spur activism rather than be a prerequisite to acting. It is essential in all forms. (Anonymous, Interview, 2022)

Galvanizing youth to act is a major contribution to better understanding the crossover of education and the climate justice movement. Educational opportunities serve as a supportive environment in which to explore climate justice and move along the scale of allyship towards activism. With information gathering firmly established as the first crucial step to engage in the climate justice movement, the interviews shifted to discussing the role that education plays in this process.

ESE and Climate Justice in Formal Educational Opportunities

Study participants agreed that virtual or travel exchange programs are great ways to accomplish sharing of solutions, systems change, but that these elements are a part of an ESE approach that could be incorporated into traditional schooling and education systems. Acknowledging that school is the nucleus of their lives and their biggest time commitment, most study participants felt that it would be a missed opportunity with dire consequences for humanity to not have climate justice education in schools. Thirty-five out of 35 survey respondents agreed that there is a strong connection between education and achieving climate justice, and 30 respondents agreed that climate justice should be a part of all educational opportunities including traditional school systems. One survey respondent from Latin America stated, “To describe the relationship between education and climate justice in one word: vital. If we’re unaware of the available tools... then all the awareness of the situation becomes useless because no one will know how to tackle the problem” (Anonymous, Survey, 2022).

The previously presented study findings cemented the connection between educational opportunities spurring action in the climate justice movement, forming a strong argument for the inclusion of ESE in school systems and curriculums worldwide. Participants did note that including ESE in school systems is not as simple as it sounds and would require truly equitable access to education and a change in teaching methods that allows for discussion and

understanding on the political nature of climate justice. While the argument seems clear that ESE should be a part of school systems, study participants offered incredible nuance to this debate, questioning if systematizing climate justice through education dilutes the movement or if curriculum should even be politicized in the first place.

Study participants noted that access to equitable educational opportunities is essential to achieving climate justice. Multiple interviewees discussed this point at length, sharing that addressing climate justice holistically across all systems, including but most importantly education, demonstrates that the topic is a priority right now. Study participants believe that incorporating climate justice into school systems aids equitable access to education because youth don't have to depend on informal opportunities like exchange programs that are arguably less accessible for youth. Examining informal educational opportunities first, *The Experiment Digital Climate Change & the Environment* is fully funded; however, it can still only enroll a set number of participants and requires that the applicant find and apply to the program on their own. Even with accessibility issues in mind, study participants believe that international exchange programs are educational opportunities that support and guide climate justice, holding an important role in this study and the overall findings of how education relates to climate justice.

Participants also critiqued how education systems approach learning as a whole, stating that with changes to the approach to pedagogies, education could be a unifying force that spurs activism. Kevin from North America agreed, further critiquing the education system in his region and how it does not address the causes of climate change, only the symptoms:

As I said earlier, I truly believe that the interconnection between education and climate justice is unequivocally important to maintaining a strong future. If we start to truly educate, inform, and connect, enough people will get behind a movement and create

actual change. Yes, we need to educate about healthy alternatives to the overall causes of this crisis, such as different renewables like wind and solar, but we also need to really address why we are still using these harmful methods. We are not talking about root causes. The education system, I believe, isn't focusing on the correct techniques to create a difference. (Anonymous, Survey, 2022).

Kevin offered an example of how in his school, they have open discussions on the book *Animal Farm* in English class, but there is no discussion around climate change in AP Environmental Science, let alone climate justice, even though he deems it to be the most controversial and relevant issue. Kevin stated:

Education is about making an impact on a student so that they can spread their beliefs on that topic in the future. I feel like the education system is really missing that point. It makes me wonder what would happen if we were able to treat school in a similar matter, focusing on conversations with peers, open feedback and critical thinking on root issues. What will our impact be on the next 20 years? Where would we go as a civilization? I hope that my generation has huge impacts on the future, and I don't think that we are being set up for success right now,” (Anonymous, Interview, 2022).

For the incorporation of climate justice into education to work and to be effective in spurring action in the movement, the way that education is approached globally will need to shift towards instrumental and emancipatory education practices.

While 30 survey respondents agreed that climate justice should be a part of all educational opportunities including traditional school systems, the remaining 5 respondents disagreed for various reasons. Sharv from East Asia noted that lawmakers and educators in his country would view the inclusion of ESE and climate justice in school curriculum as a political statement, which is dangerous and uncommon. While Sharv sees climate justice claims as facts,

he recognizes that his school system might not be the best place to educate his peers and community due to these political and structural constraints. Findings indicate that climate justice is a highly political issue, and study participants were split on whether education should or could be an inherently political space. Karla from Europe believed that informal spaces at schools, like clubs, was a more appropriate space for climate justice rather than curriculum. She stated:

I wish school was more of a social critical space, but it is more politically neutral. I could see the crossover of education and climate movements more as having school clubs geared towards climate justice specifically, because otherwise it would make it too political. I worry about the teachers having strong political opinions. The students are allowed to have this political opinion, maybe guided a bit by a teacher but it's complicated to not have political neutrality from teachers. Often with climate justice it has to get political. It's a conflict I wouldn't know how to solve. (Anonymous, Interview, 2022)

Karla's focus on the dangers of lacking neutrality was presented in the context of not knowing if teachers on both sides of the argument, including climate science deniers, could remain neutral. In their focus on separating education from politics, participants revealed how the program curriculum did not help them consider alternatives to the capitalist and oppressive structures they have resisted, or to see that there is not time to consider any alternative but a holistic, massive and intentional overhaul of all systems to avoid climate disaster. The study participants who rejected ESE in school systems supported other educational opportunities promoting climate justice, but at the same time, their return to smaller scale thinking and lack of critical engagement with alternative solutions demonstrates the limited problem-solving tools they have been exposed to, including individual responsibility and government leadership.

Building on the discussion of education as a political act, four out of seven interviewees brought up the idea that you dilute a social movement when you systematize it through education or any other system. The findings from this conversation differed greatly, including agreeing that any system is inherently unjust but also returning to the idea that you can improve access to climate justice education if it is a part of the school system. Kevin from North American shared:

If you just introduce something into a school system unbiasedly, you are not systemizing or politicizing something, you are just presenting information. You're not trying to make people believe one thing or the other, but rather giving them the facts and letting them make their own decision. We are going to get those people who believe climate justice needs to be addressed. And we won't get the people who deny climate change. But most importantly, we get those people who are in the middle and just didn't know. It will become politicized either way, but good will win in the end if you just keep pushing it and allowing freedom of expression for everyone. (Anonymous, Interview, 2022)

Kevin rounded out his analysis by sharing that he feels like when a topic is included in education, it confers that society cares about this information and how it is disseminated holistically across all people. He stated, "If we care about a topic, it should be a part of education, whether it be formal or non-formal opportunities. But systemizing it means that we are making climate justice a point now" (Anonymous, Interview, 2022). The rich discussions on incorporating a politically charged topic into education suggest that there is no one path forward when it comes to including ESE in curriculum, but rather the importance of examining a specific context for the best way to push for radical change.

Discussion

The findings of this study indicate that participants' conceptualizations and experiences with climate justice education and activism provide crucial context to situate how educational

opportunities can support and guide youth-led climate justice movements. The Experiment Digital *Climate Change & the Environment* case study functioned as a common experience amongst study participants, creating a base from which to understand their exceedingly diverse perspectives and experiences. The findings align with and extend research on climate justice in educational opportunities and highlight how neo-institutionalism and systems thinking theories serve to interpret my findings.

In line with the systems thinking approach to globalization, the international networks and friendships nurtured in The Experiment Digital *Climate Change & the Environment* supported the development of global citizenship, critical thinking skills and solutions sharing. Incorporating diverse perspectives from 23 countries into the program mitigated the effects of only spreading Western ideas, patterns, and practices (Stromquist & Monkman, 2014) and promoted indigenization through critical thinking and the importance of local knowledge within educational opportunities and systems (Steiner-Khamsi & Waldow, 2014). Research demonstrates that bringing culture and context back into globalization supports the creation of just and sustainable systems and global solutions. Study participants repeatedly stated that their newfound global relationships supported their development as more critical thinkers, now seeing social issues from both local and international perspectives and reinforcing the idea that global citizenry is crucial to climate justice (Wals & Benavot, 2017) Placing critical, cultural context at the center of globalization embodies a tenant of the systems approach and global citizenry: Local ideas and actors are key in interpreting and creating new systems and policy. They remove untrustworthy actors like governments and international organizations with ulterior economic and political motives from the position of power and promote indigenization.

Education itself has the power to rewrite the power dynamics that push for the homogenization and the westernization of education. Global citizenship and international

relationships bolster solutions sharing and critical thinking, which epitomize instrumental and emancipatory education respectively. Through the co-creation of knowledge in emancipatory education and practical application and skill building of instrumental education, not only will solutions for climate justice emerge but critical thinking regarding power, culture and social issues (Wals & Benavot, 2017). One of the key findings of this study was the importance of systems change curriculum, which embodies both the concepts of systems thinking approach to globalization and ESE (Wals & Benavot, 2017). This is how education contributes to the youth-led climate justice movement as a whole: by giving youth effective tools to change the power dynamics that not only dictate climate change but all systems of society. Through drawing power down to the people, the approach of grassroots organizing and activism to systems change is what they need to lead a total renaissance of society.

ESE key tenants push for the inclusion of climate justice not only in curriculum, but in the whole school's approach to education (Wals & Benavot, 2017). Most study participants fully supported including ESE in schools but wanted to see an overhaul of pedagogies to further support this change. Despite their dissatisfaction with the status quo, five study participants did not support incorporating ESE into school systems and curriculum. When examining this finding through the lens of neo-institutionalism, the five respondents' hesitation to institutionalize climate justice enforces skepticism over the effects of mass schooling and the political incorporation of Western ideals. If schools are not set up for dialogue and critical thinking, as was noted by many study participants, it would result in the homogenization of climate justice and the complete erasure of local context through the blind diffusion of institutional policies (Stromquist & Monkman, 2014).

Neo-institutionalism endorses creating a shared identity as a feature of the model-nation state and western development and offers an opportunity for climate justice to become a societal

norm if ESE was included in schools. The systems thinking approach to globalization discusses how even with Indigenization, each education policy is put forth by an active policy maker who has an agenda and an intended outcome. Even if the intended outcome is to institutionalize ESE or promote climate justice, systematizing education must include local context or risks doing more harm than good. This debate brings forth a discussion on how educational policy change (including ESE in all schools) originates. Does ESE slowly become included in educational opportunities as local actors including teachers, students and activists popularize that change? Or could institutions diffuse climate justice as a radical approach to education and schooling?

The debate between the divergent approaches to globalization illustrates the complexity of instilling global norms through education. This study confirmed that there is no one solution or model for educating on climate justice, even when it comes to overhauling school systems. In line with existing systems thinking globalization research, different communities and institutions will need to tailor their systems and pedagogy to their geographic locations, demographics and cultures. This discussion builds off previous remarks on the importance of Indigenization in globalization and how the systems thinking approach transcends the dichotomy between global versus local and institution versus specific educational opportunity by centering local actors and change from the bottom up (Steiner-Khamsi & Waldow, 2014) as the most crucial actor in the fight for educational change and climate justice. As young activists learn more about climate justice through educational opportunities, the movement will grow and expand to each system, including education.

Conclusions

There is a dire need to improve educational opportunities that address climate justice. The study participants shared many insights on this need and what climate justice means to them, with deep underlying notions to unpack. In addition to reinforcing and refining the conceptual

framework, this study expanded upon existing research through three key contributions: comprehensive systems change curriculum, the solidified connection between education and increased activism for climate justice and documenting perspectives on climate justice from exceedingly diverse participants.

Systems change curriculum challenged participants to rethink their efforts as climate activists and shift towards ending oppressive structures rather than changing individual behaviors, adding greatly to the field of climate justice and ESE research. Identifying systems change as one of the most effective and highly rated curricula of the program allows for other educational opportunities to incorporate its use. As previously identified, there is a dearth of evaluated program designs in general for international education programs that address climate justice, but especially those that studied the effects of systems change curriculum. Karsgaard & Davidson (2021) discuss how their exchange participants tended towards individualist behaviors with a deep sense of guilt over consumptive practices. Their participants emphasized that aggregate individual actions might bring about required change but struggled to conceive ways individuals might participate in collective and structural change alongside people who are most vulnerable to climate change.

This study reinforces the need for systems change curriculum but fills the gap left by previous research with an evaluated curriculum, evidence of its impact and practical steps forward. The Experiment Digital *Climate Change & the Environment*'s curriculum focused on the institutional forms of endorsement of extraction and the need for organized resistance to challenge them. This program design contributes greatly to the field as an example and best practice of how education can support the climate justice movement. The evident impact of systems change curriculum furthers the study's contribution. While study participants discussed that no action is too small to support climate justice when discussing their levels of activism,

they followed up with a demonstrated understanding of systems change being one of the most effective tools for climate justice far over individual actions (Movement Generation, 2016). All actions for climate justice are important, but systems change is far more effective in redesigning our world. The Experiment Digital *Climate Change & the Environment* has room to grow but also serves as a base that other programs can build off. As a practical application of this study, I suggest that the international education and youth exchange sector utilize the Curriculum Flow (Annex A) and prioritize systems change within their curriculum.

My study further contributed to existing research by demonstrating how education can specifically galvanize youth activism in the climate justice movement. Study participants noted that the first step in increasing their activism was information gathering which is key in linking education to joining the youth-led climate justice movement. The case study of The Experiment Digital *Climate Change & the Environment* confirmed that participants substantially increased their involvement in direct actions after the program. Yoking education and increased activism demonstrates how educational opportunities can guide and support the climate justice movement – through training youth for direct action. Education is an inherently political act and should serve to bring about the renaissance of our world and how we live, rather than just reduce carbon footprints (Wals & Benavot, 2017).

Finally, this study contributed greatly to existing research by examining an international exchange program as a case study, drawing conclusions that included the outstanding impact of international networks on critical thinking and solutions sharing. While those contributions are important, the main contributions to the field came from the unique approach of analyzing how exceedingly diverse participants representing 17 countries make meaning of climate justice. Having access to such a diverse group of study participants is an incredible opportunity to apply their experiences, ideas and concepts to ideas like systems change, education and climate justice.

Additionally, The Experiment Digital *Climate Change & the Environment* contributed greatly to international education specifically. Thematic programs related to environment and sustainability are common in international education and this study advances the field by providing a radical, effective and tested curriculum to combat the climate crisis.

Recommendations for further research include the following questions: *How can educational institutions facilitate youth activism for climate justice?* The data presented that education is an important motivating factor of youth activism participation. It is important to see how educational institutions, policies and classroom pedagogies can change within various cultural contexts to help or hinder youth activism. Another future line of inquiry includes: *How can international exchanges fill a current gap in educational opportunities that address climate justice?* While radical systems change begins, international exchanges could create a global community and knowledge sharing around climate justice in the meantime. Further research could assess other programs and combine best practices with this study. *What would data show from a different subject sample?* As stated in the Research Design & Methodology, a limitation of this study was that the participant pool was limited to alumni of The Experiment Digital *Climate Change & the Environment*. It would be important to see the results of this study conducted in a school setting, in a rural and urban location, or in a specific country where climate justice education is political. Finally, further inquiry could explore climate justice and education with youth who have not voluntarily completed a virtual exchange program on the topic to see how their opinions differ.

One of the biggest takeaways from the study is how participants applied systems change curriculum to their lives and their school systems, either viewing education as a support or a hindrance to climate justice. Education is certainly related to the fight for climate justice, with the power to kick off a radical, beautiful renaissance just as the participants imagined during the

program. Adding in layers, education must also center local knowledge while diffusing global ideas. The ask of education to balance these paradoxical processes is immense and the stakes of promoting climate justice and molding a generation's future are monumental. As educators, how do we provide structure and create shared skills and knowledge, while holding the local culture and independent minds of young people? From this study, the response is centering relationships, revolutionizing education, organizing, and building resilience in community. The key takeaway from this research is that those lessons should be applied to educational opportunities through people-driven systems change.

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