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Do-It-Together: Informal Transformative Sustainability Education

Abstract

The Climate Crisis is an urgent and inescapable reality students are thrust into. Learners must be prepared adequately for their futures, not only for their sakes but also because collective and transformative change is required. Transformative sustainability education provides one pathway to this transformation and focuses on radically altering students' perceptions about the world and their agency in effecting change on ecological issues. The field of transformative sustainability education is emergent and thus is still fragmented, leaving gaps in the literature. Little research has been conducted on how informal and nonformal university spaces can be used to create transformative experiences for learners, and the field tends to neglect the process of learning while focusing on learning outcomes of transformative sustainability education. This study sought to close these gaps by using educational criticism and connoisseurship to explore the experiences of undergraduate students placed in an informal sustainability internship program at their university. This study demonstrated the transformative power of allowing students to learn from one another in diverse informal settings. It also provided a complete picture of transformative sustainability education, one considering both the process of learning and learning outcomes for students.

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A Dissertation in Practice

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the Faculty of the Morgridge College of Education

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In Partial Fulfillment

of the Requirements for the Degree

Doctor of Education

by

Derek Brannon

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Advisor: Dr. Paul Michalec

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ABSTRACT

The Climate Crisis is an urgent and inescapable reality students are thrust into. Learners must be prepared adequately for their futures, not only for their sakes but also because collective and transformative change is required. Transformative sustainability education provides one pathway to this transformation and focuses on radically altering students' perceptions about the world and their agency in effecting change on ecological issues. The field of transformative sustainability education is emergent and thus is still fragmented, leaving gaps in the literature. Little research has been conducted on how informal and nonformal university spaces can be used to create transformative experiences for learners, and the field tends to neglect the process of learning while focusing on learning outcomes of transformative sustainability education. This study sought to close these gaps by using educational criticism and connoisseurship to explore the experiences of undergraduate students placed in an informal sustainability internship program at their university. This study demonstrated the transformative power of allowing students to learn from one another in diverse informal settings. It also provided a complete picture of transformative sustainability education, one considering both the process of learning and learning outcomes for students.

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CHAPTER ONE: INTRODUCTION

In 2002, I was sitting in my sixth-grade class when my teacher, Mr. Evans, gave us a lesson about wind power. Mr. Evans was an outdoorsy man in his late 30s, and to my memory, was emblematic of what people often think of as a “Coloradoan.” I cannot recall the contents of the lesson; however, he ended by saying something that has stuck with me my entire life. He confidently told the class, “It will be your generation’s job to figure out how to store wind power.” Although I imagined batteries (and other energy storage materials) were certainly available in the year 2002, a *Scientific American* article (Tayler, 2009) made it seem this idea was still rather novel 7 years later. It was common to waste a great amount of the energy produced by wind power. The article detailed a widespread \$4 billion effort to produce a “smart grid” that could store said wind and solar energy across the United States (Tayler, 2009).

Truthfully, the logistics of storing wind power is not the part of Mr. Evan’s statement that stuck with me. It is the fact that it was my generation’s “job” to save the environment using and advancing green technologies. I suppose you could call this a transformative learning experience, and I have spent most of life concerned for the environment, a concern that has only accelerated in recent years. Most concerning is that my generation has not saved the ecological world, we have not halted the Climate Crisis,

and I still do not understand how turbines, nor their batteries, work. Nevertheless, there is hard work that can and should still be done.

In short, we must radically transform ourselves, the way we conceptualize the Climate Crisis, our understanding of the ecological world, and our role within the systems that have created and exacerbated climate change. To achieve these transformations, we must also transform how sustainability education (SE) is practiced (Bell, 2016; Gal & Gan, 2020; Gramatakos & Lavau, 2019; Kwak & Casey, 2021; Rodriguez-Aboyete & Barth, 2019; Sipos et al., 2008; Walsh et al., 2020). Standard SE often focuses on content such as environmental knowledge and awareness, job preparation, and personal habit forming (Bell, 2016; Kwak & Casey, 2021). It often does not address transforming the systems that have propelled the Climate Crisis nor does it attend to the importance of collective action (Kwak & Casey, 2021).

Transformative sustainability education (TSE), generally found within higher education, sets its sights on such transformations (Bell, 2016; Gal & Gan, 2020; Gramatakos & Lavau, 2019; Kwak & Casey, 2021; Rodriguez-Aboyete & Barth, 2019; Sipos et al., 2008; Walsh et al., 2020). However, TSE is an emerging practice. It lacks a consistent and standardized form, and there is little research on how TSE can be practiced in nonformal university learning spaces despite the importance of community-based, hands-on work in the sustainability field (Armstrong et al., 2016; Gramatakos & Lavau, 2019; Kemmis & Mutton, 2012; Papenfuss & Merritt, 2019; Sipos et al., 2008). Further, TSE research often has focused on TSE as a learning outcome and has not investigated the pedagogical process learners undergo (Rodriguez-Aboyete & Barth, 2019).

This study was concerned with answering a central question: How can transformative sustainability educational experiences occur in nonformal university learning spaces? Universities need to be at the forefront of offering transformative learning experiences for learners; offering such experiences in nonformal spaces is critical for the success of TSE. In the rest of this chapter, I discuss the realities of the Climate Crisis, delve deeper into TSE and the problem of practice addressed by this study, and introduce the chapters to follow.

Snapshot of the Climate Crisis

The Climate Crisis is one of the most urgent challenges of our times. The summer of 2020 was the worst fire season in recorded U.S. history (Migliozzi et al., 2020). As a Colorado resident, the constant looming smoke served as an omnipresent reminder that the environment is in crisis. Migliozzi et al. (2020), in *The New York Times*, detailed a disastrous few months in which 5 million acres of land were burned, thousands of buildings were destroyed, millions of people were displaced, and 24 people died. According to Brackett (2020), the year's worst environmental disasters, including the aforementioned fires, Australia's fire season, major oil spills, and a Michigan dam collapse, were all tied to humanity's influence over climate change.

Humans have an unmistakable negative impact on the environment, whether through CO₂ and methane emissions, water pollution, or waste production (Mittnik et al., 2020; World Business Council for Sustainable Development, 2020). Worst still, natural disasters and ecological issues tend to affect the poorest and most marginalized populations disproportionately (Agyeman, 2008; Agyeman et al., 2016; Pellow, 2016).

The urgency of the Climate Crisis has serious implications for teaching. An *NPR* parent survey found 80% of parents in the United States, across political lines, support education on climate change; however, in U.S. classrooms, only 45% of teachers are teaching about climate change (Kamenetz, 2019). The reasons for this, as teachers identified, included: (a) it is not related to the subject they teach, (b) their students are too young, (c) they do not know enough about it, and (d) they do not have the materials required to teach it.

Comfortingly, only 4% of teachers polled stated their school did not allow them to teach about climate change (Kamenetz, 2019). Outside of K–12, environmental education has gained importance and support in the university space. For example, the University of Denver pledged to be carbon neutral by the year 2030 and has strengthened its various environmental and sustainability programs. In 2015, Colorado State University was the first university to receive a platinum score through the Association for the Advancement of Sustainability in Higher Education’s Sustainability Tracking, Assessment and Rating System (STARS; Colorado State University, n.d.). However, not all university environmental or sustainability education is created equal, with authors calling for TSE.

Transformative Sustainability Education

This study is concerned with developing a picture of nonformal TSE. TSE is important for the sustainability education landscape because it attends to the larger systems that perpetuate the Climate Crisis, focusing on developing transformative capacities in students (Kwuak & Casey, 2021). These capacities are needed to address the Climate Crisis meaningfully (Kwuak & Casey, 2021). However, TSE is an emerging

field and often does not focus on the informal and nonformal realms of universities, nor does it discuss the pedagogical process for learners consistently (Gramatakos & Lavau, 2019; Rodriguez-Aboyete & Barth, 2019). Despite the emergent nature of TSE, there are some consistent qualities across the literature that help to distinguish it from traditional sustainability education.

TSE is distinct from standard sustainability education (SE) and has gained a great deal of support because of the urgent impacts of the Climate Crisis (Bell, 2016; Gal & Gan, 2020; Gramatakos & Lavau, 2019; Kwuak & Casey, 2021; Rodriguez-Aboyete & Barth, 2019; Sipos et al., 2008; Walsh et al., 2020). SE typically focuses on giving learners environmental knowledge and awareness as well as green technical skills for preparation in areas such as sustainable development (Kwuak & Casey, 2021; Moroye & Ingman, 2013; The United Nations Educational, Scientific and Cultural Organization, n.d.). Within SE, an emphasis is placed on small and individual interventions in the learners' daily lives to control resource depletion and to improve environmental conditions (Brundiers et al., 2020). Unlike SE, TSE is built from elements of Mezirow's (1996, 1997) transformational learning theory (TL). By anchoring sustainability education to TL, TSE is about radically altering how learners perceive sustainability issues (Kwuak & Casey, 2021).

Merriam et al. (2007) described TL as a "dramatic, fundamental change in the way we see ourselves and the world in which we live" (para. 2). TSE focuses on challenging these systems and "seeding" social transformations (Kwuak & Casey, 2021). Kwuak and Casey (2021) suggested their TSE framework was developed with a focus on

“transforming mindsets and confronting the underlying structures of inequality and systems of oppression that sustain climate vulnerability” (p. 9), which occurs by pushing SE beyond green skills and knowledge and developing learners’ “skills for a green transformation” (p. 7). These skills include the “ability to analyze unequal systems of power” (Kwuak & Casey, 2021, p. 7), collective action, and systems thinking. Kwuak and Casey (2021) characterized TSE as pushing learners beyond “confirmative change [that] focuses on maintaining the same systems and structures that have led to our present condition” (pp. 13–14).

TSE also sees the learner developing an understanding of relationality, or the interconnectedness of all things on the planet (Kwuak & Casey, 2021; Lange, 2018). This represents another important distinction; environmental sustainability focuses largely on how humans impact the natural world, something that is “out there” or separate from humans (Krebs, 2008). TSE recognizes humans are part of the ecological world and are intertwined deeply with its living and nonliving systems (Krebs, 2008; Kwuak & Casey, 2021; Lange, 2018). Appreciating the interconnections of the human and non-human world is necessary for individual and global transformation because this appreciation tasks learners with examining how their actions are situated within a large, interconnected web of life.

Unfortunately, university SE is largely not transformative, and the TSE that is practiced is relegated mostly to formal settings (Armstrong et al., 2016; Gal & Gan, 2020; Gramatakos & Lavau, 2019; Papenfuss & Merritt, 2019; Rodriguez-Aboyete &

Barth, 2019; Sipos et al., 2008). The next section discusses the various gaps associated with TSE and how this study addresses these gaps.

Persistent Problem of Practice

TSE is an emerging field, and there are several gaps still in the literature (Armstrong et al., 2016; Gramatakos & Lavau, 2019; Kemmis & Mutton, 2012; Papenfuss & Merritt, 2019; Rodriguez-Aboyete & Barth, 2019; Sipos et al., 2008). The two gaps addressed in this study are the lack of understanding about the pedagogical process and methods of TSE and the dearth of literature on nonformal university spaces designed for TSE (Gramatakos & Lavau, 2019; Rodriguez-Aboyete & Barth, 2019). These two problems are discussed next.

Rodriguez-Aboyete and Barth (2019) completed a systematic literature review on TSE and had several findings that informed this study. Rodriguez-Aboyete and Barth labeled nearly one third of existing TSE literature as “superficially” transformative because TSE researchers and practitioners often have not rooted their work in Mezirow’s theories. The TSE community also has not come to a consensus on what constitutes transformative education in the sustainability space (Rodriguez-Aboyete & Barth, 2019). One example of this is how, within TSE literature, scholars often have not distinguished whether transformational learning represents a learning outcome, a pedagogical process to bring about transformative outcomes, or both (Rodriguez-Aboyete & Barth, 2019).

TSE studies typically have not made the distinction between TL as a process or a learning outcome and often end up presenting TSE as a learning outcome for students, neglecting the process of TSE (Rodriguez-Aboyete & Barth, 2019). Thus, Rodriguez-

Aboyete and Barth (2019) advocated for further research to address the pedagogical process of TSE more directly, shifting the focus away from learning outcomes. Sherman and Burns (2015) agreed, stating “little research has been done to identify ‘how’ to teach sustainability effectively in ways” that “foster personal and intellectual engagement with the interconnected tensions of pressing social, ecological, economic, and political issues” (p. 1). Thus, Sherman and Burns (2015) called for research exploring “radically different pedagogy,” namely focused on the learning process of TSE.

Armstrong et al. (2016) also commented on the “hyper-focus” on learning outcomes, tasking TSE researchers to move away from traditional measurement methodologies. Armstrong et al. (2016) indicated TSE is “rooted in transformation that is only fully realized in lived experience” (p. 773); thus, “the true effectiveness of these educational programs will likely be difficult to fully appreciate without the firsthand experiential stories of students and alumni” (p. 773). Armstrong et al. called for research focused less on learning outcomes and more on students’ pedagogical experiences.

TSE and the Nonformal University Context

There is also a gap in the literature related to TSE within informal and nonformal university settings, with Gramatakos and Lavau’s (2019) qualitative study the only to address such learning (Rodriguez-Aboyete & Barth, 2019). Several authors have highlighted the importance of informal and nonformal opportunities within TSE; however, almost no research has been conducted on TSE occurring entirely within nonformal university spaces (Armstrong et al., 2016; Gramatakos & Lavau, 2019; Kemmis & Mutton, 2012; Papenfuss & Merritt, 2019; Rodriguez-Aboyete & Barth, 2019;

Sipos et al., 2008). A few studies have addressed some of the informal and nonformal elements of TSE within a university setting, but the focus of the studies has been the formalized curriculum and learning experiences found within sustainability programs at those schools (Armstrong et al., 2016; Sipos et al., 2008). Studies focused primarily on informal and nonformal TSE have done so outside of university contexts and often have represented sites of learning that are vastly different than the one I looked at in this study (Casey & Asamoah, 2016; Papenfuss & Merritt, 2019).

Overview of the Study

This study's purpose and research questions were designed to address the gaps just discussed. This study was set within an informal sustainability internship program at a private university. Within this internship, undergraduate and graduate students work on sustainability teams, learning skills and knowledge while carrying out essential sustainability programs on campus. The chosen methodology, educational criticism, centers these students' experiences within multiple nonformal university settings. Through interviews, observations, and artifact analysis, this study develops a picture of TSE that incorporates sociocultural learning as its pedagogical philosophy and process. Within the sociocultural approach, educators are meant to consider the entire sociocultural environment (i.e., the "who, what, when, where, and why") of the learning activity and how it is situated within historical, institutional, and social contexts (National Academies of Science, Engineering, and Math [NASEM], 2018; Tharp et al., 2000; Wertsch, 1991).

Several authors have connected sociocultural learning to student transformation (Lave & Wenger, 1991; Tharp et al., 2000). Tharp et al. (2000) discussed a sociocultural process and method for learning they call activity setting, when peers of various experiences levels and backgrounds work collaboratively toward common goals or outcomes (Tharp et al., 2000). Lave and Wenger (1991) discussed communities of practice (CoP), informal learning communities in which members are united by their linked histories, understandings of specific practices, and commitments to common goals. This type of learning process can be transformational for learners because they negotiate meaning and understanding collaboratively and learn from one another while taking part in the types of settings and activities involved with TSE. Learning through social interaction has been shown to be important for TSE, but use of sociocultural learning as a theoretical frame has been present in only a small portion of TSE literature (Gal & Gan, 2020; Gramatakos & Lavau, 2019; Kemmis & Mutton, 2012; Lange, 2018; Papenfuss & Merritt, 2019; Shephard, 2008; Sipos et al., 2008; Walsh et al., 2020).

Statement of Purpose

The purpose of the study was to examine how TSE experiences occur within nonformal university learning spaces.

Research Questions

1. How does the pedagogical and curricular philosophy of the Center for Sustainability represent a sociocultural perspective regarding learning?
2. How do interns learn?
3. How have student interns experienced TSE?

Research Question 1: How Does the Pedagogical and Curricular Philosophy of the Center for Sustainability Represent a Sociocultural Perspective in Regard to Learning?

This study examined how the Center for Sustainability structured its internships intentionally, what the Center intended for interns to learn, and how interns were intended to learn this content. To hold a sociocultural perspective, the Center considers the cultural, historical, and institutional situatedness of both its interns and its program and designs its program around such consideration (Wertsch, 1991).

Research Question 2: How Do Interns Learn?

This study sought to establish how specific sociocultural concepts of learning were operationalized within the context of teams at the Center. This study addressed what the process of learning looked like at the Center by exploring how interns learned in informal environments. Given that the Center directors often do not teach interns, interns must learn from one another in the context of their teams and collaborative projects.

Research Question 3: How Have Student Interns Experienced Transformational Sustainability Education?

This study examined if TSE learning was transformational for student interns. This research question was concerned with how interns experienced perspective transformations (Lange, 2018; Mezirow, 1996, 1997) and came away with a diverse set of skills needed for a green transformation (Kwuak & Casey, 2021).

How These Research Questions Supported the Purpose

TSE is an emerging field, and standards for practice have not been established adequately. This study's purpose was to examine a nonformal TSE university program, with a focus on both the intentions and operations of the program's pedagogical practice. I chose sociocultural learning as the theoretical framework for pedagogical philosophy and practice because of its connection to transformational outcomes and its fit for explaining informal and nonformal learning spaces (Lave & Wenger, 1991; Rogoff, 2003; Tharp et al., 2000). For the program to be considered transformative, I needed to determine if the Center interns experienced educational transformations. The study explored how participants experienced the TSE qualities Kwuak and Casey (2021) outlined, including having transformational learning experiences as part of their internships.

By establishing how the Center integrated sociocultural learning into its student internships, and how these internships were transformational for student interns, this study attempted to capture one example of TSE within a nonformal university setting. For this study, I acknowledge the distinction between TL as a process and TL as a learning outcome, proposing a model of TSE that centers sociocultural learning as its process for learning, which results in TL outcomes. This study's findings may be useful for other course designers or sustainability educators when they examine their programs, especially TSE practitioners, and may contribute to a clearer picture of what such a program might look like.

Introduction to Research Site

For this study, I selected the University of Denver's Center for Sustainability as its nonformal university setting. The Center for Sustainability is an internship program at DU that hires nearly 40 undergraduate interns and graduate fellows every year. The program is focused broadly on making meaningful and sustainable impact on the DU campus while building strong community connections and providing interns with professional and practical skills.

The Center's educational goal is to "provide experiential education to supplement classroom learning." Even though the Center's programs, such as its Sustainability Marketplace and Bike Shop, are spread across campus, its central office is in the aptly named "Green Suite," a modern and airy office. Fellows and interns are placed on sustainability teams, whose goals are to tackle tangible sustainability goals on campus. An example of one of the sustainability teams is the Energy and Waste Team, whose members focus events and programming on reducing energy use and waste production both on and off campus. The Center is led by an executive director and assistant director, both referred to as "the directors" in this study.

Introduction to the Methodology

This study's methodology was educational criticism and connoisseurship. Educational criticism is a methodological tradition in which the researcher leverages their status as an expert in the field they are studying to make sense of a complicated research phenomenon within that setting (Eisner, 2017; Uhrmacher et al., 2016). The educational critic, because of their expert status, can "see" the data in ways others cannot. The critic

uses four processes—description, interpretation, evaluation, and thematics, to disclose to readers the meaning of what they see at the research site. Educational criticism studies are literary in nature, allowing for descriptive language and narrative writing, which informed many of the interpretative and metaphorical sections of this study (Eisner, 2017; Uhrmacher et al., 2016). Uhrmacher et al. (2016) recommended using the *instructional arc* to construct the research questions for educational criticism studies. The arc is broken into three categories: what are the *intended*, *operational*, and *received* curriculum present at the research setting (Uhrmacher et al., 2016).

Educational criticism was selected as the methodology for this study primarily because of my insider status at the Center. Through my experience working for the Center, I already understood how it was structured. Having background knowledge on and experience in the Center enabled me to critique the educational practices taking place from an expert perspective (Uhrmacher et al., 2016). Additionally, as a lifelong punk musician and recording engineer, the educational criticism process was quite intuitive to me, matching how I often assess and think about my experiences in music. Finally, I have spent much of my teaching career in the informal realm and have a depth of knowledge around how curricular instruction is generated in those settings. These last two points represent one of the lenses I used to approach data throughout this study.

Looking Forward

The educational experiences participants provided in this study helped to illuminate what a TSE program can look like within an informal university space. Participants' experiences demonstrated one possible process for nonformal TSE that can

result in TL outcomes for learners. Next, Chapter 2 examines this study's frameworks as well as weighs and analyzes some of the existing empirical TSE literature. Chapter 3 explains the methodology of this study and covers how educational criticism is used. Chapter 4 explores the directors' intended curriculum. Chapter 5 examines the intended and operational curriculum created and experienced by participants. Chapter 6 reports what participants took away from these experiences. Finally, Chapter 7 unifies participants' experiences, generating large-scale themes and implications for the field of TSE. In total, this study captures a picture of what one nonformal university TSE program can look like, which may help inform how TSE can be practiced in the future.

CHAPTER TWO: LITERATURE REVIEW AND FRAMEWORKS

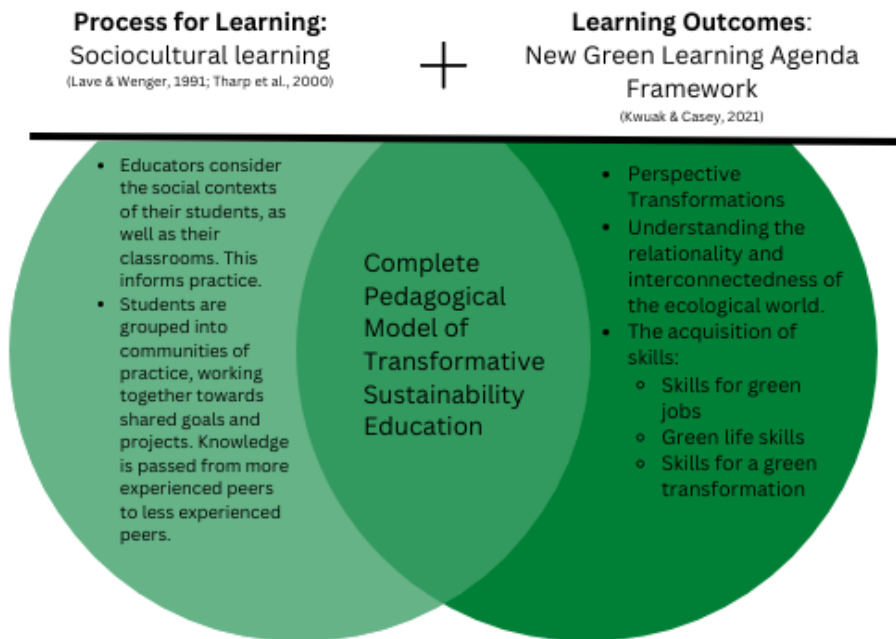
In Chapter 2, I present the study's theoretical and conceptual frameworks and review the existing literature on TSE within higher education. The frameworks were selected to meet the central challenges posed in Chapter 1 and were informed by the literature review: (a) TSE literature often has lacked models of learning that consider both the process of learning and the outcomes and (b) TSE literature has used the term “transformative” superficially, not attending to transformative learning (TL) as Mezirow theorized (Rodriguez-Aboyete & Barth, 2019). Further, TSE researchers often have advocated for social and constructivist approaches to learning (Gal & Gan, 2020; Gramatakos & Lavau, 2019; Kemmis & Mutton, 2012; Lange, 2018; Papenfuss & Merritt, 2019; Shephard, 2008; Sipos et al., 2008; Walsh et al., 2020).

Sociocultural learning was selected as the theoretical framework because of its emphasis on social learning and activity within informal spaces (Lave & Wenger, 1991; Tharp et al., 2000). Kwak and Casey's (2021) new green learning agenda framework served as the conceptual framework and was selected because it is rooted in TL and details a wide variety of possible learning outcomes within TSE. These frameworks together can serve as a model of TSE, incorporating both a process for learning and possible learning outcomes. Figure 1 is a visualization of these frameworks and how they

relate to the purpose of developing a complete picture of TSE, one including both the process for learning and the outcomes.

Figure 1

Visualization of the Study's Frameworks



Before moving onto this study's frameworks, it is important to understand the context of TSE and why both frameworks were needed for this study. This necessitates two endeavors: (a) understanding how conceptions of sustainability have evolved to create the conditions for TSE and (b) exploring the TSE literature to understand its practice better. In this paper, I will discuss the history of sustainability as an environmental enterprise, the term's various meanings, and how evolving ideas about

environmental sustainability have impacted SE. This discussion has proven relevant in this study because the Center has propelled its students to have similar conversations.

Historically, as definitions of sustainability have become more focused on social justice and social transformation, so has education on sustainability. Sustainability work has focused increasingly on a more holistic approach, one addressing the intersectionality of social justice, equity, resource distribution, and the quality of the natural environment as well as attending to the entire ecological world (Agyeman, 2008; Agyeman et al., 2016; Kwuak & Casey, 2021; Pellow, 2016). This has impacted SE directly; SE must rise to the challenge of the Climate Crisis, thus not focusing on base-level environmental knowledge and sustainable development (Kwuak & Casey, 2021; Shephard, 2008). SE must strive for more transformative ends. Before moving to a discussion of TSE, important definitions are provided to help the reader understand concepts I refer to throughout the study.

Definitions of Terms

The term *ecological world* is a conceptualization of the environment that attends to the interconnectedness of all living and nonliving things that make up a planet. The environment is not something separate from humans but rather a part of it (Kwuak & Casey, 2021).

Relationality is understanding the interconnectedness of the ecological world and how one fits into that complex web (Lange, 2018).

Sociocultural learning is a constructivist theorization of learning in which learners' social, historical, and institutional contexts are considered and supported.

Learning happens through social interaction. Models of collaborative and student-centered learning are prioritized (Tharp et al., 2000).

Sustainability education is broadly focused on teaching learners about topics such as the natural world, elements of environmental conservation and awareness, the impact of human action on the environment, resource extraction, and climate change, among others. Sustainability education is typically associated with job preparation and learning to live more sustainably (Moroye & Ingman, 2011).

Transformational learning refers to learners experiencing a disorientating dilemma that forces them to reconceptualize their world view or perspective (Mezirow, 1996).

Transformative sustainability education is sustainability education rooted in transformational learning theory and focused on the acquisition of practical, cognitive, and affective learning outcomes. An understanding of relationality is necessary (Gramatakos & Lavau, 2019; Lange, 2018).

Sustainability

As an active practitioner in the SE space, I have participated in discussions about whether the term “sustainability” should be changed or replaced with more inclusive language. There is great debate as to whether the term is too rooted in class and race-based contexts, making it mostly inaccessible or unappealing to those who are not affluent and White. Many believe the term lacks any sort of social justice analysis, missing whole elements of ecological justice that are critical for meaningful change (Agyeman, 2008; Agyeman et al., 2016).

Agyeman (2008), whose work represents an important step forward in the conception of sustainability, remarked, “There is a common belief among those in the environmental sustainability movement that as they are ‘saving the world,’ they are saving it for everyone equally, which somehow absolves them from wider discussions of equity and justice” (p. 2). The term sustainability has had a breadth of different meanings that have evolved over time. Although not exhaustive, I discuss these meanings and their histories in the next section.

Common Definitions of Sustainability

At its most basic, environmental sustainability (ES) means “avoidance of the depletion of natural resources in order to maintain an ecological balance” (Oxford Languages, n.d.). For those who are economically advantaged, sustainability often entails cutting waste, buying more sustainable products, and taking on energy-reduction efforts, such as buying an electric car or installing solar panels on their homes. This type of sustainability requires a large income, evidenced by the entry price for the widely popular Tesla, whose cheapest Model 3 costs \$31,690 (Tesla, 2023).

Sustainability tied to the income of individual participants makes such a “version” of sustainability inaccessible to whole groups of people, both economically and racially (Bogost, 2016). This type of sustainability also does not consider the human cost of such sustainable practices, such as lithium mining, which shifts the environmental burden to less economically advantaged parts of the world (Campbell, 2022). Of course, every person looking to be more sustainable does not need to buy a Tesla, but an emphasis on

changing individual habits specifically through sustainable purchasing often dominates cultural conversations around sustainability.

The United States Environmental Protection Agency's (n.d.) definition of ES expanded the term to include *some* ecological justice elements:

Sustainability is based on a simple principle: Everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. To pursue sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations. (para. 1)

This definition still does little to address class or racial disparities, but it does shift the focus of ES to include the well-being of humans, inclusive of present and future generations; however, the definition is largely anthropogenic, focusing on the well-being of future generations of humans and not necessarily the entire ecological world.

Carter (2000) discussed the concept of critical natural capital theory, which centers conversations on ES within the context of distributive justice. Distributive justice relates broadly to the idea that there ought to be a moral backing to how political and economic structures distribute resources and burdens within society (Stanford Encyclopedia of Philosophy, 2017). Carter framed issues of ES within this framework and argued the well-being of *all* humanity is tied to the well-being of the environment. The environmental conditions of *all* people must be improved equally or else the challenge of ES will not succeed (Carter, 2000).

These definitions of sustainability are not focused consistently on challenging inequitable power structures that reinforce and perpetuate the disparate impacts of climate change. The definitions also are not concerned with the full societal

transformation needed to address equity issues while also preventing ecological degradation (Kwuak & Casey, 2021; Pellow, 2016). It was not until definitions of sustainability began to include concepts of environmental justice that sustainability work shifted focus to more intersectional approaches (Agyeman, 2008; Agyeman et al., 2016). In the next section, I discuss the sustainability and environmental justice movements and how they have been two distinct groups historically.

Historical Views on Sustainability and Environmental Justice

Catton and Dunlap (1978) established the “new environmental paradigm,” which was centered largely in the major sociological trends of the authors’ era. Catton and Dunlap (1978) set out to challenge the “human exceptionalism paradigm,” or the idea that humans are superior to all other creatures on Earth and that “cultural accumulation means that progress can continue without limit, making all social problems ultimately soluble” (p. 43). This paradigm prevented sociologists of the time from meaningfully discussing issues of ecological issues (Catton & Dunlap, 1978). To remedy this, Catton and Dunlap (1978) proposed their new paradigm whose essential components included ideas such as (a) there are “intricate linkages” of all humans and the natural world that “shape our social life” (p. 45) and (b) “there are potent physical and biological limits constraining economic growth, social progress, and other societal phenomena” (p. 45).

Catton and Dunlap (1978) dealt with class stratification in their paper and stated the future tightening of resources related to ecological disasters will harm the “have-nots” to a much greater degree than the “haves” because they will lack the economic capital to participate in the reduction of resource use. As Agyeman (2008) pointed out, the new

environmental paradigm has linked equity issues to environmental issues but only has done so in the future tense. In the late 1970s, there were great disparities in which communities ecological disasters affected the most; this oversight represents the disconnect between the early environmental justice and sustainability movements (Agyeman, 2008; Agyeman et al., 2016).

In the early 1980s, the environmental justice movement (EJM) was propelled primarily by the work of economically disadvantaged and marginalized communities (Agyeman et al., 2016; McGurty, 2000; Mohai et al., 2009). ES, on the other hand, was often the work of affluent White intellectuals, a trend that has continued (Agyeman, 2008; Agyeman et al., 2016; Pellow, 2016). In its infancy, the EJM focused on prevention of toxic waste often deposited in low-income communities (Bullard et al., 2008). In 1982, a protest of 414 demonstrators led the U.S. House of Representatives to examine the correlation between toxic waste landfills and the racial and socioeconomic realities of their locations (Agyeman et al., 2016). Agyeman et al. (2016) stated:

In 1987, the United Church of Christ (UCC) Commission for Racial Justice report *Toxic Wastes and Race in the United States* [that] introduced the terms environmental racism and environmental justice. . . . The authors of *Toxic Wastes* established a precedent for community empowerment and stated their intent that the report “better enable the victims of this insidious form of racism not only to become more aware of the problem, but also to participate in the formation of viable strategies.” (pp. 323–324)

The concepts of environmental justice and racism were not part of mainstream ES movements such as Greenpeace and other primarily “natural-world-focused” forms of sustainability (Agyeman, 2008; Agyeman et al., 2016). Toward the end of the 20th

century, there were major shifts in the ES movement to be more inclusive, especially with the looming specter of climate change.

In 1992, the Union of Concerned Scientists released a report that was a call to action for humanity and laid out the environmental stress humans were (and still are) putting the planet under (Union of Concerned Scientists, 2022). To circumvent major ecological and climate disasters, the Union of Concerned Scientists called for tightening resources, stabilizing the population, eliminating poverty, and ensuring gender equality. Central to this concept of ES are several major social justice components, representing a shift toward a definition of sustainability that is more centered in environmental justice. The report, however, did not take a critical look at which communities were most affected by environmental degradation within the climate change context. Several authors in the 21st century applied much more critical looks at sustainability issues (Agyeman, 2008; Agyeman et al., 2016; Kwauk & Casey, 2021; Pellow, 2016). This study's conception of sustainability depends largely on the work of authors in the next section.

Just and Transformative Sustainabilities

A critical and transformative conception of sustainability was central to this study. Transformative conceptions of SE must operate under transformative definitions of sustainability effect powerful and meaningful change (Kwauk & Casey, 2021). All authors discussed in this section have focused on definitions of sustainability aligned with equity and social justice for both the *present and future* generations affected by climate change. TSE must focus on improving environmental conditions for all people, which often means focusing on equity discussions about race, class, and gender, and not just

environmental protection and sustainability (Bell, 2016; Kwak & Casey, 2021; Papenfuss & Merritt, 2019). Further, some TSE authors have moved beyond the human world, placing importance on protecting the entire ecological world (Kwak & Casey, 2021; Lange, 2018). Agyeman (2008) told a story that is quite relevant to the discussion in this study:

While researching a film in the early 1990s on the (lack of) inclusivity of the environmental movement in the United Kingdom, I asked a Greenpeace staffer if she felt that her organization's employees reflected multicultural Britain. She replied calmly, "No, but it's not an issue for us. We're here to save the world." (p. 2)

ES has not been concerned primarily with issues of equity in its march to save the world (Agyeman, 2008; Agyeman et al., 2016; Pellow, 2016). Within this context, Agyeman (2008) developed their just sustainability paradigm made up of three critical components: (a) quality of life for present and future generations, (b) justice and equity, and (c) living within the ecosystem limits. Agyeman's conception of just sustainability combined aspects of both environmental justice and sustainability to create a more equitable and greener present and future. Agyeman's work was more a musing on what just sustainability could look like and was taken further in Agyeman et al.'s (2016) survey of the modern EJM.

Agyeman et al. (2016) moved from the theoretical just sustainability and applied it to several issues: (a) disparate effects of climate change, globalization, and the split between the global North and South; (b) food insecurity; (c) gentrification and the "greening" of neighborhoods; (d) community and place attachment; and (e) a larger focus on the nonhuman world. What is still somewhat missing from this work is a radical and

transformative conception of sustainability that would tear down systems of oppression and change the framing of climate change. Again, Agyeman et al.'s (2016) definition is anthropocentric and does not attend to the interconnected nature of the ecological world. The next two authors handled this challenge in different ways, with Pellow (2016) taking a critical ecological justice approach and Kwak and Casey (2021) viewing the problem through a more holistic, transformative sustainability lens.

Pellow (2016) connected ideas of environmental justice (EJ) with tenants of the Black Lives Matter movement through the process of critical EJ. Pellow (2016) described several tenants essential to a critical look at EJ:

(1) questions concerning the degree to which scholars should place emphasis on one or more social categories of difference (e.g., race, class, gender, sexuality, species, etc.) versus a focus on multiple forms of inequality; (2) the extent to which scholars studying EJ issues should focus on single-scale versus multi-scalar analyses of the causes, consequences, and possible resolutions of EJ struggles; (3) the degree to which various forms of social inequality and power—including state power—are viewed as entrenched and embedded in society; and (4) the largely unexamined question of the expendability of human and non-human populations facing socio ecological threats from states, industries, and other political economic forces. (p. 223)

Pellow (2016) argued EJ work should be rooted in anti-statist and anarchist ideals. Importantly, it also should examine how state decisions affect nonhuman populations. EJ should be critical of how state violence and power are directed disproportionately at communities of color and how their environmental impacts affect communities of color the most (Pellow, 2016). Although Pellow's work is important, it has focused less on sustainability education and more on EJ issues than Kwak and Casey's (2021) work.

In *A New Green Learning Agenda*, Kwauk and Casey (2021) laid out a vision for green education that is transformative and critical of institutions. Built within this framework is a definition of sustainability that is transformative in nature. It is a radical approach centered on feminist theory and seeking to disrupt male-dominated paradigms of economic growth and sustainable development that reinforce the status quo (Kwauk & Casey, 2021). Kwauk and Casey (2021) remarked on their conceptualization of a transformative sustainability:

[It] conceptualizes green skills through a much broader sociological lens, attending to the transformative capacities needed to disrupt and transform both the individual behaviors and structural factors that exacerbate the climate crisis. This includes the ability to analyze unequal systems of power, reflexivity, and political agency. (p. 18)

This challenge of inequitable systems has centered dialogue, critical reflection, and action within the context of traditional SE to empower learners to make the world a more equitable and sustainable place.

Also, Kwauk and Casey (2021) focused transformative sustainability squarely on transforming socioecological systems, making an important distinction between their work and that of ES. Part of this effort was the development of ecological literacy, which Kwauk and Casey (2021) defined as “knowledge not only about the environment and climate change, but also about the interconnected and interdependent socio-ecological systems through which humans are connected to each other and to the planet” (p. 4). Kwauk and Casey’s transformative sustainability focuses on transforming the entire ecological world, one made up of all living and nonliving things, and not on protecting *just* the “natural” environment *or* humans (Krebs, 2008; Kwauk & Casey, 2021).

The new green learning agenda focuses on using TSE to enable learners to understand and operate within a transformative definition of sustainability (Kwuak & Casey, 2021). Thus, how Kwuak and Casey (2021) defined sustainability made it the best-suited conception of sustainability for this study.

Transformative Sustainability and Transformative Learning

Kwuak and Casey's (2021) conception of a TSE framework served as the conceptual framework of this study. Kwuak and Casey's conception of sustainability ties to transformative approaches of education and was built around pedagogical techniques that allow learners to gain a holistic view of sustainability. Although the specificity of this framework's domains are discussed later in this chapter, there are direct links between Kwuak and Casey's theory of TSE and the cognitive, practical, and affective domains found in other research. Kwuak and Casey's educational framework focuses on green life skills (cognitive), technical skills for green jobs (practical), and a critical understanding of oppressive systems with a focus on action (affective). The last aspect of Kwuak and Casey's framework makes it transformative and pushes beyond standard SE.

Kwuak and Casey (2021) stated their conception of TL was rooted in Mezirow's (1997) philosophy. Mezirow's ideas about TL were foundational to the TSE space and have appeared across TSE research (Rodriguez-Aboyete & Barth, 2019). Selecting Kwuak and Casey's new green learning agenda for this study's conceptual framework ensured TL was central to the study's design and analysis, thus avoiding a "superficial" use of the term "transformative" (Rodriguez-Aboyete & Barth, 2019). In the next section,

I develop an understanding of TSE by exploring existing literature on TSE and highlighting consistent themes across the studies and articles.

Literature Review

The empirical studies discussed in this section were located via the University of Denver's Compass search function, EBSCOhost Search Complete, and the ProQuest Education Database during the spring of 2021. Several search terms, and combinations and phrases of said terms, were used to find the following studies. "Any" and "all" term searches were used to locate all the studies discussed, and the term search inquiry I used was "informal university transformative sustainability education."

I only located five articles containing this combination of words, and only one study focused on informal SE within the university context. There were several studies about both formal and informal TSE; however, most studies focused on contexts outside the realm of education, illustrating the importance of this study. In the next section, I examine the findings and themes present within the studies I located.

Overview of Themes in the Literature

The existing literature on TSE has focused primarily on the formal realm of education (Gramatakos & Lavau, 2019; Rodriguez-Aboyete & Barth, 2019). However, some understanding of what TSE might look like in informal and nonformal university spaces may be drawn from the practical empirical studies that partially covered those settings in their work.

I discovered four major themes regarding TSE throughout the literature review process. First, TSE experiences must incorporate cognitive, practical, and affective

growth in students (Armstrong et al., 2016; Gal & Gan, 2020; Gramatakos & Lavau, 2019; Rodriguez-Aboyete & Barth, 2019; Shephard, 2008; Sipos et al., 2008). Second, sociocultural, constructivist, and collaborative methods of teaching and learning are valuable in TSE (Gal & Gan, 2020; Gramatakos & Lavau, 2019; Kemmis & Mutton, 2012; Lange, 2018; Papenfuss & Merritt, 2019; Shephard, 2008; Sipos et al., 2008; Walsh et al., 2020). Third, there was support in the TSE research for informal and nonformal education, but little research focused on these spaces within university settings (Armstrong et al., 2016; Gramatakos & Lavau, 2019; Kemmis & Mutton, 2012; Papenfuss & Merritt, 2019; Sipos et al., 2008). Finally, TSE is an emergent field and practice, meaning it lacks structure, focus, and clear archetypes of teachers and researchers to follow (Armstrong et al., 2016; Gramatakos & Lavau, 2019; Kemmis & Mutton, 2012; Rodriguez-Aboyete & Barth, 2019; Shephard, 2008; Walsh et al., 2020), which has resulted in sometimes fragmented research that does not always attend to holistic views of TSE. These themes and the associated literature will be discussed, and the ideas presented in this section will be connected to the design of this study.

Theme 1: The Cognitive, Practical, and Affective Domains of TSE

A defining feature of TSE in the literature is that transformational learning about sustainability topics should extend beyond content knowledge and cognitive understanding, two common components of university coursework. TSE should push for, and result in, practical and affective growth for learners (Armstrong et al., 2016; Gal & Gan, 2020; Gramatakos & Lavau, 2019; Rodriguez-Aboyete & Barth, 2019; Shephard, 2008; Sipos et al., 2008), the result of which is learners experiencing a “perspective

transformation,” radically altering how they think about sustainability issues and act accordingly (Mezirow, 1996, 1997).

This emphasis in the TSE literature stemmed from Shephard’s (2008) article, which called for universities to seek affective learning outcomes in their sustainability classrooms. Shephard stated universities are generally good at stimulating critical and creative thought about sustainability issues but rarely attempt to frame them within specific viewpoints nor assess students’ understanding of these viewpoints. Shephard called for sustainability education grounded in values (e.g., equity and action). Then, students ought to be assessed on their understanding of these values and how they address related equity issues.

Shephard (2008) called for SE focused on knowledge, skills, *and* affective outcomes:

We start with a willingness to listen, to read and to acquire information. We progress to discuss environmental issues with others and then formulate our own views on the issues to develop opinions that shape our own interactions with others, and with our environment. Later, we start to make life choices and experiment with prioritizing “good for us” “good for our dependents” and “good for our descendants.” At some point, and at the top of this particular hierarchy, we emerge showing self-reliance, an ability to cooperate or even lead, the confidence to live our life in the way that we chose and a commitment to constantly seek new ways to achieve and to reassess our decisions. (p. 90)

Shephard’s (2008) emphasis on affective learning outcomes for TSE can be seen in the rest of the literature discussed in this section. This conversation within the SE space also has occurred parallel to the sustainability community and has represented a shift in the sustainability lexicon to include more justice-focused conceptions of sustainability, such as Agyeman’s (2008) work.

Sipos et al.'s (2008) qualitative case study on the educational practices of University of British Columbia's Centre for Sustainable Food Systems examined the various pedagogical techniques and outcomes for TSE within the university's program. Because of the case studies, the authors developed the "head, hands, and heart" framework, a pedagogical model for TSE. As part of their study's findings, Sipos et al. determined TSE engages all three areas of learning.

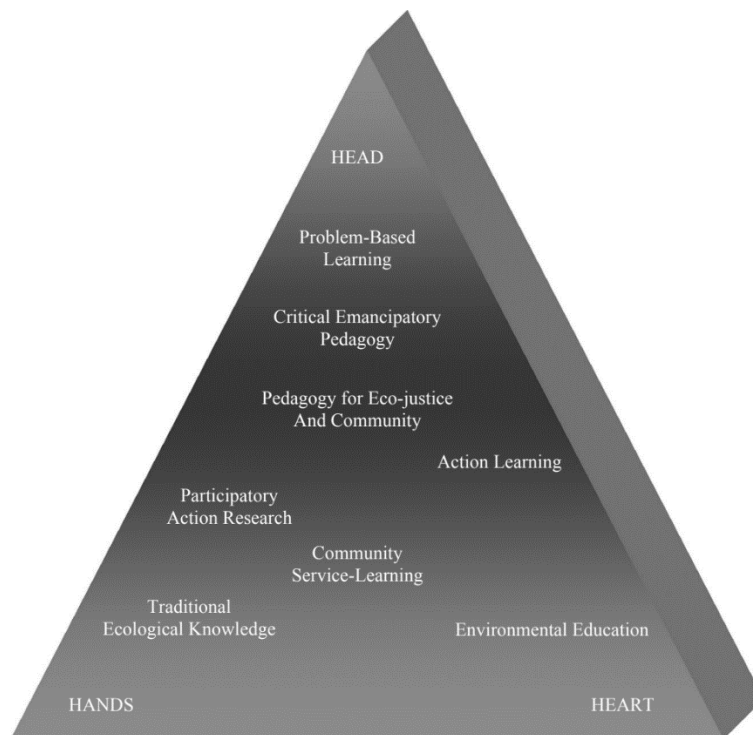
Although Sipos et al.'s (2008) model, which is visualized in Figure 2, focuses largely on pedagogical theory, most TSE literature has focused on the cognitive, practical, and affective domains solely within the context of learning outcomes. Students should learn more about sustainability topics, emerge with practical skills, and have a call to act to help themselves and others. This last aspect, although discussed within the next theme, hinges on relationality, working with others, and caring about the ecological world. Rodriguez-Aboyete and Barth's (2019) empirical and systematic review of the existing literature on TSE found these domains appeared across the existing literature in TSE but may have been represented differently based on the specifics of the studies.

Although the findings of Armstrong et al.'s (2016) qualitative study on students' TSE experiences at a sustainability-focused university were not grouped into the three domains, the authors connected their findings to Sipos et al.'s (2008) framework. "Scientific and anthropological literacy" and "systems" represents the cognitive elements of their learning. "Real skills," or practices common in sustainability spaces, are the practical domain. The affective domain, the largest focus of Armstrong et al.'s findings, involved a much greater number of outcomes, including understanding the complex

nature of sustainability, recognizing the importance of caring for people and the planet as well as market factors, engaging in empathetic decision making and reasoning, and promoting interdisciplinary collaboration where students begin to understand and appreciate other's perspectives.

Figure 2

The Head, Hands, and Heart Framework



Note. From “Achieving Transformative Sustainability Learning: Engaging Head, Hands and Heart,” by Y. Sipos, B. Battisti, and K. Grimm, 2008. *International Journal of Sustainability in Higher Education*, 9(1), p. 77 (<https://doi.org/10.1108/14676370810842193>).

Other studies referenced the cognitive, practical, and affective domains more explicitly in their findings. Gal and Gan (2020), who designed a college course for TSE and qualitatively studied the course's learning outcomes, found their students came away with a critical and deep understanding of social and ecological systems (cognitive), were often involved in pro-environmental behaviors such as recycling and conserving water (practical), and experienced a fundamental shift toward understanding their power and role within ecological justice and sustainability ends (affective).

Finally, Gramatakos and Lavau's (2019) qualitative study used focus groups to understand better students' TSE experiences within informal university settings, including clubs, student activist groups, and national student networks. Their findings point to students experiencing cognitive, practical, and affective growth in these spaces.

Like this existing empirical literature, Kwuak and Casey (2021) suggested a model for TSE learning outcomes that moves between cognitive, practical, and affective skills. In this case, the model is represented as a hierarchy, with the base level being essential knowledge and practical skills, and the "highest" level focused on complex affective skills (Kwuak & Casey, 2021). I chose Kwuak and Casey's new green learning agenda framework as the study's conceptual framework because of its attendance to these different domains of knowledge and skills and its foundation in TL (Mezirow, 1996).

Theme 2: Relationality, Sociocultural Learning, and Collaboration

Another defining feature of TSE is that transformational classrooms must challenge typical teacher–student relationships and power structures. This aspect of TSE is found throughout the existing literature; however, it is not stated as explicitly as the

learning domains. The shift from cognitive to affective learning requires breaking down power structures, less focus on content knowledge, and dialogue and reflection (Gal & Gan, 2020; Gramatakos & Lavau, 2019; Kemmis & Mutton, 2012; Lange, 2018; Papenfuss & Merritt, 2019; Shephard, 2008; Sipos et al., 2008; Walsh et al., 2020). Standard TL (Mezirow, 1996) also focuses on individual growth and transformation, conceptualizing learning as a highly individualistic process.

Lange (2018) pushed against the individualized nature of TL, calling for a relational ontology within TSE, placing the transformation of individual learners within an interconnected and relational web. This learning is not only situated within human social contexts but also is tied to the entire ecological world, including all living and nonliving things (Lange, 2018). Relationality as core to TSE necessitates social models of learning and represents a split in the literature, with work either coalescing around relationality or focusing on individual learners and their experiences.

In Sipos et al.'s (2008) "head, hands, and heart" model for TSE, they discovered several nontraditional models of learning at their research site. The authors explored several teaching strategies related to sociocultural learning at their research site: (a) problem-based learning, (b) action learning, and (c) community-based approaches. Gramatakos and Lavau (2019) called this element the *communities of informal learning*, or spaces where students could share and support one another's ideas on sustainability. Gramatakos and Lavau found these collaborative spaces were the biggest drivers of learning for students in informal university settings.

Gal and Gan (2020) found their students' learning was more transformational if they were larger stakeholders in and drivers of their education. To achieve this, Gal and Gan (2020) centered their pedagogical approaches around "developing critical thinking, open dialogue, and reflection, along with encouraging pro-environmental behavior" (p. 276). As result of their study, Gal and Gan recommended more constructivist approaches to TSE learning environments.

Like Gal and Gan (2020), Walsh et al. (2020) studied the effectiveness of their graduate-level course at the Lund University Centre for Sustainability Studies in Sweden. This EcoJustice course focused on relational approaches to TSE (Lange, 2018; Walsh et al., 2020) to promote facilitation of social justice learning and action. Walsh et al. found relationality was critical to students' success in gaining actionable knowledge about EJ issues. Walsh et al. presented several aspects of relationality within the TSE context that are critical for this development: (a) embodied learning (learning that engages the mind and body holistically), (b) human–nature connectedness, (c) place-based learning, and (d) handling uncertainty. Critical to understanding issues of social justice and their interactions with the environment, participants need to be confronted with intersectionality and use CoP (Walsh et al., 2020).

Other authors have emphasized sociocultural learning more clearly in their findings. In Shephard's (2008) article on the push for affective learning outcomes, the author recommended the transdisciplinary case study approach of learning, which stresses sociocultural and project-based approaches to teaching and learning. Shephard (2008) stated such approaches are necessary for education on sustainability because of

the topic's complexity, which often includes "group processes, contexts based in science and society, and competencies that involve judgement that integrate conflicting experiences and incomplete information sets" (p. 93).

In Kemmis and Mutton's (2012) case study of 10 sustainability education institutions, they examined students' TSE experiences in a variety of settings using observation, interview, and document analysis. Kemmis and Mutton (2012) found TSE must be a collective act and is constructed to allow the "individual [to] orient their actions in relation to the actions of others to produce something that can only ever be collectively produced" (p. 203). Learning in TSE settings is centered largely around learners with shared goals, working together and learning from another (Kemmis & Mutton, 2012).

In Papenfuss and Merritt's (2019) study on TSE experiences in an ecovillage, sociocultural learning was manifested in very specific ways. Within this context, rituals, stories, and collaboration were found to be passed from participants as the ultimate drivers of their learning. Due to these findings, Papenfuss and Merritt called for an emphasis on rituals, storytelling, and collaboration within TSE.

Sociocultural learning was selected as the theoretical framework for this study. The Center of Sustainability does not have formal teachers, meaning all learning occurs through CoP and activity settings (Lave & Wenger, 1991; Tharp et al., 2000), which points to the Center as a transformative space because of its emphasis and use of similar pedagogical models found in the literature on TSE. The next section focuses on how informal and nonformal learning spaces are discussed in the literature.

Theme 3: Support for Informal and Nonformal Methods

Literature in the TSE space has shown informal learning opportunities can play a large role in students' development (Armstrong et al., 2016; Gramatakos & Lavau, 2019; Kemmis & Mutton, 2012; Papenfuss & Merritt, 2019; Sipos et al., 2008), which is tied to the importance of social models of learning because authors emphasize the need for project-based approaches, especially those placing learners in diverse, real-world settings.

Sipos et al. (2008) studied three different sustainability courses at the University of British Columbia held inside and outside formal settings. The authors found certain settings were more conducive to particular aspects of TSE and required specific pedagogical philosophies. For example, in the classroom, the authors found democratic and participatory learning environments emphasizing conflict resolution were most productive; in community settings, fully collaborative and service-learning models proved more powerful. Sipos et al.'s findings point to the idea that informal and nonformal settings can support and fill in the gaps of formal university settings to complete a model of TSE that supports students' heads, hands, and hearts.

This claim has been supported by several other authors. Armstrong et al. (2016) evaluated an entire university whose focus was on SE. Under consideration were the university's pedagogical philosophy, the experiences of a variety of students with a variety of majors, the formal and informal learning opportunities present, and job placement postgraduation. Students described their university's philosophy of practice as transcending the formal coursework, and some of their greatest learning came from collaborative opportunities with the community that the university tried to foster.

Students emphasized consistently how the school's formal curriculum was "couched" within the local context of their studies, and place-based learning opportunities were supported (Armstrong et al., 2016).

Kemmis and Mutton (2012) stated the informal communities that were part of their study offered "a greater sense of urgency and purpose to education" (p. 204) than formal classroom settings. Although action could have a greater focus than education in these spaces, the authors still illustrated the importance of the transformative qualities of these spaces. Papenfuss and Merritt (2019) found entirely alternative and informal settings outside the university allowed for more emancipatory pedagogies to be explored that were not possible in a typical classroom setting. The ecovillage setting of their study allowed participants to "explore divergent curricula [and] novel pedagogies" (Papenfuss & Merritt, 2019, p. 2), such as storytelling and rituals.

Very few studies have explored informal and nonformal spaces within universities exclusively, despite their potential promise. Gramatakos and Lavau's (2019) study demonstrated purely informal and nonformal spaces within universities also have great transformational power, resulting in cognitive, practical, and affective growth for students. Student participants often remarked the work they did as part of clubs and student organizations, and within other informal and nonformal opportunities, were more powerful for them than their work within classroom settings (Gramatakos & Lavau, 2019), which was attributed to the communal nature of those spaces. Like Armstrong et al.'s (2016) study, students demonstrated their informal learning reinforced formal learning on campus, which happened by broadening perspectives, translating principles

into practice, motivating learning, further developing critical reflection skills, or experiencing other knowledge systems (Gramatakos & Lavau, 2019).

Gramatakos and Lavau's (2019) work demonstrates the tangible ways universities can cultivate fertile conditions for TSE experiences within their informal and nonformal institutions. That said, Gramatakos and Lavau's (2019) study was the only study I found dedicated to the purely informal and nonformal institutions within universities. Despite a fair amount of support to research informal and nonformal spaces as sites for TSE, little research has examined what that would look like within the university context.

Support for informal and nonformal methodology within the TSE community, and the general lack of research on this methodology within university settings, has informed the purpose of this study. This study explored TSE in such spaces, using frameworks that support emergent and social learning in informal spaces and that emphasize transformative experiences for learners (Kwuak & Casey, 2021; Tharp et al., 2000; Wenger, 2008). I chose the research site of this study, the Center for Sustainability, to establish how TSE could be cultivated in a nonformal university space.

Gramatakos and Lavau's (2019) work is valuable, but it lacks an analysis of learning in practice, or the pedagogical philosophies behind the informal and nonformal structures mentioned by its participants. The study also did not track how these TSE experiences translated into long-term changes for participants, including job placement within sustainability fields. This study addressed the gap Gramatakos and Lavau presented through sociocultural analysis to understand better the teaching and learning

practices at one nonformal university program. The final theme discusses the emergent nature of TSE literature.

Theme 4: An Emergent Field and Lack of Holistic Approaches

While searching for resources on TSE, it became clear that the field is still emerging and developing. Most resources I located were written within the last 5 years, and informal and nonformal research specific to higher education was difficult to locate. The emergent nature of TSE is reiterated frequently within the literature, with several authors stating TSE is still fractured and lacks structure and focus (Armstrong et al., 2016; Gramatakos & Lavau, 2019; Kemmis & Mutton, 2012; Papenfuss & Merritt, 2019; Sipos et al., 2008).

Rodriguez-Aboyete and Barth (2019) labeled nearly one third of existing TSE literature as “superficially” transformative, something they attributed to the field’s emerging nature. Authors within the field have not reached consensus on what constitutes transformative education (Rodriguez-Aboyete & Barth, 2019). Rodriguez-Aboyete and Barth also illustrated a great deal of literature has emphasized TL outcomes over process—or even has confused the two. On informal and nonformal education, Rodriguez-Aboyete and Barth found no literature on such spaces in university settings, although their literature review was conducted before Gramatakos and Lavau’s (2019) work was published.

On this topic, Shephard (2008) remarked that researchers need to complete more TSE “research that contributes to epistemology and contextualization” (p. 96). Kemmis and Mutton (2012) stated TSE is “an emergent practice—that is, one which is not long-

established, not yet well-informed, not yet stable, routinised and institutionalized” (p. 188). Walsh et al. (2020) elaborated on the need for more routinized and institutionalized methods of TSE because the lack of consistent form in TSE research and implementation is missing key qualities needed for sustainable and equitable transformation. Walsh et al. connected the lack of institutionalized TSE to the individualistic nature of Mezirow’s theories and indicated the field has not reached consensus regarding a focus on relationality. The emergent nature and general lack of unification of TSE research means holistic views and approaches have not been studied or realized fully in the work done so far (Armstrong et al., 2016).

Armstrong et al. (2016) called for more holistic approaches to the evaluation of TSE programs and areas of study within the research, writing, “Development of assessment methods for sustainability education remains an area in the earliest stages of fruition” (p. 759). TSE literature and implementations rely too heavily on learning outcomes and often assess the acquisition of those skills using traditional assessment strategies, regardless of if such strategies are effective for something as nebulous as TL (Armstrong et al., 2016). Gramatakos and Lavau (2019) admitted this point, saying that their findings were quite limited in establishing how learning outcomes were reached based on student testimony and that observation and other methods of evaluation and interpretation were needed to understand informal TSE better. Armstrong et al. warned fostering transformational and holistic sustainability learning may be a difficult process to guarantee or quantify and encouraged future researchers and educators to take a

student-centered focus, considering the entire educational environment within which learners are situated.

The emergent nature of TSE has informed this study in several ways. This study centers student voice within its design and uses sociocultural analysis as its theoretical framework, selected as the process for TSE (Armstrong et al., 2016; Gramatakos & Lavau, 2019). This model of learning emphasizes the interconnection between learners and systems, attending to the “individualistic” nature of TL (Lange, 2018; Lave & Wenger, 1991; Tharp et al., 2000; Walsh et al., 2000). Given that this study explored a complete model of TSE, one accounting for both process and outcomes (Rodriguez-Aboyete & Barth, 2019), I selected Kwuak and Casey’s (2021) new green learning agenda framework as the conceptual framework. This framework is rooted in TL but emphasizes interconnectedness and is broad enough to allow for a much wider range of learning outcomes than often present in TSE.

The next section of this chapter examines the study’s two frameworks, both selected considering themes prevalent in the literature and because the frameworks are well suited for the type of learning taking place at the Center. The discussion begins with the theoretical framework and process for learning: sociocultural learning. Two central concepts have a lot of importance for this study: CoP (Lave & Wenger, 1991) and activity settings (Tharp et al., 2000). The discussion then moves to the conceptual framework and learning outcomes of TSE, using Kwuak and Casey’s (2021) TSE framework.

Theoretical Framework: Process of Learning

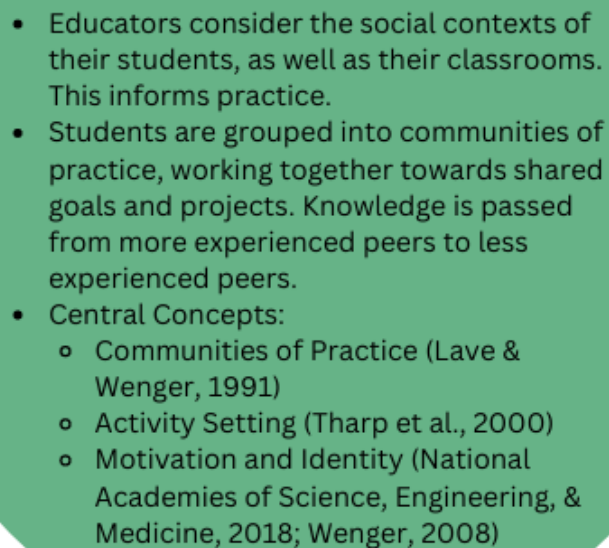
This section will examine the theoretical framework of this study, sociocultural learning. A brief description of sociocultural learning, and central concepts utilized in this study, can be found in in Figure 3. Sociocultural learning represents the process for learning that participants experienced within this study.

Figure 3

Sociocultural Learning as the Process for TSE

Process for Learning: Sociocultural learning

(Wertsch, 1991)

- 
- Educators consider the social contexts of their students, as well as their classrooms. This informs practice.
 - Students are grouped into communities of practice, working together towards shared goals and projects. Knowledge is passed from more experienced peers to less experienced peers.
 - Central Concepts:
 - Communities of Practice (Lave & Wenger, 1991)
 - Activity Setting (Tharp et al., 2000)
 - Motivation and Identity (National Academies of Science, Engineering, & Medicine, 2018; Wenger, 2008)

The Sociocultural Approach

Culture is intrinsic to the process of learning (Lave & Wenger, 1991; NASEM, 2018; Rogoff, 2003; Tharp et al., 2000; Wertsch, 1991). The NASEM (2018) remarked, “Integrating different cultural practices is a key learning challenge, and culture is a matter not only of what people learn but also how they learn” (p. 23); understanding this requires taking a “sociocultural approach to the mind” (Wertsch, 1991, p. 6). Wertsch (1991) described the sociocultural approach to the mind as creating “an account of human and mental process that recognizes the essential relationship between these processes and their cultural, historical, and institutional settings” (p. 6).

Wertsch’s (1991) conceptualization of the sociocultural approach is rooted deeply in the work of two Soviet philosophers—Vygotsky and Bakhtin. Both authors were concerned with the psychological and linguistic nature of human experience and learning, emphasizing the social context of human interaction (Wertsch, 1991). Wertsch combined and analyzed both philosophers’ theories to create an approach to understanding human psychology and learning that accounts for the cultural, historical, and institutional settings of which learners are a part.

Wertsch (1991) identified three major themes within Vygotsky’s work: (a) there are genetic factors and developmental precursors that mental functions are investigated in respect to, (b) higher mental functions such as learning and deeper modes of understanding are tied to interpersonal activity, and (c) mental activity is mediated through language and other tools tied to their social context. Several other Vygotsky

concepts within these three themes have major implications for theories about sociocultural learning.

The *zone of proximal development (ZPD)* represents the split between students' actual developmental level and the students' potential developmental level with assistance (Tharp & Gallimore, 2003; Wertsch, 1991). During problem solving and learning, students have a range of abilities based on their developmental levels, and the range can be extended through the assistance of teachers or peers (Tharp & Gallimore, 2003). Another foundational concept within Vygotsky's theory is that of *internalization*, or the process in which learners reconstruct shared external activity within their mind, contributing to knowledge (Fernyhough, 2008). Finally, Vygotsky stressed the *intermental* and *intramental* planes of cognitive functioning, the first being the local social context and the second being within the mind of the learner (Wertsch, 1991).

This final point represents Wertsch's (1991) main criticism of Vygotsky theory—that the philosopher limited the mediational means of language and technical tools to hyper-localized forces and not to larger social forces. Vygotsky was not critical of institutional, political, or cultural forces that can mediate mental activity (Wertsch, 1991). Vygotsky's theories often reflect a localized ethnocentric bias, and the applicability of the theories are limited to certain groups and settings. To accomplish a theory of mediation that incorporates social factors, Wertsch (1991) discussed several Bakhtin concepts and posited a theory of sociocultural understanding that has had a large impact on the work that has come after it. The sociocultural work that followed Vygotsky's has reflected a tendency to incorporate the perspectives of diverse learners as well as to honor and

understand their complex cultural backgrounds (Lave & Wenger, 1991; NASEM, 2018; Rogoff, 2003; Tharp et al., 2000; Tharp & Gallimore, 2002).

Bakhtin has three major concepts Wertsch (1991) used to reflect a sociocultural approach that considers learners' cultural, historical, and institutional settings, or social contexts. *Voice* refers to both the person speaking as well as to their contextual and perceptual view of the world. Wertsch (1991) remarked, "It applies to written as well as spoken communication, and it is concerned with the broader issues of a speaking subject's perspective, conceptual horizon, intention, and world view" (p. 51). Within the educational context, the voice represents the teacher or student as an individual as well as their social context, which forms their perspective (Wertsch, 1991).

Dialogicality represents when two voices interact with one another in communication and can be thought of as dialogue when the communication is verbal and face to face (Wertsch, 1991). *Social languages* and *speech genres* relate to how humans use language as a mediating force. Social languages are languages humans use to communicate, and there can be variations in these languages. A speech genre is a way of speaking that is common or tied to specific social contexts, such as how someone ought to speak in a science classroom.

A classroom is a place where students and teachers, situated within various social contexts, engage in social activity that allows students to internalize the language and technical tools used to carry out the activity. They do this by observing, listening, engaging in dialogue, and making their own attempts at the action with or without a teacher's assistance. All the conceptions mentioned are foundational to sociocultural

learning, but Wertsch (1991) focused on establishing a way of viewing and understanding a specific approach to psychology rather than establishing a practical pedagogical methodology; however, the concepts I have discussed are important for sociocultural learning and the work of this study.

In CoP, which I discuss in greater detail in the next section, new community members learn by engaging with more experienced members (Lave & Wenger, 1991). New members are taught about the community's practices as well as any relevant language and tool knowledge. As Vygotsky suggested, in CoP, deeper modes of understanding are tied to social interactions between members, and mental activity is mediated using the tools and language of those communities (Lave & Wenger, 1991; Wertsch, 1991). The ZPD is relevant in these spaces because new and more experienced members work together using various levels of participation, and information passes from members based on knowledge and experience (Lave & Wenger, 1991). Voice, dialogicality, and social languages are all present within CoP because members join with different experiences, navigating understanding by pulling from these diverse perspectives (Wenger, 2008). As discussed in the findings, interns at the Center learn through CoP.

In the next section, I discuss the work of several authors who have centered Vygotsky's theories within pedagogical methodologies. Some of these authors' work has been integrated into the theoretical framework of this study, namely Lave and Wenger's (1991) CoP and Tharp et al.'s (2000) activity settings.

Sociocultural Teaching and Learning

To incorporate Vygotsky's theories into teaching and learning effectively, the application of the theories needed to move beyond the psychological. Tharp and Gallimore (2002) remarked "a theory of education not only must deal with the psychological aspects of teacher-student interaction but also must simultaneously address the social context of that interaction" (p. 83). Sociocultural learning involves the consideration and leveraging of the social context to help students learn (Tharp et al., 2000). Tharp et al. (2000) defined sociocultural teaching and learning as:

This point of view accepts the constructivist view of mental development, but with an additional emphasis . . . while agreeing that the learner creates knowledge and understanding during and from activity, socioculturalists emphasize that the learner's interaction with materials and activity occurs primarily in a social context of relationships. In fact, that social context is the major matter of the activity itself. The social aspects of activity provide for role assignments, problem-solving approaches, interpretations of events, and the ways that events are valued or despised. In short, social activity provides for knowledge. (p. 66)

There are several theories about how learning is actualized in social settings, and these theories often focus on contextual sites of activity where learners come together and work toward common ends (Lave & Wenger, 1991; NASEM, 2018; Rogoff, 2003; Tharp et al., 2000; Tharp & Gallimore, 2002). All the theories I have discussed involve the ability for knowledge to be acquired by sharing experiences with others in these settings.

Lave and Wenger's (1991) and Tharp et al.'s (2000) activity settings have had the greatest impact on this study because of the connection the authors have made to TL and because of the fit for the conditions of TSE and the setting of the research site. Several theories are explored, all of which orbit around formal and informal learning models. This distinction is important in this study because of the type of setting the Center for

Sustainability is. Although it exists within a formal institution and has some formalized elements, learning occurs largely in informal spaces. Tharp et al.'s (2000) sociocultural model is situated in more formal classroom settings; Lave and Wenger (1991) and Rogoff (2003) focused on informal contexts. The fluidity of the Center's formality necessitates use of concepts pulled from multiple sociocultural sources. This split between the formal and informal also has relevance later in this study.

Rogoff (2003) acknowledged Vygotsky's work but focused more generally on learning occurring outside the formalized classroom, something the author believed to not be present in the philosopher's work. This type of learning occurs in a wide range of interactions between a child and their community. Rogoff developed the concept of guided participation in cultural endeavors as part of their model for sociocultural teaching and learning. "Guided," as Rogoff defined, refers to the instructional nature of the activity, although the author noted the activity can extend beyond the confines of purely instructional interactions.

Rogoff (2003) stated, "Guided participation focuses on side-by-side or distal arrangements in which children participate in the values, skills and practices of their communities" (p. 284) without the explicit intention for instruction. Guided participation has two central concepts that provide its structure: (a) mutual bridging of meanings refers to the process of meeting mutual understanding between two people and (b) mutual structuring of participation refers to structuring the choices and opportunities to which learners have access (Rogoff, 2003). Rogoff's (2003) theory is centered within the

context of children, and participants of the study were adult learners, which makes Rogoff's theories difficult to situate in this study.

Lave and Wenger (1991) conceptualized learning through social interaction as "situated learning," which means learning is "situated" within social contexts, including the power structures learners are part of. Within Lave and Wenger's work, learning is shifted from a personal, psychological process to a social and interpretive one (Kim et al., 2016). Situated learning can be operationalized using CoP, or groups of people united in "mutual engagement," toward the achievement of a shared goal or joint activity (Lave & Wenger, 1991). Within CoP, members share knowledge, resources, and experiences with one another toward a common end (Lave & Wenger, 1991). The next section goes more in depth into CoP and situates their importance for this study. Then, other central concepts are given a similar attention. These concepts, and how they have been situated within this study, are summarized in Figure 4.

Central Theoretical Concept: Communities of Practice

CoP are made up of three components: (a) the domain, or the establishment of a shared identity around a common goal; (b) the community, or the relationships between members; and (c) the practice, which represents forms of activity, such as language, shared experiences, and use of tools (Kim et al., 2016). In these communities, learners often are given legitimate peripheral participation, or the ability to take peripheral roles in activities, learn through observation and meaningful participation, and take on more active roles as their understanding grows (Lave & Wenger, 1991).

Figure 4

Essential Sociocultural Concepts for This Study

Concept	Concept Elements	Importance
COMMUNITIES OF PRACTICE (LAVE & WENGER, 1991; WENGER, 2008)	Community membership and social practice, Legitimate Peripheral Participation, joint enterprise, negotiated meaning, reification, belonging, community boundaries	Understanding the dynamics on Center Sustainability Teams, and how interns learn within these communities.
ACTIVITY SETTING (THARP ET AL., 2000)	Location of setting, propinquity, joint productive activity, intersubjectivity, and affinity	Understanding how interns conduct their projects out in the community, teaching one another and other DU community-members, whilst developing important relationships.
MOTIVATION AND IDENTITY (NATIONAL ACADEMIES OF SCIENCE, ENGINEERING, & MEDICINE, 2018; WENGER, 2008)	Individual and social identities, extrinsic and intrinsic motivation, and goal setting.	Understanding what drives interns to learn on their teams and out in the larger community.

These components are relevant to this study. Center interns are part of teams, groups of students committed to common sustainability projects or goals. A team identity represents the team’s domain. Next, teams are communities of new and old members who navigate relationships and power dynamics. Finally, on these teams, interns participate in team practice at various levels, with new interns taking less important roles until they have mastered the skills and knowledge associated with that team.

Wenger (2008) expanded on Lave and Wenger’s (1991) conceptualization of CoP, creating an in-depth theory of learning that addresses a multitude of concepts

relevant for this study. An identity represents all the different social communities in which an individual participates and with which an individual identifies (Wenger, 2008). Identity played a more central role in Wenger's work, highlighting how members' individual identities impact how they interact, navigate meaning, and participate on teams. Individual members of teams begin to identify with their CoP if they feel various modes of belonging (Wenger, 2008), which also may occur as members move through their trajectory on their teams (i.e., moving from newcomer to old timer). Specific CoP elements are given more attention in Wenger's work.

Negotiation is paramount for CoP (Wenger, 2008). Members have their own perspectives, which are brought together to navigate and produce meaning mutually (Wenger, 2008). The histories of communities are important, because these histories also contain this shared meaning (Wenger, 2008). Communities reify, or make abstract meanings, practices, or artifacts concrete, based on the needs of their joint enterprise (Wenger, 2008). These communities are committed to joint enterprises, which Wenger (2008) defined as the "negotiated response to [the community's] situation" (p. 77). Communities have a shared repertoire, the process by which they complete this enterprise (Wenger, 2008). Finally, communities are not static, isolated entities, and members can exist across communities or meet at the boundaries of communities (Wenger, 2008).

All these concepts are foundational for explaining the makeup of teams at the Center. Wenger (2008) developed a holistic and complete conceptualization of CoP, one helping to illuminate the specific contours of teams. First, interns' identities play a large role in their experiences of teams. Second, interns begin as support staff and move into

lead positions as their knowledge grows. Third, teams have joint enterprises or are committed to solving sustainability problems on campus, such as waste diversion or food insecurity. Interns must master the practices associated with these enterprises and are given meaningful ability to negotiate on their teams. Finally, interns often collaborate across team boundaries.

Although both theories presented by Lave and Wenger (1991) and Wenger (2008) discuss the transformative power of their theories, CoP are not as tied to TL as other theories, and their theories would not be applied easily to formal contexts (Lave & Wenger, 1991; Wenger, 2008), which may make CoP difficult to operationalize across diverse educational contexts not specific to the Center. The theories, however, are useful in conceptualizing the context of the Center.

Unlike Lave and Wenger's (1991) work, Tharp et al.'s (2000) theories are tied to TL and are meant to be operationalized more easily across settings. Although Tharp et al.'s activity setting has been discussed within the context of K–12 schooling, Tharp and Gallimore (2002) stated activity settings could be leveraged within informal and nonformal adult contexts. Tharp et al.'s activity setting is a central concept used in this study. The next section discusses activity settings, an important concept for this study's theoretical framework.

Central Theoretical Concept: Activity Settings

Tharp et al. (2000) defined activity settings as the “who, what, where and why” of where learning takes place. O'Donnell and Tharp (1990) contextualized this intuitively: settings for activities between groups of people. In such settings, learners accomplish

goals and tasks together (often taking different roles and levels of participation) and establish mutual understanding. Critical to activity settings are (a) individual and collectivist patterns of activity, (b) roles, (c) power relationships, and (d) language codes (Tharp et al., 2000). In this way, do students accomplish tasks individually or work together as a collective? Do they have specific roles with different levels of power? Finally, do they have to master specific language as part of the task or project?

To increase the effectiveness of learning in a social setting, Tharp et al. (2000) emphasized several other concepts critical in developing learning relationships: (a) propinquity, or being close together; (b) joint productive activity, or working together toward the completion of project or problem; (c) intersubjectivity, or mutual understanding; and (d) affinity, or kinship and inclination toward relationship. These concepts have importance for this study. Although CoP are helpful in conceptualizing teams, team enterprises often are conducted in the university community. In fact, the enterprise may be focused exclusively on engaging that community, which makes activity settings—diverse locations focusing on specific activities and incorporating diverse members—important for understanding the Center’s university community work. Here, teams bring themselves closer to non-Center interns, conduct an activity involving those community members, work to teach them knowledge and skills while engaging in meaning making, and hope the activity leaves such a lasting impression on the community members that they want to continue to engage with the Center in future settings.

Within activity settings, peers and the teacher can take advantage of the ZPD. Peers, who are at their own developmental levels, accomplish as much as they can without assistance and then are pushed beyond that level through the help of more experienced peers or the teacher (Tharp & Gallimore, 2002). During such activities, the teacher may be moving around the space assisting groups and individuals. Within activity settings, students work together through actions, develop social relationships, and reach mutual understanding by sharing language tools and dialogue. Finally, learners internalize these interactions and build knowledge (Fernyhough, 2008). For Tharp et al. (2000) and Tharp and Gallimore (2002), the activity that takes place in these settings is the learning. The ZPD is important for understanding how interns choose to engage with their activities and how they treat non-Center interns.

As mentioned, Tharp et al.'s (2000) theories have been relegated to the formal realm, and the Center's activity settings take place in informal spaces. Tharp and Gallimore (2002) stated their ideas about activity settings could apply to the nonformal adult realm, making these concepts applicable to the learning practices at the Center, which is why activity settings were appropriate for this study. Also, unlike CoP, activity settings are a pedagogical tool that can be helpful and generalizable when developing a learning process for TSE. Activity settings are an essential part of this study and informed the construction of interview questions. The concept also will be used to analyze data generated by the interviews and observations. In the final section of the theoretical framework, I discuss other important sociocultural concepts.

Central Theoretical Concept: Motivation, Goals, and Identity

Motivations, goals, engagement, and identity all interact within sociocultural learning (Lave & Wenger, 1991; NASEM, 2018; Rogoff, 2003; Tharp et al., 2000). These concepts play an essential role in learning, are mediated by cultural and social factors, and have biological impacts on the brain (NASEM, 2018). Motivations, whether intrinsic or extrinsic, are linked to one's identity (NASEM, 2018). Neither Lave and Wenger (1991) nor Tharp et al. (2000) discussed motivations and goal setting in depth, despite their practical usefulness in educational settings. These concepts also proved quite relevant for this study. For this reason, the NASEM's (2018) theories will be discussed. Motivations and associated goals are tied to one's identity, whether individual or social; thus, identity is discussed first.

Individuals possess both a personal and a social identity, which the NASEM (2018) stated combine to serve as a "person's sense of who" (p. 126) they are as well as the "lens through which an individual makes sense of experiences and positions herself in the social world" (p. 126). Personal identity is typically defined by traits, such as being a good student; social identity represents the social groups a person takes part in (NASEM, 2018; Rogoff, 2002).

Rogoff (2002) preferred to "focus on people's involvement in their communities, to address the dynamic, generative nature of both individual lives and community practices" (p. 77). One's identity is made up, in part, of the cultural communities and practices they take part in and not a list of "check boxes" (Rogoff, 2002). Similarly, Wenger (2008) remarked, "Building an identity consists of negotiating the meanings of

our experience of membership in social communities” (p. 145). Personal identity, including cultural background, race, class, and gender, are not discussed heavily in this study. Examining how personal identity impacts positionality and access in CoP, and its role in TSE, represents a promising area for future research.

Leveraging identity, social relationships, and motivations are important for the process of learning. The NASEM (2018) stated:

Individuals’ brains are critically shaped by social relationships, and the information they learn through these relationships supports both their emotions and their knowledge about facts, procedure, motivation, and interests. (p. 29)

By acknowledging this view of teaching and learning, motivations and interests become integral to learning through social interaction. Motivations and interests impact the types of goals and activities with which groups of learners engage. Motivations are the conditions driving learners toward a specific goal; these motivations can come from a variety of places, whether within or outside the learner or produced by cultural or social factors (NASEM, 2018).

Within a formal classroom context, the teacher sets up the motivating factors and goals and may capitalize on learners’ individual interests, although this second point is not always the case (NASEM, 2018). According to the NASEM (2018), learners tend to tackle manageable challenges “when they see the value and utility of what they are learning” (p. 92). Although punishments and rewards are used often in classrooms, students have the greatest sustained motivation when their learning goals are tied to their interests (NASEM, 2018). Within informal and nonformal contexts, the teacher is no

longer a mediating factor; thus, motivations and goals are not directed by the teacher (Eshach, 2007; NASEM, 2018).

Informal and nonformal settings lack the typical teacher-to-student power structure; thus, learners are motivated by both social and cultural influences as well as their intrinsic motivations (Eshach, 2007; NASEM, 2018). Identity and exploration of one's interests, belonging to and honoring the greater collective, and sharing mutual goals all represent how the social context might impact motivation (NASEM, 2018; Wenger, 2008). However, intrinsic motivation, or engaging with the task or goal because it is personally meaningful to the learner, is especially powerful in sustaining drive and persistence in tackling that goal (Eshach, 2007; NASEM, 2018).

Although this drive might be individual, it is always impacted by the social factors shaping an individual's identities (NASEM, 2018). Intrinsic motivations are leveraged frequently within informal and nonformal spaces, which can make those learning experiences more powerful for learners than what is possible in a formal setting (Eshach, 2007). However, in the case of CoP, social motivations and commitment to community are also important (Lave & Wenger, 1991), although tensions between a community's needs and an individual's wants may be present (Wenger, 2008).

Like activity settings, identity and motivations were central sociocultural concepts for this study. Because the Center is a nonformal university institution, it lacks traditional teacher-student relationships, which means goals and interests are generated individually or within the context of teams. For this reason, the concepts of both identity and

motivation have informed the research and interview questions, and, like activity settings, were used to guide the data analysis of interviews and observations.

In the next section, I discuss the conceptual framework for this study: Kwauk and Casey's (2021) new green learning agenda framework, which represents one holistic way to conceptualize transformative sustainability outcomes in or outside the classroom. Although sociocultural learning was used in a mostly content-agnostic way in this study, the new green learning agenda framework accounts for what interns learn by taking part in their teams. This link between sociocultural learning as a process, and the new green learning agenda framework as green outcomes, represents a complete model of TSE. To understand this model, Kwauk and Casey's framework, the conceptual framework for this study, is discussed. The next section explores the new green learning agenda framework and its ties to TL (Mezirow, 1996).

Conceptual Framework: Learning Outcomes of TSE


Kwauk and Casey's (2021) framework for TSE combines a comprehensive set of learning outcomes and capacities with concepts found in TL (Mezirow, 1996). TL provides the foundation for the new green learning agenda framework, which is tied to producing perspective transformations in students (Kwauk & Casey, 2021; Mezirow, 1996). This discussion of the conceptual framework includes both TL and Kwauk and Casey's framework, demonstrating how they are connected. This connection is visualized in Figure 5.

Figure 5

The New Green Learning Agenda Framework as TSE Learning Outcomes

Learning Outcomes:
New Green Learning Agenda
Framework

(Kwuak & Casey, 2021)

- 
- Perspective Transformations
 - Understanding the relationality and interconnectedness of the ecological world.
 - The acquisition of skills:
 - Skills for green jobs
 - Green life skills
 - Skills for a green transformation

Transformational Learning

Transformative learning theory (TL) refers to the work Mezirow (1996, 1997) and focuses on adult learning and deep changes “in structures of assumptions” adults hold about the world. Kumi-Yebaoh and James (2012) defined TL for adult learners as the process by which they “critically examine their beliefs, assumptions, and values in light of acquiring new knowledge and being a process of personal social change called *reframing* in perspective” (p. 171). Mezirow (1996) called this “perspective

transformation,” which is when adult learners are forced to examine their understanding of how the world is structured and then shift this understanding considering their learning experience. This process encompasses 10 steps representing the transformational journey:

(1) a disorienting dilemma; (2) self examination; (3) a critical assessment of personally internalized role assumptions and a sense of alienation from traditional social expectations; (4) relating one’s discontent to similar experiences of others or to public issues-recognizing that one’s problem is shared and not exclusively a private matter; (5) exploring options for new ways of acting; (6) building competence and self-confidence in new roles; (7) planning a course of action; (8) acquiring knowledge and skills for implementing one’s plans; (9) provisional efforts to try new roles and to assess feedback; and (10) a reintegration into society on the basis of conditions dictated by the new perspective. (Mezirow, 1981, p. 7)

Once confronted with a disorienting dilemma, the learner is the impetus for their cognitive growth, moving themselves through the various stages. The dilemma is when a learner confronts a worldview or perspective radically different than their own, forcing them to reconceptualize their worldview or perspectives (Mezirow, 1996, 1997).

Merriam et al. (2007) illustrated the distinction between TL and traditional learning, stating traditional learning is generally the passage of “already established cognitive capacities” (p. 1) from the teacher to the learner while TL focuses more on “changing what we know” (p. 1). Merriam et al. (2007) grounded TL in three major principles: (a) experience, (b) critical reflection, and (c) development. For Merriam et al. (2007), development is the process of becoming better critical thinkers, to think more “dialectically” and improve our ability to be a “conscious creative force in the world” (p. 11). Although Merriam et al. pulled from Mezirow’s work, they also attributed some concepts of transformational work to Freire (2018). Freire was much more focused on the

sociocultural approach and societal change than Mezirow, who was focused largely on individual growth (Merriam et al., 2007).

A significant portion of TSE research has been grounded in Mezirow's TL philosophy, and metrics for transformational experiences often are measured with Mezirow's frameworks (Rodriguez-Aboyete & Barth, 2019). TSE is about transforming learners' conceptions about the ecological world, sustainability, the Climate Crisis, and themselves (Kwauk & Casey, 2021; Lange, 2018; Rodriguez-Aboyete & Barth, 2019). However, TSE is also about helping students attend to how they are part of a much larger socioecological system; thus, the hyper-individualized process of TL does not capture the relational nature of the ecological world (Kwauk & Casey, 2021; Lange, 2018), which necessitates a process of learning that is social context focused, examining the relational network the student is part of (Lange, 2018).

For the learning process, sociocultural approaches of TL were appropriate for this study, not only because of the Center's nonformal setting but also because relationality and interconnectedness is critical for TSE (Kwauk & Casey, 2021; Lange, 2018). At the Center, almost all learning happens within the context of teams and social activity. Lange (2018) made an important distinction from Mezirow's individual focus of TL, shifting the focus of the pedagogy away from the *personal* to the *relational*, or "the contexts, properties, and patterns of interactions in which an individual is embedded" (p. 291). As a result, TSE is about how an individual grows and changes within their socioecological context and how students shape their socioecological context through this learning.

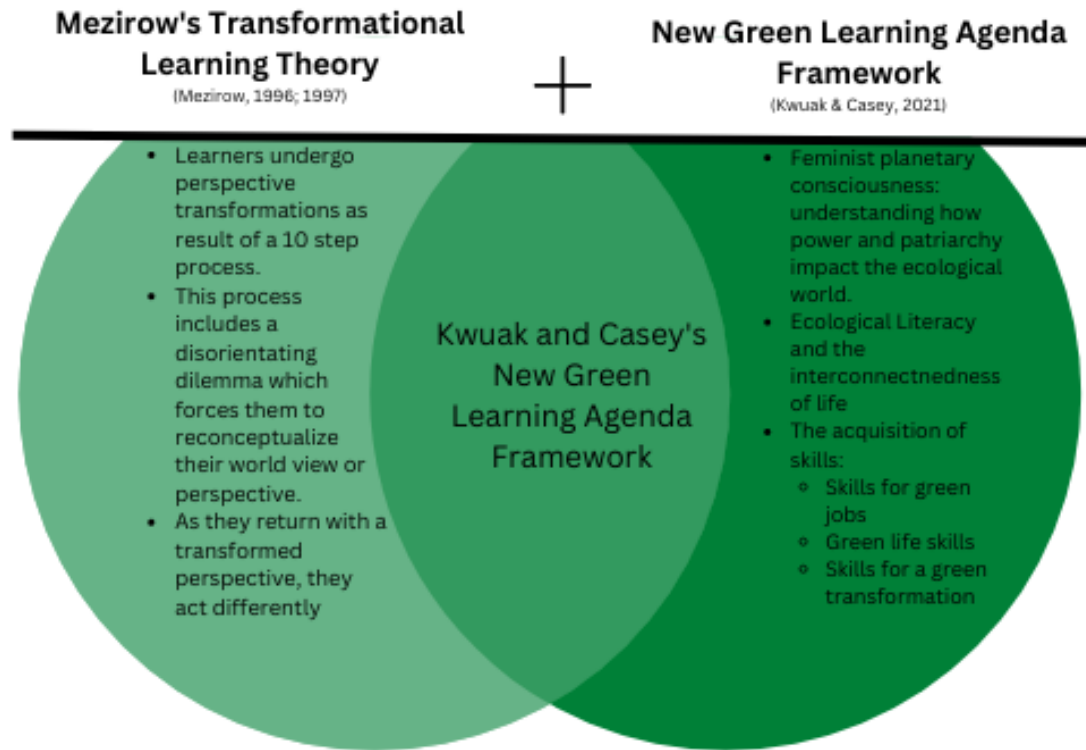
The socioecological context of the learning, and how it is used at the Center, is incredibly important to this study. For this reason, when establishing the process of learning for TSE, Lave and Wenger's (1991) and Tharp et al.'s (2000) conceptions of learning, including CoP and activity settings, take precedence over Mezirow's process within TL. Kwuak and Casey's (2021) framework then serves as the lens through which to view the learning outcomes of the Center's internship program.

The New Green Learning Agenda Framework and TSE

Kwuak and Casey (2021) framed their new green learning agenda within a socioecological lens, which shifts the focus of the educational framework to be more than just about people and culture. Not only are the historical, political, and cultural contexts of the learner important but so is the ecological context (Kwuak & Casey, 2021). The new green learning agenda framework, like much TSE literature, focuses on learning outcomes and not pedagogical practice. The new green learning agenda framework outlines a wide array of learning outcomes for TSE programs, detailing a hierarchy of skills learners should attain. Included in this model of TSE are the central pillars of TL proposed by Mezirow and the additional transformative sustainability knowledge and skills Kwuak and Casey (2021) hope students learn (see Figure 6).

Figure 6

Kwuak and Casey's TSE Framework



Kwuak and Casey (2021) stated TSE is centered on attaining the skills and knowledge needed for green jobs, including knowledge and awareness of the environment and its systems. This level, which is practical in nature, represents the first level. The second level, green life skills, focuses on cognitive “cross-cutting” abilities that help toward transformation and green work. These skills include collaborative thinking, critical thinking, reasoning, and problem solving. The final category is the affective skills Kwuak and Casey (2021) stated are necessary in “transforming unjust

social and economic structures” (p. 19). These skills include the ability to analyze unequal systems of power, systems thinking, and collective action.

Within this framework, TSE is just as focused on learning about the environment and obtaining the practical skills required for working within sustainability fields as it is about challenging oppressive systems that perpetuate inequitable ecological conditions. Kwak and Casey (2021) stated their approach to green learning is feminist and radical in nature, showing learners how gender, race, and class intersect with issues of climate change. Learners ought to come away with a “feminist planetary consciousness,” which Kwak and Casey (2021) defined as “an awareness of the interconnectivity of humanity’s challenges and the state of the planet—that power and patriarchy, as well as colonialism and racism, impact both human and natural systems” (p. 4). This capacity represents a relational understanding of the interconnectedness of climate and ecological issues (Lange, 2018). Within this process, learners’ perspectives on issues such as sustainability and climate change are radically transformed, calling them to organize and act (Kwak & Casey, 2021; see Figure 7 for a full breakdown of skills).

The new green learning agenda is a framework for educators to use to develop programs and provides a list of learning outcomes they can choose from based on their needs (Kwak & Casey, 2021). The agenda does not, however, have practice-related suggestions. Some of the skills have implications for practice, such as the need for collaboration, teamwork, and respecting differing viewpoints, which opens the door for the need for activity settings and CoP, ideas expressed within this study’s theoretical framework. The new green learning agenda framework informed this study’s research

and interview questions and serves as the basis for determining if the learning taking place at the Center is transformative. The final section of this chapter focuses on explaining how the theoretical and conceptual frameworks are combined to create a complete model for TSE.

Figure 7

New Green Learning Agenda Framework



Note. From “A New Green Learning Agenda: Approaches to Quality Education for Climate Action,” by C. Kwak and O. Casey, 2021. Center for Universal Education at Brookings.

A Model for Nonformal TSE: Both Process and Outcome

Across the existing literature, there are several consistent themes. Although just Gramatakos and Lavau's (2019) named these areas, cognitive, practical, and affective growth have been discovered in students because of TSE experiences across multiple studies. The result of this growth is Mezirow's conception of perspective transformation (Gramatakos & Lavau, 2019). The authors of TSE studies often have called for constructivist and student-centered approaches to teaching and learning (Gal & Gan, 2020; Gramatakos & Lavau, 2019; Lange, 2018; Rodriguez-Aboyete & Barth, 2019; Sipos et al., 2008; Walsh et al., 2020). A theme specific to studies on informal and nonformal contexts is that such experiences often reinforce, or are more significant than, students' formal university experiences (Armstrong et al., 2016; Gramatakos & Lavau, 2019; Kemmis & Mutton, 2012; Papenfuss & Merritt, 2019; Sipos et al., 2008).

One quality stands out when examining literature on TSE: Most studies have occurred within the last few years. TSE appears to be an emerging field of study, especially within the university context. Collectively, all authors I discussed have called for further research on TSE because it is an emerging field (Armstrong et al., 2016; Gal & Gan, 2020; Gramatakos & Lavau, 2019; Lange, 2018; Rodriguez-Aboyete & Barth, 2019; Sipos et al., 2008; Walsh et al., 2020). Another theme related to the emergent nature of studies on TSE is that several authors have called for further research that expands the understanding of TSE to include successful pedagogical strategies. The existing research has focused primarily on the learning outcomes of TSE and not on the

theory, pedagogy, and process behind TSE (Armstrong et al., 2016; Gramatakos & Lavau, 2019).

What is also missing from the literature is a complete picture of what TSE can look like within entirely informal and nonformal university contexts. Gramatakos and Lavau's (2019) qualitative study was the only article I located on informal TSE education within the university context. Armstrong et al.'s (2016) and Sipos et al.'s (2008) studies represented a "hybrid" approach examining students' formal and informal TSE experiences at their respective universities. Both studies advocated for more studies on informal and nonformal TSE within the university context (Armstrong et al., 2016; Gramatakos & Lavau, 2019; Sipos et al., 2008).

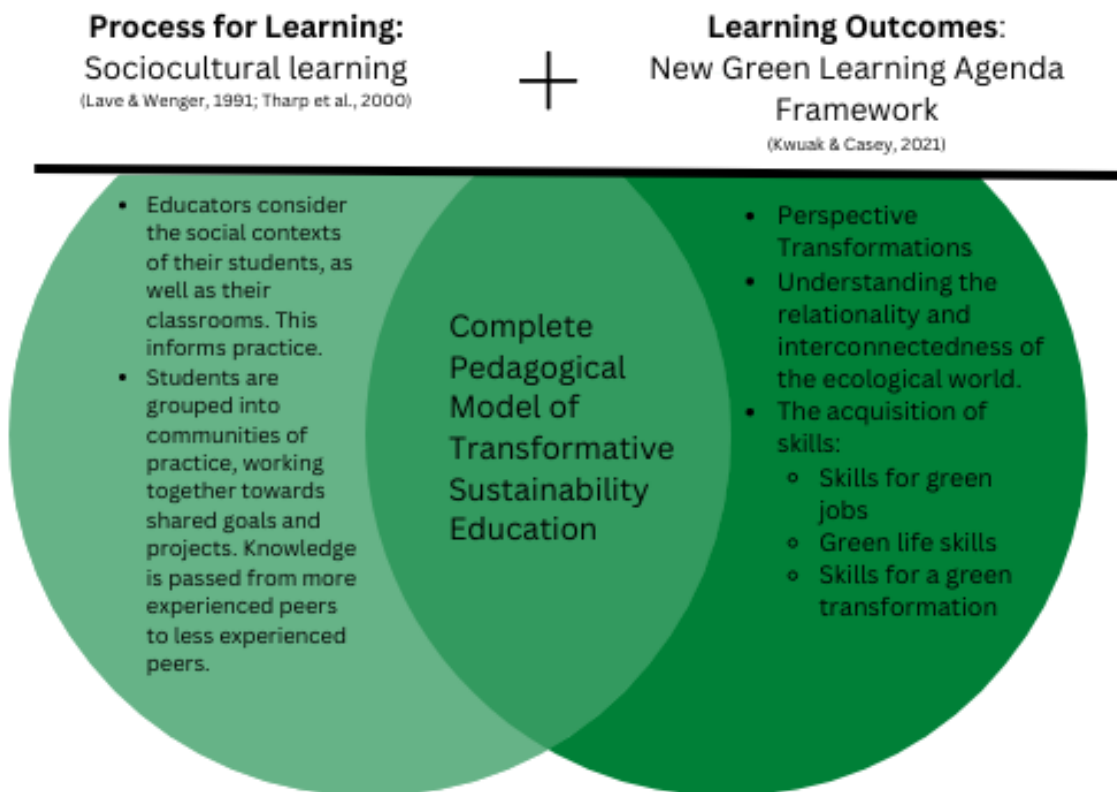
Very little has been discussed about how to facilitate informal and nonformal TSE experiences for university students, what pedagogical strategies and philosophies are helpful for facilitating such learning, in-depth discussions on learners' experiences, how their unique skill sets and academic disciplines affect their experiences, and how these experiences lead to long-term changes. This line of research represents a sociocultural approach to TSE research and is critical for developing a complete picture of TSE considering both the learning process and the learning outcomes.

In summary, a model for TSE is needed that centers TL, incorporates a relational ontology, leads to affective growth in learners, uses social and lower power distance models of learning, incorporates informal and nonformal experiences, and delineates between the process and learning outcomes of TSE. This study illustrates one such model

with its combination of sociocultural learning and the new green learning agenda framework (Kwuak & Casey, 2021). This model is visualized in Figure 8.

Figure 8

Visualization of the Study's Frameworks



Sociocultural teaching and learning as a theory is not often content specific. Sociocultural learning focuses on areas such as epistemology, teaching theories, psychological processes, and teaching strategies (Sharp et al., 2000; Wertsch, 1991). Therefore, sociocultural learning is not tied to issues of sustainability, although, as a strategy, it does prioritize learning content that is meaningful to the social context within

which the learning takes place (Lave & Wenger, 1991; NASEM, 2018; Rogoff, 2003; Tharp et al., 2000; Wertsch, 1991). Sociocultural learning is a strong fit for TSE because it prioritizes many of the same elements (e.g., collaborative learning, problem solving) and is malleable to the content needs of specific learning communities.

TSE has not yet settled on a widely accepted pedagogical philosophy nor a consistent process of learning. This study explored how sociocultural learning can be combined with TSE learning outcomes to create a complete model of TSE, one considering both the process for learning and what learners take away from their experiences. In the next chapter, I describe how this study used educational criticism and connoisseurship (Eisner, 2017; Uhrmacher et al., 2016) to understand better what this model might look like in nonformal university settings.

CHAPTER THREE: METHODOLOGY

In the beginning of *The Enlightening Eye*, Eisner (2017) told the reader that the book's contents were "intimately related" to his life as a painter and, in turn, the way he looked at inquiry also was related intimately to painting throughout his life. This statement likely resonates with most artists who find themselves as researchers; for example, I grew up learning to play instruments by absorbing and enveloping myself into music I loved. Today, I own a recording studio, and, in many ways, how I view research and inquiry is the same as how I view writing and assessing music. This connection to music, and the larger punk world, serves as a consistent metaphor throughout this study. For this reason, Eisner's theory of educational criticism and connoisseurship seemed impossibly perfect and personal for me, a clear statement that an educational critic is the type of researcher I want to be. This chapter introduces key concepts from educational criticism and how they served as the method by which I carried out sociocultural analysis and TSE inquiry in this study.

Educational Criticism and Rationale for Its Use in This Study

Educational criticism was appropriate for this study because capturing something as nebulous as "educational transformation" can be quite difficult. As stated previously, perspective transformation is highly personal, messy, and difficult to quantify. Determining if learners have undergone a perspective transformation is likely going to

depend on their input and telling of their stories (Armstrong et al., 2016) because most learning taking place in the student internships is “intrinsically motivated,” or occurs on interns’ own volition, and is highly specialized to their needs and interests (Eshach, 2007; NASEM, 2018).

It is not possible to guarantee transformational experiences for learners, and having pedagogical activities or outcomes in mind does not mean it will be easy to assess if TL occurs for students (Cox, 2017). However, there is tangible evidence of learners’ transformations in the work they complete, how they behave during activity and dialogue, and whether they have had their perspectives transformed as a result of the learning activity (Gramatakos & Lavau, 2019; Mezirow, 1996, 1997; Sipos et al., 2008).

Eisner (2017) was clear that educational criticism is meant for such types of situations, stating, “It should be recognized that most situations about which an educational criticism is written will not be crystal clear or unambiguous; most of life is riddled with dilemmas, trade-offs, ambiguities” (p. 111). The ambiguous nature of this area of research does not mean it is beyond the realm of understanding but rather requires a careful eye to attend to its details. In the case of educational criticism, the researcher is often close to the subject they are studying, allowing them to use their prior knowledge to help them better understand complex educational phenomena (Uhrmacher et al., 2016). The researcher then relays what they find through the process of “thick” description and interpretation and creates meaning out of these data through evaluation and themes (Uhrmacher et al., 2016). Because of my background teaching in both informal and

nonformal settings, and because of my position at the Center for Sustainability, I can serve as an “expert” on the phenomena under study.

Researcher Role

I have spent most of my teaching career in nonformal settings and have worked with students from age 3 up to students in their 20s. My formal classroom experience was in an alternative high school that did not resemble a traditional classroom in practice nor in aesthetics. After a year at that school, I spent time guest teaching in my local district before moving into the informal and nonformal sector. I then taught social and ecological-justice-focused Colorado history to students of all ages at Denver’s History Colorado Center (HCC). In this setting, I witnessed firsthand the power of self-actualized learning, which often was filled with discovery, perspective transformation, and meaning making. This experience also taught me about what an ideal nonformal institution can look like. The curriculum at the HCC is based off Colorado state standards and attempts to teach students about issues of racial, economic, and ecological justice using experience and self-guided inquiry.

During the construction of this study, I created curricular tools at the Center, work often focused on crafting assessments to capture the learning taking place within the Center’s student internships. During my time at the Center, I have developed an understanding of how it is structured, the types of activities teams complete, the Center’s goals, and the autonomous nature of student interns’ experiences.

In my role, I have developed a macrolevel understanding of what student interns achieve and how this learning relates to educational and career growth. I have achieved

this understanding through self-evaluation systems in which student interns can talk about their experiences throughout the year. My general and large-scale knowledge about the Center allows me to critique adequately the learning practices happening within the context of the Center's sustainability teams. What I do not know from my existing position is how student interns learn, what motivations drive them to take on the activities they carry out, and whether this learning is transformative for them.

Again, I have seen what I consider to be the same nonformal transformational learning present at the HCC through my experiences at the Center; however, an additional layer of my life has affected how I approached this study's data. My "artistic eye" comes from my attachment and deep involvement in the punk world. For the second half of my life, I have taken part in "do-it-yourself" organizing, booking and attending punk shows, and touring the country with my band. During these experiences, I have witnessed powerful informal learning that is entirely sociocultural in nature. The genesis of this project came from telling my advisor I thought the Center felt "so punk." This intuition led me down an important journey, one full of discovery, helping me to understand what it means to be punk, especially related to the Center. I discuss this lens in greater detail in the interpretive frame section.

All these experiences made me equipped to "make the strange familiar"—to explain the learning process and outcomes taking place at the Center. Educational criticism heavily emphasizes use of description of educational settings, and use of narratives and vignettes provided by observation and interviews, to evaluate the entire educational environment. To explore TL at the Center, student interns will need to be

able to tell their stories, and these stories need to be confirmed by what occurs in the settings where their learning takes place. Educational criticism is well equipped at capturing the nuance of this type of learning because of this emphasis on observation, interviews, and interpretation. In the next section, I focus on the educational criticism methodology and its integration into the study design.

Educational Criticism and Connoisseurship

A qualitative methodology Eisner (2017) created, educational criticism and connoisseurship, leverages the researcher's subjectivity, insider status, and personal experience with the topic they are studying to "make the strange familiar" (Uhrmacher et al., 2016). Eisner (2017) stated art criticism is the "process of enabling others to see the qualities that a work of art possesses" (p. 6). The connoisseur is someone who knows something about a piece of art because they can *see* it, and unlike the uninitiated, not just look at it (Eisner, 2017).

In educational criticism, researchers use their status as a connoisseur of the pedagogical practice they research to better "see-with" and "see-about" what is happening at their study site, which often has real pedagogical power by "offering a glimpse into the lives of students, teachers and school administrators" (Uhrmacher et al., 2016, p. 5), and the "vivid nature of criticism provides a behind-the-scenes perspective" (p. 5) that can be applied to other settings. As stated previously, the goal of this study was to look at what a complete model of TSE can look like in a nonformal university setting, which I achieved through the data collection and analysis processes of educational criticism: description, interpretation, evaluation, and thematics (Eisner, 2017).

Description

According to Eisner (2017), the description's purpose is to enable "readers to visualize what a place or process is like" (p. 88). Usually, "thick" description is recommended, capturing the "tone," aesthetic qualities, and fine details of the phenomena described (Uhrmacher et al., 2016). I used description in this study for the three data sources: interviews, observations, and artifact analysis.

Participants were described in great detail, each with their own introductions. Their statements during interviews appear frequently throughout Chapters 5 and 6, and the description of these statements are connected broader themes. I used vignettes to transport the reader into observation setting, I described the diverse observation settings with care and enough detail for readers to observe and make their own conclusions about the locations. Finally, the artifacts collected represent as much diversity as the observation sites. Each artifact submitted was unique to the participant, and although visuals can be found in the participant sections, I described the importance of the artifact and their connections to participants' learning. Description is not just important for transporting the reader but also because the description's details both legitimize the interpretations within this study and allow readers to have their own interpretations (Uhrmacher et al., 2016).

Interpretation

Interpretation is the next process Eisner (2017) described and often goes hand in hand with description (Uhrmacher et al., 2016). Eisner remarked, if description is the

“account of” what is happening, then interpretation is the “account for.” Eisner (2017) explained:

Educational critics are interested not only in making vivid what they have experienced, but in explaining its meaning; this goal frequently requires putting what has been described in a context in which its antecedent factors can be identified. (p. 95)

Uhrmacher et al. (2016) described interpretation as the “application of concepts” to the description.

Interpretations within the findings chapters are used to connect description to sociocultural learning, to Kwuak and Casey’s (2021) new green learning agenda framework, and to my own experiences in informal and nonformal learning. This interpretation, through a combination of theoretical, conceptual, and personal frameworks, is known as the “interpretive frame” (Uhrmacher et al., 2016), which I discuss in depth later in this chapter. Description, such as vignettes and artifact qualities, have been interpreted using an interpretive frame, and I use these interpretations to address the three research questions.

Evaluation

Eisner’s (2017) third process is evaluation, which focuses on determining if the subject under study is educative and valuable for the learning community (Uhrmacher et al., 2016). The purpose of evaluation is “to assess the significance of events in relationship to a set of criteria, not solely to measure them against an external standard” (Uhrmacher et al., 2016, p. 50). The purpose of this study and the research questions was to develop a complete picture of nonformal university TSE. By gathering evidence from

interviews, observations, and artifacts, and by interpreting evidence through the various frameworks, I provide an evaluation of the Center's programs in Chapter 7.

Thematics

Finally, Eisner (2017) called for the development of thematics, the culmination of the criticism process, stating, "A theme is like a pervasive quality. Pervasive qualities tend to permeate and unify situations and objects" (p. 104). These themes are big ideas localized within the settings in which they are discovered and can inform transformation (Eisner, 2017; Uhrmacher et al., 2016). Uhrmacher et al. (2016) stated the value of themes is not in large-scale generalizations but rather to "serve as entry points for further deepened seeing and elaboration upon the ideas" (p. 56). Themes can serve as a "frame of reference" for an educator to view and understand their own setting better and perhaps transform that setting.

In this study, themes emerged from the data collected and may be used by other TSE practitioners within their own settings. Broadly speaking, this study demonstrates how sociocultural learning is an effective process for TSE and how TSE can result in a diverse range of outcomes for learners. However, this study also demonstrates how this process can be developed further.

Summary of How These Processes Informed This Study

The first major process of educational criticism uses thick description to place the reader into the research site. To situate the reader within the Center, I used three data sources—in-depth interviews, observations, and artifact collection—presented in the

form of vignettes, quotes, and discussion. Observations begin with a thick description of the setting, using detailed and poetic language to help the reader visualize the setting.

Second, these data were interpreted with the frameworks of this study: sociocultural learning and the new green learning agenda framework for TSE (Kwaku & Casey, 2021). These interpretations help the reader understand how statements participants made, what happened during their observations, and how their personal artifacts were situated within the literature related to sociocultural learning, TSE, and my own experiences.

Both evaluation and thematics guided construction of this study's final chapter. I used the description and interpretations in the findings chapters to evaluate how the Center's internship program was educative for students and how these findings could be useful to the TSE community. In the next section, I discuss how educational criticism's conditions for validity have been used.

Validity

The validity of educational criticisms largely depends on what Uhrmacher et al. (2016) call consensual validation or "the state of shared belief" (p.59). Consensual validation is constructed from two different facets: (a) structural corroboration and (b) referential adequacy.

First, structural corroboration is achieved through the "consistency and coherence" between multiple elements and data sets within the study (Uhrmacher et al., 2016). Essentially, does the whole picture of the study fit together, make sense, and is validated by its multiple components? Interviews, observations, and artifacts are used to

validate one another and reach structural corroboration—for example, is what participants said validated in their actions during observations? Are interpretations of this study found and validated in multiple data sets? When presented as a whole, the sum of the data sources and interpretations of the data should create a clear, concise, and logical structure accepted by the reader of the study (Uhrmacher et al., 2016).

Second, referential adequacy is achieved if the findings are useful and if the critic's work helps the learning community to see pedagogy in a different and important way, which can be accomplished through “member checking, interview questions dealing with the significance of the topic, and attending to the contemporary and historical trends in education” (Uhrmacher et al., 2016, p. 60). In this study, I developed the research and interview questions by valuing and pulling from the existing literature on TSE and sociocultural learning.

The goal of this study was to expand the somewhat limited research in this field while honoring what has been discovered and widely accepted by the community. The study findings answered the research questions adequately and produced implications for the broader educational community. I provided all participants with their transcripts, participant summaries, and observation protocols, and I asked them to review the documents to ensure they were portrayed accurately. Not all participants responded, but those who did approved the accounts enthusiastically. In the next section, I discuss the instructional arc and how I applied it to the purpose and research questions.

Educational Criticism's Relation to the Theoretical and Conceptual Frameworks

In Chapter 2, I discussed the study's theoretical and conceptual frameworks. The purpose of this study was to develop a picture of TSE in nonformal spaces; thus, I selected frameworks to help explain both the learning process in nonformal spaces and learning outcomes common to TSE. Interns learn from their peers on their teams, and thus I selected sociocultural learning as the theoretical framework. The content of this learning focuses on the practices of each team, professional skills, and elements of TSE. Thus, I selected the new green learning agenda framework (Kwuak & Casey, 2021) as the conceptual framework because of its wide breadth of TSE outcomes and skills. However, educational criticism impacted the application of these frameworks.

These frameworks were selected to carry out the process of interpretation in the findings chapters. An educational criticism framework, the instructional arc (Uhrmacher et al., 2016), also was needed to guide data collection and organization. I needed the instructional arc, discussed in the next section, to develop meaningful research questions that attend to the entire curricular environment and to both frameworks of this study. Because educational criticism is an in-depth qualitative process that can produce a lot of data, I used the arc to organize data around different curricular pillars at the research site.

The instructional arc serves as a broad "meta-framework," which helped guide the construction and organization of this study. The theoretical and conceptual frameworks are more specific and attend to finer details. Although sociocultural learning and the new green learning agenda framework guided construction of the research questions and interpretation of the data, these frameworks are smaller pieces situated within the

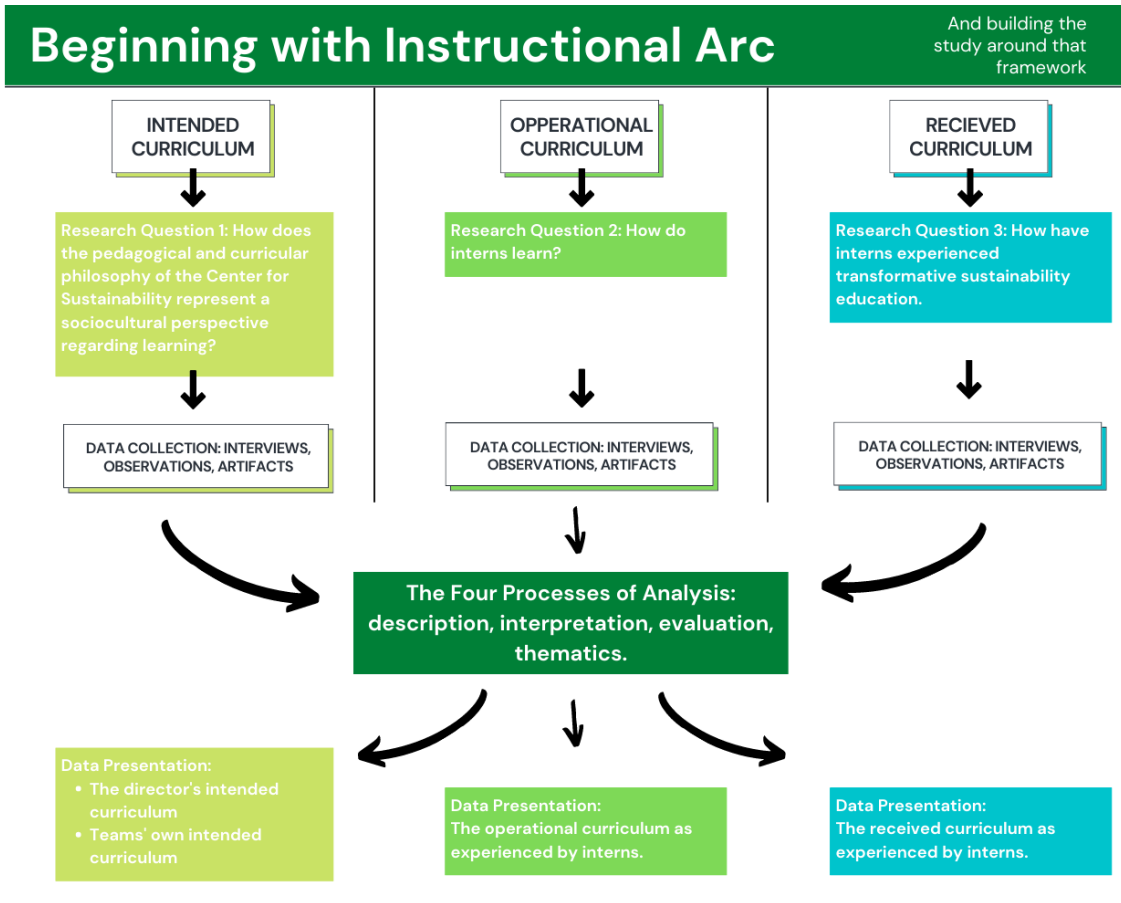
structure of the instructional arc. The instructional arc helped with early categorization of data into curricular categories, but I used sociocultural learning and the new green learning agenda framework to interpret the data and their finer contours. In the next section, I discuss the instructional arc and how it was situated within this study.

The Instructional Arc and This Study

Eisner (2017) proposed the ecology of schooling, a framework enabling researchers to focus in on five educational dimensions within their study site. Uhrmacher et al. (2016) pulled from Eisner's "intentions" dimension to develop the institutional arc, an alternative to Eisner's ecology of schooling. Uhrmacher et al. broke the curriculum into three distinct categories: (a) the intended (i.e., what educators desire to happen in the classroom), (b) the operational (i.e., what takes place in the classroom), and (c) the received (i.e., what students learn in the classroom). Critics can focus on one or all these elements in their own studies, based on which elements are relevant to what the critics hope to achieve (Uhrmacher et al., 2016). If description, interpretation, evaluation, and thematics are data collection and analysis processes, then the institutional arc can be seen as the methodological framework in which those processes are carried out. This arc also informs the overall study design, including the research questions and how data are organized (see Figure 9).

Figure 9

The Instructional Arc and This Study.



The instructional arc was used in several ways. First, the arc guided the creation of the research questions and served as the “meta-frame” behind them. The three research questions attend to the three areas of the arc: the intended, the operational, and the received curricula. Within these curricular categories, I used the theoretical and conceptual frameworks to craft the specifics of each question, ensuring each question’s language still pertained to one of the sections of the arc. I designed the first question to address how the directors used a sociocultural perspective in their curricular intentions.

The second question examines how interns learn operationally. I designed the third question, which focuses on the received curriculum, to determine if participants' experiences were transformational and if their experiences demonstrated an acquisition of skills according to the new green learning agenda framework (Kwauk & Casey, 2021).

Similar to the research questions, the arc also impacted interview questions, serving as a tool to ensure there was an equal spread of questions addressing each section of the arc. Once data were collected, I categorized them based on the area of the arc to which they applied. Then, I sorted statements from interviews, vignettes from observations, and artifacts submitted by participants into their respective curricular "buckets." From here, the process of description and interpretation began. These processes are presented and organized around the arc, with distinct findings sections pertaining to the intended, operational, and received curricula at the Center.

Beyond sorting data, I did not use the arc to interpret description. Instead, I interpreted description using sociocultural learning and the new green learning agenda framework as well as my experiences and insights as a connoisseur of the type of learning taking place at the Center. This last element is called an interpretive frame within educational criticism (Uhrmacher et al., 2016) and is the final piece of the methodology I discuss next.

Interpretive Frame of the Study

Within educational criticism, researchers act as critics, looking to "illuminate" the nuanced contours of what they describe and provide "reasons that account for" the description (Eisner, 2017). Uhrmacher et al. (2016) referred to interpretation as the

“application of concepts” to the description. Elements of a study’s theoretical and conceptual frameworks can be employed to help explain what takes place in each description. Uhrmacher et al. also proposed an interpretive frame, where researchers integrate their own “frame of reference” into their interpretation of events. This frame or “lens” incorporates the researcher’s experiences and expertise as well as their selected theoretical and conceptual frameworks (Uhrmacher et al., 2016).

The interpretive frame is one of many ways to look at data, and how the frame is employed is incumbent on the researcher (Uhrmacher et al., 2016). Some elements of the frame may be more pertinent for a given description, and the researcher chooses how to connect the data to the interpretative frame (Uhrmacher et al., 2016). I interpreted each description in this study through this frame.

My interpretive frame is made up of my experiences and expertise as a nonformal educator as well as sociocultural learning and the new green learning agenda framework (Kwuak & Casey, 2021). In each interpretation section, description is filtered through and connected to my perspective as well as to concepts from the theoretical and conceptual frameworks. However, each element of this interpretive frame may not be connected to a specific description.

For example, much of the intended curriculum at the Center does not have a clear connection to sociocultural learning, or at least the directors have not been explicit in those connections. When interpreting description found in the intended curriculum, I often employed my expertise and the new green learning agenda to greater effect. However, operationally speaking, sociocultural learning played a large role in how

interns learned; thus, the new green learning agenda framework gains greater importance in interpretation. This means interpretation and use of the interpretative frame is a fluid process, one leaning on my abilities as an educator and researcher to illuminate effectively the most important and salient contours of the description I present.

Although I have discussed both sociocultural and TSE concepts in depth, it is important to examine how my experiences are invoked throughout the rest of the study. Two metaphors are returned to consistently: my learning experiences in the punk world and my teaching experiences in the HCC. The first metaphor or lens is important because it reflects where my artistic experiences come from. My experiences in music—and, more specifically, the punk world—heavily inform how I conceptualize the world and how I approach learning.

As stated previously, I initially felt the Center was punk. Thus, within the interpretation sections, I return to how the Center feels punk and relate my own punk experiences to participants' experiences. I suspect punk ideology may be foreign to members of the academic community who engage with this study. For this reason, each curricular arc section begins with a lengthy story from my own punk life, providing examples of how learning takes place in punk spaces. I refer to these stories because they also resonate with the contours present in the data I collected.

Learning in punk happens in informal spaces and largely passes through sociocultural means, such as old-timer punks showing newcomers the ropes. Given that these passages represent my lived experiences, these sections will not invoke academic writing. Again, because the punk world may be inaccessible to many readers, I also have

provided interpretations filtered through a museum metaphor, a nonformal learning space that is likely more familiar to a larger audience. In some cases, these two metaphors clash in important ways, highlighting relevant tensions with the Center's curriculum.

I have discussed elements of educational criticism and how I applied them. The rest of the chapter focuses on the study's design, including data collection and analysis, site selection, the participants, interview and observation protocols, and the data analysis process. The next sections focus on the research site, the Center for Sustainability.

Site Selection Rationale

The genesis of this study stemmed from my deep love for informal and nonformal learning spaces. I have experience both learning and teaching in such spaces, and my time as an employee at the Center has been inspiring to say the least. Simply put, the space is educationally intriguing. Although the Center appears to have some qualities of a formal classroom, it still feels quite DIY, energetic, and experiential. I was unsure what was being learned, how it was being learned, and if those experiences were meaningful to learners. This curiosity, and a love for sustainability and social justice, inspired me to craft a study to interrogate what makes the Center feel the way it does.

I carried out this study hoping meaningful data and knowledge could be generated and used to impact the university SE space. As evidenced by the literature review, there are not many nonformal university programs like the Center, at least not many that have been studied (Gramatakos & Lavau, 2019; Rodriguez-Aboyete & Barth, 2019). It is this need, and a passion for this type of learning environment, that drove me to select the Center as my research site.

The Center for Sustainability

In 2012, when the Center was created through efforts of the Sustainability Council at the University of Denver (DU), the team was small and DIY. Initially, the organization was led only by the current executive director. He described the Center during those times as a fledgling team that was scrappy and focused on big change within an institution that did not want to change quickly. Some older interns participating in this study referred to this time as “chaotic” and “grassroots.” Today, the Center has grown, both in the size of its team and the location of its office, which is now in a central hub of the DU campus. The stated mission of the Center is to

combine innovative sustainability practices with research, scholarship and community engagement, centering social justice and equity in our efforts to reduce our campus carbon footprint, lift the groups that face the greatest danger from climate change and inspire our students to become sustainability leaders.

The Center now employs an assistant director as well as seven graduate fellows, a handful of research fellows, 30 to 40 student interns, and has a group of dedicated volunteers. The Center is broken up into several major teams, all that handle community-centered tasks correlating to their team names. The Bike Shop, Energy, Marketing and Communications, Programming, Research and Reporting, the Sustainability Marketplace, and Waste are the seven teams. The executive director shared that the staff and their teams are intentionally “blurry,” allowing student interns to follow projects wherever the projects might take them. As I discuss in the findings, this cocurricular design of the teams often leads to diverse skills sets, viewpoints, and interests.

The directors described the Center’s program as a “successful, holistic student internship program.” Center interns carry out sustainability work on and off campus, hold large events, and engage the DU community. Some programs include operating a thrift store and food pantry, helping divert waste during sporting events, and tending to the campus’s community gardens.

This year, the Center was relocated to a new, airy office (whose walls are predictably painted green) on the first floor of the newly constructed Community Commons, DU’s student center. Concrete pillars and exposed piping make up its modern and utilitarian skeleton. The space is shared with the Center for Community Engagement to Advance Scholarship and Learning, and it is not uncommon to find a host of DU students and staff working together, laughing, and sharing stories while sitting in the office’s mishmash of funky colored furniture.

Along a bulkhead in the office, there is a collage of black foliage prints, making up a jungle-like patchwork. The back wall of the space faces the busy street outside and hosts large windows covered with bright green plants the assistant director tends to. This new location contrasts with the Center’s previous location and site for the Sustainability Marketplace: a small, dark, and cramped L-shaped office stuck in the corner of a dorm.

Today, the Center feels at the “center of it all,” which is important because it points to the Center’s further legitimization and gives the Center the ability to engage the DU community much more effectively. The Center was the research site for this study, and its two directors were the community partners.

Role of the Community Partners

The Center's directors agreed to partner with me on this study because they wanted to gain a deeper understanding of the student internships and continue to improve and build their program. They developed some of the formal curricular tools used by the Center but have left a large portion of the learning up to student interns and their work on their teams. The directors handle hiring, lead staff meetings, onboard new Center interns, provide feedback to teams, and manage the behind-the-scenes operations.

The aims of this study, and its general structure, were meant to demonstrate the growth of student interns' sustainability knowledge over their time at the Center and to determine if their experiences inspired them to work toward just and sustainable futures after graduation. The directors served an important role in this process by distributing the study's recruitment efforts, a Microsoft Form (see Appendix A) emailed to current and former interns. The directors also provided me with formalized educational materials the Center has as well as any relevant details about the Center, its history, and its internships.

Study Design

This study focused on the experiences of three current interns and three former interns. This number of participants aligned with educational criticism's focus on detail and in-depth description rather than a wide-ranging, "scattershot" approach to research (Uhrmacher et al., 2016). This study was concerned with determining if the Center's internship program was transformative for students and what their process for learning looked like. I structured the research questions around Uhrmacher et al.'s (2016) instructional arc, including the intended, operational, and received curriculum.

To examine the learning process at the Center, data related to the first two questions (intentions and operations) were analyzed using the interpretive frame. To determine if the interns' experiences were transformative, data related to the third question (how the curriculum was received) were explored using the interpretive frame. Data collected within this study, and the accompanying interpretations and themes, may allow for a better understanding of how to cultivate transformative sustainability experiences in nonformal university spaces. In the next section, I describe the rationale behind the research questions, how they supported the purpose, and how they were supported by the data collected from the interviews, observations, and artifacts.

Research Questions

This study addressed the following research questions:

1. How does the pedagogical and curricular philosophy of the Center for Sustainability represent a sociocultural perspective regarding learning?
2. How do interns learn?
3. How have student interns experienced TSE?

I addressed the research questions in this study using interviews, observations, and artifact analysis. I crafted the interview questions to determine if elements of sociocultural learning and TSE were experienced by student interns at the Center. Next, I break down the questions and discuss their connection to concepts in the theoretical and conceptual frameworks.

Research Question 1 was designed to determine what the Center intends for interns to learn and how the Center intends for interns to learn the curriculum. This

question focused on exploring how sociocultural concepts were manifested in the Center's intended curriculum. To hold sociocultural perspective to teaching and learning, the directors considered the historical, institutional, and social contexts of their students (Wertsch, 1991). The directors also intended for students to learn through social activity and used strategies such as activity settings, CoP, and the ZPD (Lave & Wegner, 1991; Tharp et al., 2000).

Because this study used sociocultural analysis, various forms of data collection were constructed using the theoretical framework. Artifact analysis of publicly available Center documents (e.g., training manuals) was the first source used to understand the Center's intended pedagogical and curricular philosophy. Data were interpreted using the interpretive form; however, I examined how the Center's curriculum considered students' social contexts, the knowledge and content valued within that community, and how the Center intended for its interns to learn this content.

Within interviews, I asked interns what they thought the Center's intended curriculum was and how they were supposed to learn the curriculum. Some interview questions were open ended, asking interns to explain freely what they thought they were intended to learn and how they were intended to learn those things. Other interview questions were more connected to sociocultural learning, such as asking how important collaborative learning was to the Center's internships. Finally, although observations did not play a primary role in answering this question, they were used to capture discussions within team meetings to determine other intended elements of the Center's curriculum.

Research Question 2 was designed to determine how interns learned at the Center. Within sociocultural models of teaching and learning, individuals learn through social activity. In CoP and activity settings, inexperienced peers learn from more experienced peers by working alongside one another (Lave & Wenger, 1991; Tharp et al., 2000). Learners share goals, divide up labor, navigate power relationships, and pass knowledge to one another (Lave & Wenger, 1991; Tharp et al., 2000). Knowledge passes organically through activity, with inexperienced peers taking fewer central roles in the work and assisted more often by their more experienced peers (Lave & Wenger, 1991; Tharp et al., 2000). These less experienced peers may take on more central roles once they have mastered specific skills and knowledge (Lave & Wenger, 1991). Center interns learned largely within the context of teams, so I designed this question to explore how the teams connected to CoP and activity settings.

In the interviews, I asked participants how they learned in practice at the Center, and I asked them to reflect on whether this strategy worked for them. I asked participants both open-ended and specific interview questions to look for certain sociocultural concepts, including the ZPD and how various motivations drove interns' learning.

Observations played a primary role in confirming statements interns made about how they learned in practice. Observations also served an important role for allowing me, as the critic, to look for various elements of the study's frameworks within the context of team activity. In this way, did participants learn through CoP and activity settings? Observations also allowed me to determine if various elements of the intended curriculum were actualized in practice. Finally, artifact analysis did not play a primary

role within this question, but artifacts provided by interns were analyzed for evidence of how students learned.

Research Question 3 evaluated whether the Center's program was transformative. All three modes of data collection were linked in determining if interns experienced the various elements within Kwuak and Casey's (2021) framework. In the new green learning agenda framework, learners come away with transformative capacities, an understanding of interconnectedness, and a range of skills related to sustainability. In this way, did participants experience perspective transformations, come to understand the interconnectedness of the ecological world, and acquire a diverse set of skills necessary of a green transformation? These skills should include skills for green jobs, green life skills, and skills for green transformation (Kwuak & Casey, 2021). If the Center's internship program is transformative, then interns would come away with skills such as environmental knowledge and awareness, business skills, critical thinking and collaboration, the ability to analyze unequal systems of power, and systems thinking.

As with the other two research questions, I used both open-ended and specific interview questions to explore what participants learned as part of their internships. I asked participants interview questions tied to specific TSE concepts such as perspective transformation and transformative conceptions of sustainability. Observations and artifacts also helped me look for evidence of TSE outcomes according to the new green learning agenda framework. Participants' artifacts served as a good metric for exploring the types of skills interns could learn during their time at the Center.

In summary, the three research questions were crafted to determine the Center's learning process and to explore if the learning process led to transformative experiences for learners. I used interviews, observations, and artifact analysis for three distinct purposes: (a) to interrogate the process of learning and whether the program was transformative, (b) to validate and cross-reference findings located within different data sets, and (c) to generate themes that could be useful to educators interested in such programs. In the rest of this chapter, I explain various elements of the study's design and overview the interviews, observations, and artifacts. Next, I focus on participant recruitment.

Participant Recruitment

For the selection process, I sought to recruit two student interns who had been at the Center for 1 year, two team leads who had been at the Center for 2 to 3 years, two student interns who had been with the Center for 4 years, and two alumni of the internship program. I selected participants based on their availability, team variation, length of time at the Center, and the reasons they described for wanting to participate. I determined the parameters for the selection process because the process of perspective transformation is a lengthy and continuous personal process that may unfold over several years (Merriam et al., 2007; Mezirow, 1996, 1997). For this reason, including participants with a wide range of experience, including those who had graduated, was an important consideration for this study.

Unfortunately, this original recruitment criteria were not possible to achieve because of two internal factors at the Center. First, several returning interns were

studying abroad during the data collection process, and second, fewer interns returned after summer break than expected. Despite this, the six participants represented a range of experiences and a diverse sample of the Center.

Student interns were recruited within the first 2 weeks of the autumn quarter of 2021, which followed the Center retreat, a weekend-long onboarding session for new and returning interns. The community partners distributed all recruitment materials. The initial recruitment email, including a Microsoft Form, was sent to both current and former staff members. The form for current staff described what involvement would entail, overviewed the general purpose of the study, and asked interns to provide the team they were a part of, how long they had been at the Center, and how much time they could commit to the study. The form for former staff asked many of the same questions but was formatted in past tense. Both forms can be found in Appendices A and B.

Selection was a simple process because there were so few returning interns eligible for participation. In total, both forms had four responses, and all respondents were contacted via Outlook. The six participants represented the six interns who responded to the initial correspondence over email. Despite this limitation, the intern pool ended up representing a diverse group of current and former interns, although I was unable to recruit nonteam leads.

Introduction to Study Design Specifics

This study used three data sources: interviews, observations, and artifact analysis. Next, I discuss specifics of each source and how they were used. Table 1 is a data collection schedule containing the participants, data collection type, date, and location.

Table 1*Overview of Study Schedule*

Participant	First interview	Observation	Second interview
Cleo	October 6, 2021. In person. One hour. Conference room at the Center.	October 18, 2021. One hour. Team meeting at the Sustainability Marketplace.	November 4, 2021. Virtual. Half an hour. Zoom.
Erin	October 11, 2021. In person. One hour. Conference room at the Center.	October 21, 2021. One hour. Sustain-a-Ween event. DU Campus Green.	November 5, 2021. In person. Half an hour. Conference room at the Center
R	October 14, 2021. In person. One hour. Conference room at the Center.	November 12, 2021. One hour. Collegiate Recovery Community Garden Clean up.	February 28, 2022. Virtual. Half an hour. Zoom.
Mabel	October 6, 2021. Virtual. One hour. Zoom.	N/A	November 8, 2021. Virtual. Half an hour. Zoom.
Chelsea	September 29, 2021. Virtual. One hour. Zoom.	N/A	November 10, 2021. Half an hour. Zoom.
Bertha	October 14, 2021. Virtual. One hour. Zoom.	November 23, 2021. One hour. Food Pantry, Leadville, CO.	December 12, 2021. Virtual. Half an hour. Zoom.

Participant Introductions

Six current and former interns participated, with an even split between both groups. The three current interns were all team leads in their 2nd and 3rd years. As for former interns, two were team leads and had been with the Center for 4 years. One participant was a graduate lead and was only at the Center for 1 year. Participants were from six different teams, which added to the diversity of experience but also exemplified how there are central contours of the Center regardless of team placement. During the

introduction to each interview, I provided participants with the following prompt: “Sum up your experience at the Center in a sentence or two.” Table 2 introduces each participant, their employment status and how long they had been with the Center, their team placement, and their answer to this initial prompt. Participants’ responses to this prompt not only summed up their experiences at the Center nicely but also offered a look into who they are as individuals.

Table 2

Participant Introductions and Responses to Initial Prompt

Participant	Employment status	Team placement	Introduction answer
Cleo	Current, 2 years	Sustainability Marketplace Team lead	“The Center for Sustainability has been a space for professional and personal growth beyond belief, all while offering a deep sense of community in the sustainability world. Having been at the Center for most of my college experience, I feel that it grew up with me and helped me to develop into a critical thinker with a deep dedication to equity and progress.”
Erin	Current, 2 years	Waste Team lead	“My time at the Center has been the most rewarding challenge that I’ve undertaken as an undergraduate here. And I’ve gotten out of it, not only what I was willing and able to put in, but also what collectively all the staff were able to put in; like that energy.”
R	Current, 1 year	Food Pantry Team lead	“Disorganized but collectively committed to a cause.”
Mabel	Former, 4 years	Energy Team lead	“My experience at the Center is a mix of a professional and personal growth experience that both allowed me to dive deep into my passion for sustainability and learn about professionalism in general.”
Chelsea	Former, 3 years	Waste Team lead	“Informative, hopeful, and difficult at the same time.”
Bertha	Former, 1 year	Mobility graduate lead	“It was eye opening with diverse opportunities for hands-on experience.”

Taken alone, participants' statements provided a lot of insight into how interns experienced their internships. Participants celebrated several aspects of the Center, including how the internship led to personal and professional growth or how it fostered a deeply connected community. The internship developed critical thinkers, had powerful energy and passion, and inspired hope. At the same time, it could be difficult, challenging, and disorganized. These statements resonated heavily with the general themes woven throughout the findings. The Center is joyful, passionate, and powerful, but it can be challenging, fluid, and emergent.

Data Collection

Interviews

Once selected, I contacted participants via Outlook. I sent participants a longer description of what the study would include and the consent form (see Appendix C). Once participants agreed to participate, initial interviews were scheduled. Initial interviews were conducted in two distinct settings. They also were recorded using two different mediums because of the differences in settings.

For current interns, I conducted most interviews in person in a private conference room at the Center. I selected the site based on Creswell's (2013) guidance to ensure the location is both comfortable and private. I recorded interviews with a microphone attached to my Microsoft Surface tablet. At the conclusion of the interviews, I uploaded recordings to OneDrive and removed them from the tablet.

With former interns, interviews took place via Zoom, and I stored all recordings in the Zoom cloud until transcribed. Initial interviews lasted between 45 minutes to 1

hour. The first set of interviews were formal in nature and strictly followed the protocols provided (see Appendices D–F). I completed preliminary transcripts for in-person interviews using DU’s Media Space transcription software. I transcribed Zoom interviews using Zoom’s built-in transcription feature.

All transcripts, regardless of method, were then referenced against the recordings. I then cleaned up the transcripts, which involved correcting various transcription errors and adding affectations such as body language and long pauses in speech. During this time, I also left small comments on the transcripts that were meant to summarize the big ideas within larger bodies of text. These comments were meant to summarize and did not represent annotation.

The second interview focused on clarification questions and emergent foci discovered within interviews and observations (Uhrmacher et al., 2016). For clarification, Uhrmacher et al. (2016) suggested the method of “reading and responding,” stating, “It may be fruitful to read a brief and poignant vignette from your observation notes, and then ask the participant a follow up question” (p. 33).

The second protocol had a section dedicated to such questions, which differed from participant to participant (see Appendix G). The second protocol also featured a section with four questions dedicated to emergent foci. Based on the initial interviews and observations, identity, professionalism, and systems thinking were concepts participants found important. I did not consider these concepts when designing the study, so I asked each participant the same four questions about these concepts. Because each

participant received a different protocol for the follow-up interview, only these four questions are discussed in the next section.

Protocol Details

In this section, I discuss specifics of the interview protocols and the rationale for each protocol's questions. Each interview question aligned to a research question, and I designed the interview questions to align with the literature. Tables in Appendices H–K outline the alignment between the interview protocols and both the research questions and the literature. All protocols began with an introduction to allow for a bit of familiarity setting with participants, an important step in “setting the stage” for successful interviews (Uhrmacher et al., 2016). It is also part of building a narrative about each participant, which is part of educational criticism (Eisner, 2017; Uhrmacher et al., 2016).

In the first table, Appendix H, the introduction questions are presented. In Appendix I, the central protocol questions are presented. These questions align to both the research questions as well as the theoretical and conceptual frameworks and explore how elements of sociocultural learning and TSE are connected to participants' experiences. In the third table, Appendix J, questions specific to former Center employees are presented. Like the central protocol questions, these are aligned to both the research questions as well as the theoretical and conceptual frameworks.

The second set of interviews were informal and focused on topics discussed in previous interviews, things noticed during observations, and emergent foci (Uhrmacher et al., 2016). I designed the introduction questions to capture the validity of our previous conversation, giving participants an opportunity to clarify what was said before or to

reframe our conversation from the previous interview. These questions varied for each participant, and only the four questions centered on emergent foci were included in the follow-up alignment table (see Appendix K). Participants' follow-up interview protocols are in Appendices L–Q.

Emergent themes drove the first four questions in the follow-up interviews. Within initial interviews, participants discussed their identities as important to desiring to work within sustainability. It was not discussed if interns' identities seemed important to the directors, especially regarding team placement and role. Although there is precedent within sociocultural learning to consider students' cultural, historical, and institutional backgrounds, this consideration was not addressed in the first protocol (NASEM, 2018; Tharp et al., 2000; Tharp & Gallimore, 2002; Wertsch, 1991).

Participants also consistently referenced a split between learning professional and sustainability knowledge and skills during their internship. Kwuak and Casey (2021) included professional skills in the first level of their framework, but such learning does not represent transformational experiences alone. It was necessary to clarify how much of a focus professional skills are within the Center's program, especially if they take precedent over more transformational learnings.

Finally, participants regularly referenced systems thinking, a core push of the Center's intended curriculum. Systems thinking is a transformative capacity within Kwuak and Casey's (2021) framework. Because there were no questions addressing systems thinking in the initial protocol, it was important to address the concept in the second interview.

Observations

A single 1-hour observation of each participant took place between the initial and follow-up interviews. During these observations, I was a silent observer and did not participate in the activities I observed. Even though I am well known at the Center, I did my best to be in earshot of conversations and activities without intruding upon them. Generally, I sat in the corner of an observation site, taking notes on my computer, and only interacting with interns if they approached me. It is not uncommon for me to attend events, especially when collecting data for internal Center purposes, so I hoped my behavior did not seem out of the ordinary. Because this strategy worked well during the Sustainability Marketplace interview, I repeated the same process at each site.

Observations took place in several settings and were described using Creswell's (2013) observation protocol. This protocol is made up of two columns, one dedicated to description and another dedicated to reflective notes and annotations. A third column was added using a method by Siegel (2014) to create a room to incorporate drawings or artifacts from the space.

I approached description within my observation notes in two ways. An introduction focused on placing the reader there, using metaphors, feelings, and moods. This was written largely when I had down time during the observation and focused on capturing the space's physical characteristics. Then, when there was a lot of activity, I shifted to describing the events as plainly as possible. I wrote reflective notes immediately after the observation to capture ideas that may not have been possible during the observation. The notes were generally interpretive in nature, although they did not

represent the formal interpretation found in Chapter 4. Also included within the notes were connections to statements made in previous interviews with participants and lingering questions for the follow-up interviews.

The only major criterion for observations with current interns was that they included participants taking part in team activities. This ranged from a team activity on campus, outreach with the greater DU community, and a workshop and meeting held by one of the teams. The focus of these observations was to watch participants in a group activity with their teams. The setting was determined in partnership with each participant.

Observations were critical for capturing how interns learned. Observations are operational in nature, thus allowing me to see how the operational curriculum played out within teams. This access made it possible to observe interns learning within their CoP (Lave & Wenger, 1991) and participating in team activities within distinct activity settings (Tharp et al., 2000). Not only was it possible to witness participants within team activities, learning and working together, but also to see the type of content they learned.

Interns learned new skills, obtained new pieces of crucial information about sustainability efforts, and demonstrated a greater understanding and inclination toward supporting a community because of the work on their teams. This allowed me to capture when participants, and other interns, had opportunities to develop skills across the new green learning agenda framework (Kwuak & Casey, 2021). Also, because all participants were team leads, they often played a critical role in facilitating these activities. Thus, observations were geared around witnessing how team leads facilitated learning through

sociocultural means. Observations also served a critical role in confirming statements made within interviews as part of creating structural corroboration.

Observations of former interns were optional, largely because observations were only necessary if a participant did hands-on, community-orientated work. Only one former participant, Bertha, met this requirement. The observation took place in Leadville, CO, where Bertha is director of a pantry. This was significant not only because of the reasons mentioned for current intern observations but also because there is a direct throughline between the work Bertha does and the food pantry at the Center. I observed Bertha operating the pantry and working with the community.

Artifacts

All participants were asked to supply an artifact they believed symbolized their learning and growth at the Center. This ranged from elements created as result of working on projects, annual team reports, and even a documentation of the Sustainability Marketplace, a space one participant curated. I reviewed these artifacts in much the same way as the observations and used the same protocol, which involved importing them into the three-column log, writing a written description, and then taking notes and writing annotations. Like observations, these annotations were helpful in capturing instant reactions as well as anchoring the artifacts to the instructional arc and frameworks.

Artifacts allowed for capturing growth and transformation because they represented an important product participants produced during their internship. They allowed me to get a better sense of participants' skill development across the new green learning agenda framework. As mentioned, I analyzed Center-produced artifacts in the

same way. I also used these artifacts to measure the Center’s educational intentions and connect the artifacts to concepts of sociocultural learning and TSE. Finally, when possible, I took photos of spaces during and after observations. All photos were de-identified and only taken when it was possible to be unobtrusive. As with observation, artifact collection was used intentionally to build validity in the study.

Introduction to Data Analysis

As discussed in the interpretation section, data were interpreted using the interpretive frame, made up of two frameworks—sociocultural learning and Kwuak and Casey’s (2021) framework—as well as my own experiences. Also discussed, the research questions are tied to the instructional arc (Uhrmacher et al., 2016) and were informed by the study’s frameworks. Data analysis was structured and guided by this arc. I grouped data from each participant into various elements of the arc, and vignettes were pulled out that were strong exemplars of that curricular element. Within the arc’s three elements, data were organized further according to contours and subcontours pertaining to various elements of the frameworks and consistent qualities in participants’ experiences.

The word “contour” was chosen to avoid confusion with the thematics I present in the final chapter of this study. Thematics are large-scale themes meant to communicate central ideas to the TSE community, and contours are smaller, more nuanced explanations for common occurrences in the data. Once the description was categorized and prepared into these contours, it was interpreted through the interpretive frame.

For example, all data produced through interviews, observations, and artifacts from Cleo were grouped by whether they corresponded to the Center’s intentions,

operations, or received curriculum. Then, as contours emerged within the three groups of data, I coded Cleo's responses for the contours. Then, within the contour sections, I compared Cleo's data with the other interns' experiences. All data in these contour sections were then interpreted using the interpretive frame. To develop thematics, I used annotations once description and interpretation were completed.

Annotation

An important aspect of thematics in educational criticism is annotation.

Uhrmacher et al. (2016) distinguished between using coding and annotations during the process of developing themes, suggesting educational critics use annotations because they focus on the relationship between specific details and the greater whole.

Annotations, a common practice in the arts, are often longer groups of words or sentences containing greater detail than codes and often housing researcher's reflections (Uhrmacher et al., 2016). I recorded annotations using Microsoft Word comments and used annotations for interview transcripts, observations protocols, and on a running findings document, which helped guide my construction of Chapter 7. Uhrmacher et al. broke up annotations into three categories: (a) global, (b) pattern finding, and (c) cross checking. I used all three types of annotations during the thematics process.

Global annotations are meant to remind critics to look at the whole. Critics search for what is standing out and discern the "important contours of the situation and experiences of those involved" (Uhrmacher et al., 2016, p. 57). I used such annotations to examine the entire educational environment and how specifics in the interviews, observations, and artifacts related to that environment.

Pattern-finding annotations refer to when critics locate prevalent patterns in the data (Uhrmacher et al., 2016). Again, I used these annotations to locate the common themes across the description and vignettes of each participant.

Cross-checking annotations help critics identify details that do not fit within their themes (Uhrmacher et al., 2016). Cross checking was used to locate aspects of the data that were in tension with one another or with the theoretical and conceptual frameworks. For example, the directors do not facilitate the operational curriculum, thus students' received curriculum may be substantially different than what the directors intend.

My Positionality and Relation to the Center

I was employed by the Center to help capture what their student interns learned. During my 1st year, I developed a formalized assessment structure in partnership with the directors and graduate fellows. This set of assessments was developed to understand better and improve the educational activities taking place. First, I developed an evaluation and feedback system that occurred at the end of each of DU's quarters, which was broken into two parts: (a) a self-evaluation form student interns fill out at the end of the quarter and (b) a feedback meeting during which graduate leads provide feedback to student interns on their teams. I also created a summative portfolio project assessment, in which student interns are asked to create an e-portfolio or creative portfolio showcasing their learning and accomplishments at the end of the school year.

However, until the fall of 2021, I had little part in the general functioning of the teams where the bulk of the learning took place. While collecting data, I was in a leadership role over the research team that was excluded from being part of this study. No

participants in this study worked under me at any point during data collection. Team activities were almost completely “self-actualized” within a broad and “blurry” framework constructed by the directors. By using the directors’ help to distribute the recruitment materials, my positionality within the Center did not affect the recruitment process, which helped prevent the recruitment of interns with whom I may have had relationships already.

My role in this study was to interview new and old student interns, observe workshops and team activities, and examine student intern artifacts resulting from their work throughout the year. The goal of this study was to examine the learning student interns reported and confirmed in their work, and thus did not involve evaluation of any materials I created. I gave attention to student interns’ interactions with their teams and work-orientated curriculum of the Center and not with the work I had done at the Center. I tried to remain objective throughout the research and analysis process, sticking closely to the frameworks as a measurement for the Center’s transformative nature. That said, I believe in the Center as a program, and this belief and passion inspired this study.

Limitations

The first major limitation of this study applies to educational criticism. The findings will likely be most applicable to similar university sustainability programs. Although the hope is that the SE community can take something from the findings, this is not guaranteed based on the study’s setting, scope, and methodology. Second, the scope is another limitation. As described, the original recruitment criteria were not met. Further, access to participants, whether in interviews or observations, was limited to a short period

because the total window for recruitment and data collection was 10 weeks. It may have been beneficial to spend a longer period at the Center, conducting more observations, and involving a wider range of interns. I gave attention to gathering data from a diverse group of participants, and observations took place within diverse settings; however, the participant pool could have represented a more diverse spread of Center interns. This study is a small picture of the types of SE experiences that can be achieved at the Center.

Another consideration is my own positionality at the Center. In some ways, being an “insider” made it much easier to navigate the spaces and likely played a role in how participants responded to interview questions. Participants may have responded to questions about the Center more positively because of my association with the program. This was an important consideration when crafting interview questions, which focused on tying participant experiences to elements of the curricular arc as well as the theoretical and conceptual frameworks. I did not ask participants questions that forced them to evaluate the program or the directors or that would risk their positions at the Center based on their answers. This may have limited participants from criticizing the program in meaningful and helpful ways.

Summary

This study used educational criticism and connoisseurship as its methodology. I chose this methodology because of the tradition’s focus on leveraging the researcher’s experiences to help explain and evaluate educational phenomena taking place in a setting familiar to them (Eisner, 2017; Uhrmacher et al., 2016). Educational criticism is

appropriate for this study because I, as the researcher, was familiar with the research site and the types of educational activities taking place (Uhrmacher et al., 2016).

This study used the instructional arc in several ways and can be thought of as a “meta-frame” for the whole study. First, the arc helped guide the development of research questions that attend to intentional, operational, and received curriculum. The research questions of the study were also guided by the theoretical and conceptual frameworks and were crafted toward gaining a better understanding of the learning process at the Center, and if that process results in transformative experiences for students. This study used interviews, observations, and artifact analysis to address each of the research questions. Interview questions were written using the various frameworks of the study as a guide. The community partner of the study is the directors at the Center for Sustainability, and they distributed the recruitment materials in September of 2021. Interviews, observations, and artifact analysis were all scheduled once the six participants had been selected. The study used the member checking of its participants as one of the primary drivers for validity, a process which took place once all the interviews and observations were transcribed.

Data were first analyzed by sorting them into the arc’s three curricular sections. Then, these data were connected to contours, consistent phenomena in participants’ experiences. Once described, I interpreted these contours using the interpretive frame, which was made up of sociocultural learning, the new green learning agenda framework (Kwuak & Casey, 2021), and my own experiences within the punk world and teaching at the HCC. The next chapter overviews the structure and organization of the findings and

presents the directors' intended curriculum located within official Center artifacts as part of the context setting for participant findings.

CHAPTER FOUR: ORGANIZATION OF FINDINGS, CONTEXT-SETTING, AND
THE INTENDED CURRICULUM

The Intentionality of Punks

We approached the small craftsman with hopes of a clean house and quiet night. We had just played our first out-of-state festival, and the night before, we slept in a house seared into my memory. Garbage, empty beer bottles, and drug paraphernal were strewn across nearly every surface. Don't even get me started on what was happening near and around the kitchen sink. At the show, we met an internet friend of our guitarist. Michael introduced them, notifying us of their they/them pronouns. This was around 2014, and the festival took place in Missoula, Montana. I was still getting a grasp on pronouns, but I excitedly greeted Michael, studiously trying to understand and respect their gender. Michael said we could stay with them at a DIY house-venue across town. The aforementioned craftsman was in fact very clean, and as we entered the front door, we were greeted by a large hand-painted sign that reported house rules including the direct instruction that a list of "isms," namely racism, sexism, homophobia, etc. would not be permitted. This was exciting to us—my bands' bassist and I excitedly took pictures and posted them to Instagram.

These types of signs are fairly commonplace today. You might see them in windows of restaurants or painted on wooden sidewalk signs notifying business patrons.

However, early in my punk touring career, it was not common to see them anywhere, including house-venues. The only places I had seen such a sign were in formalized DIY (do-it-yourself) venues, such as Seventh Circle in Denver. Seeing the sign in Michael's house made it feel urgent and prophetic. This is the future we are working toward. I tell this story because it points to the intentionality of the punk world. In some ways, venue rules act as a sort of "punk syllabus," communicating expectations and values. At least as I have experienced, punk spaces have been quite intentional in two major ways: in cultivating a safe space and in sticking to the DIY ethic.

These two concepts were taught to me by punks, including both my bandmates and others I met either locally or across the country. I didn't read about DIY punk culture by reading (although zines detailing such concepts are frequently available in punk spaces), but rather through social activity and watching others. Similarly, I had my perceptions upended when first confronted by the "ism" signs. I was thrust into a world critical of the gender binary, a place where people were not only free to express themselves the way they wanted but also a space deliberately carved out for them. Additionally, punk spaces are those in which performers and showgoers are intended to be critical of the dominant culture, state power, injustice, and right-wing politics. As for the DIY punk ethic, a few rules seem intended just about everywhere:

- *Shows will be set up and run by people volunteering their time.*
- *Local bands, often playing the first and last slots, are volunteering their time.*
- *Sets should not be more than around 20 minutes.*
- *Many shows are donation based, with a suggested range. These donations largely go to the touring act.*
- *Bands often share gear to make things run in a timely fashion.*
- *Shows should be all ages.*

These intentions are things I have picked up simply by being around other punks, are sometimes explicitly stated by the venue or show runner, and are expected when we enter a new city. However, many of these points have been in flux because of the pandemic. DIY spaces have not been able to weather the storm, and thus punk shows often happen in traditional venues with traditional rules. Also, consideration of pay has been up for discourse: Should all showgoers be charged a mandatory price? Should locals and organizers be paid?

Although there are operational issues throughout the country, one can typically expect similar intentions in most punk spaces no matter their locality: forms of racism, transphobia, homophobia, etc. will not be tolerated; the community can push back against the dominant culture; and the DIY ethic will persist. Throughout this study, I use “DIY” and punk interchangeably. DIY is often used as shorthand for “do-it-yourself punk” within punk spaces.

Introduction to Punk as a Community of Practice

The previous section was italicized because it represents my experiences in DIY punk. It does not represent data collected as part of this study but rather the knowledge I collected by participating in punk as a CoP. As I discuss throughout this study, there are several parallels between learning at the Center and the learning I witnessed and experienced in punk spaces. Like the Center data, punk data from my own life can be sorted according to the instructional arc. Given that I have been a member of punk as a CoP, my experiences there also can be analyzed using elements of sociocultural learning.

Punk is both a localized and global CoP (Wenger, 2008). For example, Denver has a vibrant DIY scene with its own venues, history, membership, knowledge, and practices; however, the scene is tied to the history of DIY punk spanning back to the 1980s, which means DIY punk scenes and communities sprinkled throughout the United States, and even world, share a lot of the same knowledge and practices. It is quite common to see the same types of practices modeled regardless of physical location. I spoke about this in the italicized section when discussing punk intentions.

As for the process of learning in punk CoP, younger punks take part in punk activities such as playing shows, booking and promoting shows, flyer making, and political organizing. Young punks often work side by side with more experienced punks, whether in the context of bands or in shared community spaces. Young punks are granted legitimate peripheral participation (Lave & Wenger, 1991), in which they begin by taking smaller roles, maybe running door at a show, while more experienced punks take on more complex roles like running sound. Common language also is shared and mastered, and young punks begin to use and understand phrases like “DIY,” “touring-band sandwich,” and “door.”

Over time, young punks move through their membership trajectory toward being more experienced punks (Wenger, 2008), thus taking on more complex and central roles like show organization, running sound, and handling band payment. Young punks pick up these skills naturally by spending time working side by side with older punks. Experienced punks may model these skills or discuss them with young punks at various

points. In the case of Seventh Circle, a local DIY community in Denver, leadership is more formalized, and thus so is teaching and onboarding new members.

I provided punk examples from my life because they help frame intern learning at the Center in helpful and unique ways. These stories provide yet another lens to understand participants' complex and intricate experiences. Each italicized section appears at the beginning of a curricular section and provides metaphors and examples with connections to participant data. The italicized sections often are referred to within interpretation sections when helpful. The rest of this chapter focuses on introducing how participant data appear in this study.

Introduction to Chapter 4

This chapter introduces this study's findings, explains how the findings are organized, introduces participants, and explores the Center's intended curriculum as a means of context setting. There is not much of a formalized curriculum at the Center, which means the director-produced training and curricular materials represent a description of the context in which participants' experiences are situated. For this reason, the intended curriculum is included in this chapter, and participant data are given their own chapter. Also, each team at the Center has its own curriculum, but these curricular intentions are discussed in the next chapter.

As detailed in the previous chapter, educational criticism uses four specific analysis processes: (a) description, (b) interpretation, (c) evaluation, and (d) thematics. The first two processes, description and interpretation of data, were sorted using the instructional arc. Therefore, the description and interpretation of the intended curriculum

is included in this chapter, and the operational and received curriculum are described and interpreted in the next chapter. Armstrong et al. (2016) discussed the need to center participant voices in SE research; therefore, participants are given introductions, their experiences are centered in this study, and their experiences are discussed in their own chapter. Official Center documents (e.g., training manuals) are included in this chapter to develop the curricular context for how participants' experiences are situated.

In this chapter, the organization of findings is explained, specifically how formal Center documents and participant data are described and interpreted. Then, Center documents related to the intended curriculum are discussed.

Organization of Findings

This chapter is concerned with context setting. As participants illuminated, Center directors mostly do not teach nor is there a consistent curriculum the directors refer to and support throughout the year. However, participants spoke about some of the existing intended curriculum, which they found to be relegated to the first weeks of school. This curriculum is typically delivered in the form of orientation workshops and is tied back to artifacts (e.g., handbooks, training materials). Participants also spoke about each team's own intended curriculum, which is created by the students or in partnership with the directors. The Center states the types of practices teams should carry out over the year, including their cornerstone programs.

The split between the directors' formalized curriculum, and teams' own informal curriculum represents an important curricular distinction I reference frequently throughout this study. The entire staff takes part in the Center, representing one large CoP

led by the directors. Within this community, there are smaller CoP that make up the teams. Findings are discussed according to those two categories: (a) what does the Center, led by the directors, project as its curricular intentions and (b) how do teams have their own intended and operational curriculum that interns and fellows carry out on a day-to-day basis? The intended curriculum, as the directors detailed, discussed in this chapter, often has little bearing on the teams' operational curriculum or can serve as a point of tension for interns. In the following two chapters, I discuss participants' perspectives, paying close attention to how they experienced the Center's operational and received curriculum.

Findings presented in this chapter and the next chapter were organized according to instructional arc (Uhrmacher et al., 2016). All description and interpretation have been grouped by the aspect of the curricular arc they attend to (i.e., intentional, operational, received). I used the description and interpretation to capture a picture of the Center's intended curriculum, how the curriculum manifests in the day-to-day operations of the teams and internships, and how the interns describe what they have learned. The study's research questions were constructed using the arc; thus, description and interpretation were sorted by which research question they pertained to. These questions were:

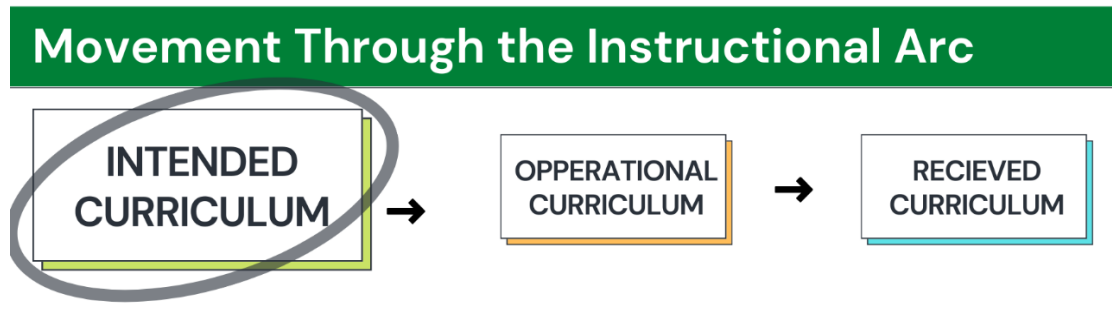
1. How does the pedagogical and curricular philosophy of the Center for Sustainability represent a sociocultural perspective regarding learning?
2. How do interns learn?
3. How have student interns experienced TSE?

Within each arc section, several contours emerged pertaining to that aspect of the curriculum. These contours are prevalent themes in participant and Center data and helped explain frequent and important elements of the internship experience at the Center. These contour sections represent the *description* of this study and are “smaller scale” than the thematics found in the final chapter. For example, in the Center’s intended curriculum, it was clear the internships focused both on professional skills and sustainability skills. This was evidenced by official Center training documents, by the statements participants made, and in the work they submitted.

For each contour description, quotes from interviews, vignettes from observations, and references to artifacts may be provided. I also provide further commentary and description to help make sense of and explain participant data. This contour description is followed by a formal interpretation involving the study’s interpretative frame. This interpretation helps illuminate the meaning of description and connect it to both my own perspective as well as salient concepts in sociocultural learning and the new green learning agenda framework. In this chapter, the Center’s intended curricular contours and associated training artifacts are described and interpreted following this process. Similarly, in the next chapter, I describe and interpret how participants experienced the operational and received curriculum using this process. In each chapter, a figure like the one in Figure 10, notates which part of the curricular arc is discussed.

Figure 10

Section of the Curricular Arc Under Discussion: Intended Curriculum



The Center’s Intended Curriculum: Official Center Documents

Discussion of the Center’s intended curriculum focuses on Center documents stating the directors’ intentions. The directors gave me these documents, which are housed on the Center’s Microsoft Teams Channel. They were not included in the appendix because they are extensive and intended to be viewed only by Center staff. The curriculum in these documents is presented to cross reference how participants experienced the curriculum versus how the Center conceptualized it. By exploring the Center’s official documents, it helps place participant experiences within what the directors intended to happen, providing insight into how some elements of the intended curriculum were actualized in practice but others were not. As Eisner (1994) stated, “The ability to secure meaning the course of our experience is basic human need; we all want to lead meaningful lives. But meaning is not simply found; it is constructed” (p. ix). Interns’ perceptions of and experiences at the Center construct the meaning of their internships, especially given that the directors play little operational role at the Center

(Eisner, 1994). Before moving into the description and interpretation of the intended curriculum, it is important to understand how these data answer Research Question 1.

How Does the Center’s Pedagogical and Curricular Philosophy for Sustainability Represent a Sociocultural Perspective of Learning?

The first research question was concerned with how the directors’ curricular internships represent a sociocultural perspective to teaching and learning. The directors’ intentions do not name sociocultural teaching but say intentions represent a sociocultural approach in several ways. The directors try to connect learning content to students’ lives and institutional expectations (Tharp et al., 2000). A focus on social sustainability serves as a counterforce to the dominant perspective on sustainability (NASEM, 2018; Tharp et al., 2000). The directors push students to analyze how their experiences relate to and impact social and ecological systems (Wertsch, 1991). Students are encouraged to bring their whole persons and take part in CoP (Lave & Wenger, 1991). Finally, students are encouraged to embrace the emergent and unpredictable nature of both sustainability work and nonformal learning (Tharp et al., 2000; Wenger, 2008).

The directors, however, do not lay out intentions for *how* students are supposed to learn. CoP are conceptually helpful for locating student learning in the interns’ work on teams, but the directors do not discuss this concept, nor other pedagogical models, in their curricular intentions. The directors do not align their intended curriculum around any pedagogical philosophy, or at least a philosophy is not stated in any formal location. However, especially given the Center’s nonformal status, sociocultural learning, CoP, and activity-based learning all have relevance for the directors stated curricular

intentions. It was helpful to keep these concepts in mind when moving through the description and interpretation of the curricular intentions.

Introduction to Materials and Learning Objectives

The Center, like many university educational settings, has its own intern syllabus. The syllabus contains the Center's various learning objectives, expectations, and schedule. The learning objectives are a great place to start when determining what the two directors intend for students to learn. The Center for Sustainability's programmatic learning outcomes indicate students should be able to:

1. Utilize the communication, reporting, and networking tools required to work as an interdisciplinary team in the 21st century
2. Identify and analyze interdisciplinary connections, systems thinking approaches, and collaborator networks
3. Describe how individual strengths allow for personal and team growth
4. Demonstrate depth of knowledge on a broad range of sustainability topics
5. Demonstrate leadership in developing, managing, and assessing team projects.
6. Evaluate effectiveness of sustainability projects and operations
7. Describe the links between social justice, equity, diversity, and environmental sustainability work

The Center also intends for interns to learn the following career skills for student employment: (a) critical thinking/problem solving; (b) oral/written communications; (c) teamwork/collaboration; (d) digital technology; (e) leadership; (f) professionalism/work ethic; (g) career management; and (h) diversity, equity, and inclusion. Finally, the syllabus includes a third set of skills, which DU refers to as the "4D" experience. The directors skip the first "dimension," Advancing Intellectual Growth, which focuses on fostering meaningful relationships with faculty and contributing to research. The

directors include three remaining objectives: (a) promote well-being, (b) explore character, and (c) pursue careers and lives of purpose.

Unlike some programs discussed in the literature review, the Center's program is not focused primarily on transformative outcomes but rather tangible cognitive and practical skills. Taken alone, the directors intend for interns to learn both practical professional skills necessary for working within sustainability fields and general sustainability knowledge. Some objectives (e.g., systems thinking approaches, describing the intersectionality of sustainability) suggest the Center hopes its interns learn more transformative capacities.

Although these objectives illustrate what the directors hope the interns learn, they do not detail how interns are expected to learn them. By analyzing several of the Center's training artifacts, the intended process for learning and pedagogical philosophy is hard to locate. Much of the focus is on which skills should be developed during the internship, which continues a trend within the TSE space—a hyperfocus on learning outcomes, forgoing the process of learning (Armstrong et al., 2016; Rodriguez-Aboyete & Barth, 2019). Participants had their own ideas about how they were intended to learn, but differences in these ideas demonstrate how each participant received the curriculum differently than what the directors intended. Participant perceptions about the curricular intentions will be discussed in the received curricular section.

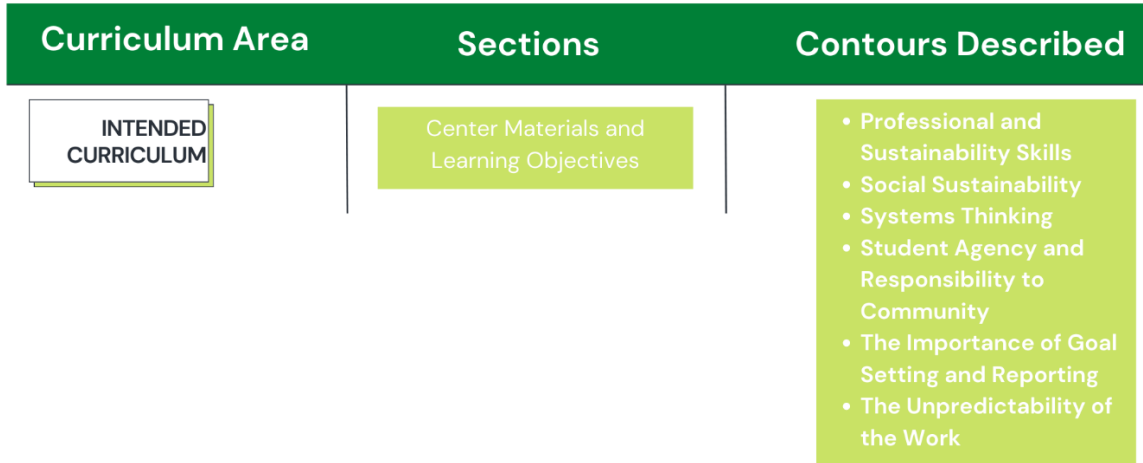
Some of the official documentation is purely scaffolding, intended to help incoming interns understand their internship within the context of the Center and university. While analyzing the various Center training documents, several contours

emerged, contours often present within participant evidence, though this was not always the case. These contours, related to the Center's stated intentions, are now described. These intentions relate to both what the Center aspires for its students to learn as well as how this learning is supposed to take place. After description, each contour is interpreted using the interpretive frame.

The Center's stated curricular intentions, beyond the learning objectives, can be established from the existing curricular materials. These materials represent the formalized aspects of the internship; however, as will be seen later during participant discussion, nonformalized activities are largely how interns learn at the Center. I describe the most predominant contours of the intended curriculum: (a) professionalism and sustainability; (b) social sustainability; (c) identity, agency, and responsibility to community; (d) DU as an institution; (e) systems thinking; (f) goal setting; and (g) the unpredictability of the work. These contours are discussed in order of how significant they are within the materials, from most to least significant. The discussion of these themes is not exhaustive; the purpose is to develop a general picture to understand better how participant data were situated within the context of the formal Center curriculum. In each curricular section, an image, like Figure 11, highlights which contours are discussed.

Figure 11

Center Materials and Learning Materials: Intended Curriculum



Contour Description: Professional and Sustainability Skills

On the concluding slide of the “2021 Making Sense of Your Internship” presentation, bolded text reads, “Get Shit Done.” The directors elaborated further: “That’s what this office does. We get shit done, even when others don’t want us to, or don’t know how, or don’t think it will work. We get shit done.” The messaging to new interns is clear: They are here to work. What this work entails is both professional and sustainable in nature. Learning Objective 1 and Learning Objectives 4–6 focus on what this work should entail. Interns should be able to use 21st century communication methods, be knowledgeable about sustainability topics, and have tangible professional skills for working within sustainability fields. In the “2021 Making Sense of Your Internship” presentation, little is spelled out about what the work entails. In the 2021 Internship Handbook, more detail is provided.

Toward the beginning of the document, the types of learning experiences involved with the internship are provided. In a section titled “Applications,” a general description of the work is given:

The Center for Sustainability provides a link between the curriculum and community and facility sustainability practices, engaging students and classes in applied, authentic projects that develop skills in leadership, project management, data collection and analysis, and reporting. (p. 4)

The work that must be done is centered in achieving these educational ends. Students carry out “community and facility sustainability practices” while learning valuable and transferable professional skills. Moving from job description to job description, a more comprehensive look at the types of sustainability and professional skills can be found. The skills consistently mentioned regardless of position are marketing, communication and outreach, reporting, program leadership and management, and education; however, there are duties for each position that speak to the nature of the teams. For example, on the Energy Team, some duties for the project manager position include:

Oversee the REPS program (including working on customer service, scheduling, training, and overseeing student schedulers and auditors). Lead innovative new programs in carbon offsets for travel and manage a building level energy competition. Lead an outreach and participation campaign to enroll units across campus in the travel offset program. Work with building managers, student life, housing and residential education, facilities, and others to educate and motivate building users (students and employees) in energy and water reduction competitions. (p. 16)

Although many of the duties are tied to specifics of the team and position, they all involve essential professional and sustainability skills. The Center highlights acquisition of broader professional and sustainability skills, regardless of position.

In the 2021 Internship Syllabus, a list of workshops can be found, many of which are mandatory for new and returning interns. Some of these workshops include “Sustainability in Colorado,” “Time Management,” “Leading Effective Meetings and Delegating,” “Cover Letters for Emerging Professionals,” and “Smart and Thoughtful Goals.” There is some choice involved. For example, instead of the “Leading Effective Meetings” workshop, interns can attend the “Behavior Change Fundamentals.” Returning interns can attend “review” versions of the cover letter and resume workshops. At least as they are presented in the schedule, these workshops tend to be frontloaded in the year, representing a sort of “scaffolding” the Center uses to onboard new interns. There are some workshops spread sporadically throughout the year, such as a graphic design workshop taught by a former intern in Fall 2021.

Although the workshops serve as the formal aspect of the Center’s curriculum and usually are taught by the assistant director, the types of experiences naturally occurring in day-to-day team activities is where interns hone their professional and sustainability skills. As seen in the next chapter, these experiences may vary wildly based on team placement, and official Center documents do not detail all practices and activities interns take on as part of these teams. The training materials indicate the internship provides “applied” work experiences that “link” sustainability and professional opportunities to the DU community.

Now that the first contour has been described, this description will be interpreted through the interpretive frame of this study, which means I will pull in both my own experiences from informal education and punk as well as reference elements of

sociocultural learning and the new green learning agenda framework (Kwauk & Casey, 2021) to help explain what is occurring in this description. This interplay between description and interpretation is modeled throughout the study's findings chapters.

Interpretation

Although the directors intend for interns to hone sustainability skills, there is a focus in the training materials on acquiring professional skills. This focus could be for several reasons. Organizationally speaking, the Center is not a college course and does not deliver standard educational content, nor is the Center housed in one of the university's academic programs. According to the organizational chart found in the "2021 How Do Universities Work" workshop, the Center is located under the provost, as part of Academic Affairs and Public Good Research and Strategy. In the past, the executive director has mentioned there is pressure from those above to align the Center's programs with university efforts to provide meaningful employment to DU students. Principle in this effort is the 4D experience as well as aligning employment and internships with the "Career Skills for Student Employment."

The result of this is that the directors hope students gain professional experiences that land nicely on their resumes and prepare them for work in sustainability fields. Again, within teams, interns can learn "hands-on" sustainability skills, but the intentions for the greater Center, across teams, are for students to learn how to be professionals, which is one of the defining features separating the Center from a true academic program and points to its nonformal status: The directors can focus more intentionally on career readiness and provide students with "applied" experiences. In some ways, I suppose the

focus on professionalism is the Center's "least punk quality"; however, it does have importance for the contextual setting within which the students are situated.

From the sociocultural perspective, the directors consider the institutional situatedness of their program and the usefulness of the internship for their students' lives. Tharp et al.'s (2000) third teaching standard, "making meaning: connecting school to students lives," focuses on contextualizing teaching and learning, a process by which "teachers seek out and include the contexts of students' experiences and their local communities' points of view and situate new academic learning in that context" (p. 26). Tharp et al. (2000) presented three levels of contextualization: pedagogy, curriculum, and policy. The authors defined pedagogical contextualization as the ways in which "content of instruction should be drawn from, or carefully related to, the child's own environment and experience" (Tharp et al., 2000, p. 27). Policy contextualization involves the process by which a school, and the learning taking place inside it, shapes and modifies its policies in partnership with the community surrounding it (Tharp et al., 2000).

It is important for the internship program to involve professional development that will be useful for interns once they leave the program and DU. The directors consider what types of professional skills might be needed or will be useful for their interns to learn, and they craft the program around those ends. At a policy level, both the Center and DU at large are shaped by the community around it. Although universities are shaped by countless pursuits, one focus of universities is to prepare undergraduate students for the workforce, which manifests in how DU organizes its various internship programs

around “career readiness.” The directors connect the program’s curriculum to career readiness, in part, to fit the program within what is typical of internship programs at DU.

From the TSE perspective, this focus on tangible and professional skills fits nicely within the new green learning agenda framework (Kwuak & Casey, 2021). The first level of the framework, skills for green jobs, highlights skills such as business skills, project management, environmental knowledge and awareness, and so on. The directors highlight how the internships should be a powerful way to hone these skills; however, this focus on professional skills does not point to how the Center intends for their program to be transformative (Kwuak & Casey, 2021).

The directors focus on other elements within the intended curriculum that work toward this end. The next contour section explores social sustainability, an aspect of the intended curriculum that pushes intern learning toward more transformative sections of the new green learning agenda framework (Kwuak & Casey, 2021). Like this contour, social sustainability is described and then interpreted using the interpretive frame.

Contour Description: Social Sustainability

The directors appear to be aware of how dominant concepts of sustainability hold a “privileged” view, a phenomenon common to the sustainability space (Agyeman, 2008). The Center orientates itself toward a definition of sustainability that includes conceptions of EJ and addresses environmental racism. The Center has two training documents regarding its stance on what sustainability is in a presentation titled “2020 SHORT Social Sustainability and Environmental Racism” and a video called “2020

Social Sustainability Expanded.” They both differ slightly in their content, but the guiding pillars are the same.

In the presentation, three definitions for sustainability are provided. The first, provided by the United Nations Brundtland Commission (1987), defines sustainability as “development that meets the needs of the present without compromising the ability of future generations to meet their needs” (p. 41). Second, Agyeman et al.’s (2003) definition of sustainability is “the need to ensure a better quality of life for all, now and into the future, in a just and equitable manner, whilst living within the limits of supporting ecosystems” (p. 2). Third, DU’s commitment to sustainability is to “integrate sustainable practices into campus and community engagements with a vision for a just and sustainable future for all.”

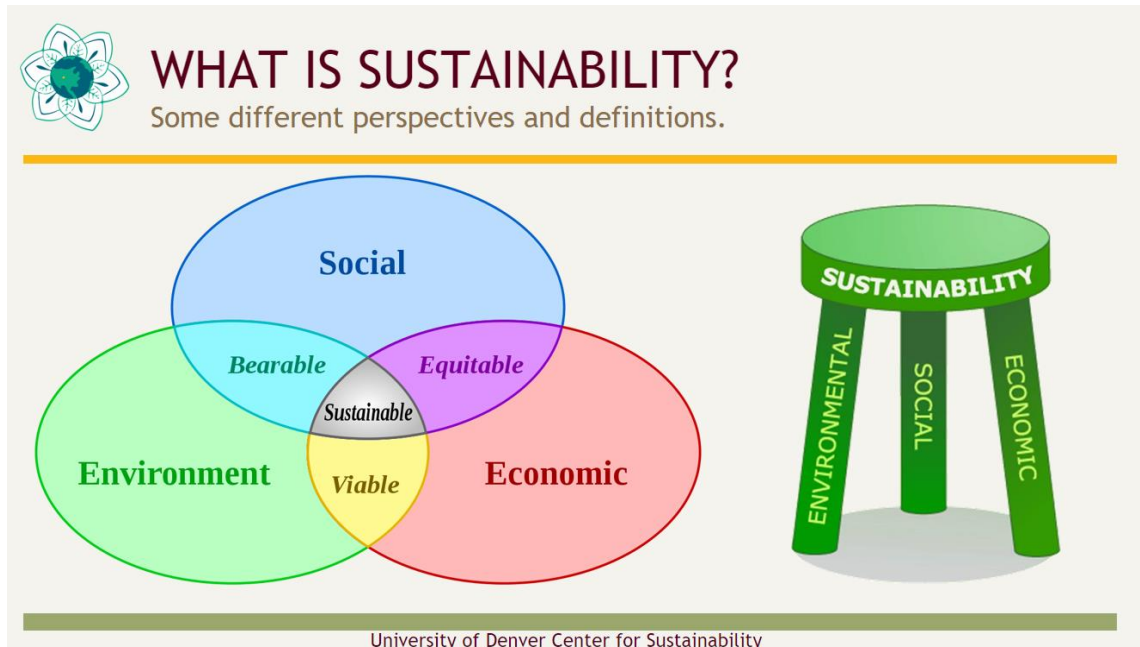
In the presentation, the Center provides a definition for social sustainability, which is the foundation for the Center’s work. It presents a quote from McKenzie (2004):

Social sustainability occurs when the formal and informal processes; systems; structures; and relationships actively support the capacity of current and future generations to create healthy and livable communities. Socially sustainable communities are equitable, diverse, connected and democratic and provide a good quality of life. (p. 18)

The video augments these definitions by presenting a Venn diagram with three pillars: (a) social, (b) environmental, and (c) economic. Sustainability, as conceptualized by the Center, must incorporate all three pillars (see Figure 12).

Figure 12

Social Sustainability Visualization



Both versions of the social sustainability workshop discuss environmental racism. Concepts such as food deserts, disparate environmental conditions tied to redlining, and Denver-specific cases such as the Elyria-Swansea and Globeville neighborhoods are discussed. The workshops end with pointers on what Center interns can do in their work and personal lives to combat environmental racism locally. In the video, two nonprofits the Center works with are mentioned. Groundwork Denver, an organization that plants trees throughout historically redlined neighborhoods, and the Growhaus, which grows food for the Elyria-Swansea, are offered as examples of how the Center collaborates with the community outside DU. The presentations also offer habit-driven solutions interns can work on individually, such as buying products from local, Black-owned businesses,

centering and learning from minoritized communities, and considering how interns' actions impact such populations.

Interpretation

Centering social sustainability in the orientation training points toward the directors' intentions. They consciously plant a flag on what sustainability means at the Center. This version of sustainability is not just Teslas, expensive organic food, and environmental protection. From personal experience, it can be tenuous to use the word "sustainability" in mixed circles because there is concern the other person might think I am only referencing "reduce, recycle, and reuse" or may listen with some skepticism because of the fields' connections to White privilege (Agyeman, 2008).

This concern over the definition of sustainability is important in the context of sustainability and environmental education because both traditions are often focused narrowly on environmental protection, sustainable development, and biological systems (Kwuak, 2020; Moroye & Ingman, 2013). It is easy for social issues to get lost or for students and the uninitiated to miss the complexity of sustainability work in the ecological world. There is frequent talk at the Center about social sustainability and issues of ecological injustice. Again, unlike a standardized K–12 program, which is not "nimble enough" to adapt to the realities of the Climate Crisis (Moroye & Ingman, 2013), the directors are intentional about redirecting students to a more social understanding of sustainability. Here, the Center starts to have a punk resonance, one challenging dominant narratives and trying to shake up students' perspectives. It reminds me of

teaching at the Colorado History Museum, where facilitators expanded students' understanding or even tried to dismantle students' conceptions about Indigenous peoples.

From the sociocultural perspective, the directors try to serve as a “counterforce” to the dominant sustainability culture. The NASEM (2018) stated, “Approaches to learning are embedded in the practices of communities and that as these communities change over time, cultural adaptation happens” (p. 34). Challenging dominant narratives of sustainability is important for the work of the Center, especially when discussing what sustainability means. Within the dominant culture, such as the common definitions of sustainability provided earlier, sustainability typically does not include the social justice lens the directors hope their interns will use. Tharp et al. (2000) stated, “Without some counterforce, the social order and relationship patterns are imported into classrooms” (p. 105), and teachers can choose to disrupt and shape existing affinities. The directors intentionally try to disrupt the existing affinities and understandings they believe their students have, specifically dominant conceptions of sustainability.

From the TSE perspective, the directors challenge students to go beyond the first level of the new green learning agenda framework. Although Kwuak and Casey (2021) did not include EJ as a concept in their framework, they mention transformative capacities tied to such concepts. Skills such as the “ability to analyze unequal systems of power” are inherent in a justice-forward definition of sustainability; however, in their intentions for teams, it is not clear how these understandings are reinforced beyond the initial orientation. For some teams, like the Food Pantry, social sustainability appears

frequently, but how about on the Waste Team focused on waste diversion during DU sporting events?

The directors encourage systems thinking and collaboration, the next contour, a meaningful effort to expose teams to others' ideas and efforts. Systems thinking allows teams to practice social sustainability because it encourages them to consider how their actions and work interact with larger unjust systems. This connection is explored in the next contour section.

Contour Description: Systems Thinking

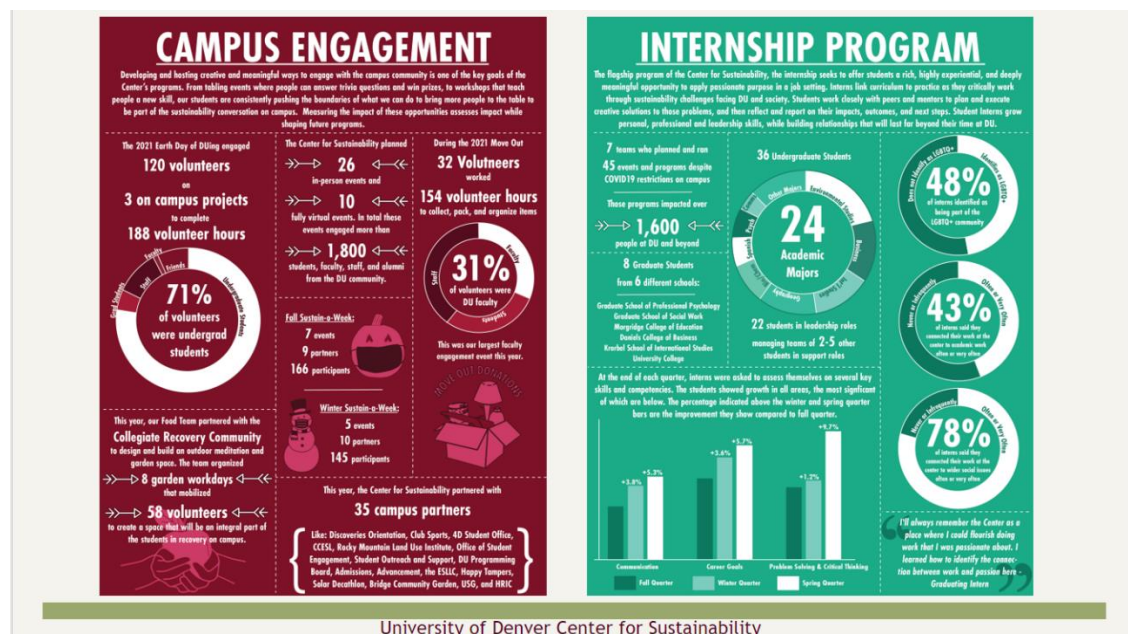
As stated in the learning objectives, the ability to “identify and analyze interdisciplinary connections, systems thinking approaches, and collaborator networks” is a central part of the Center’s curricular intentions. The directors structure teams so interns can “work across all topic areas and help with a wide variety of projects and programs,” as written in the 2021 Internship Handbook. The Center and its teams are part of a larger system in which the directors hope interns will understand and leverage during the internship. Throughout the documents, the connection between teams and how they fit within a larger institutional umbrella are underscored frequently. For example, the syllabus mentions a workshop titled “2021 What Are We Doing and Why Does It Matter,” described as a comprehensive “overview of the programs, functions and partners key to the work of the Center for Sustainability.”

The presentation begins by zooming out to a global scale, framing the Center’s work around the “Big, Big Problem” of climate change. Then, each team’s work is contextualized within that global scale and within what happens at the state level, what

DU does as an institution, and finally what the Center does. The Center is framed as a cocurricular system of sustainability teams whose work impacts and interacts with the university system it is within. This impact can be seen in Figure 13. The closing remark is, “Bottom line: What we’re doing matters.” The implication is that one intern on one team can impact that system, stretching all the way to the global “big, big problem.”

Figure 13

The Center’s Impact on the Community



The directors intend for the Center’s interns to use this type of systems thinking in their work and in the learning they carry out during the year. Interns are meant to locate their own work and projects within the context of the Center, assisting and working with other teams whenever possible. Students also are intended to view sustainability as a multifaceted and systemic issue, as evidenced by the focus on social sustainability. The

directors consistently show interns how their work connects to larger DU, state, and global efforts.

In the “2021 What Is DU Doing” workshop, DU’s sustainability goals and how the Center’s efforts tie into those goals are presented. DU’s carbon footprint, its neutrality goals, and the measures it has taken are discussed. The work of individual teams, such as Energy’s “Renter Efficiency Program for Students,” is outlined and tied to these university goals. Within each team section are suggestions for how interns can alter individual habits to contribute further to these goals. Again, interns are encouraged to think about how their individual and team efforts contribute to DU’s sustainability goals.

In the “How Do Universities Work” presentation, DU’s institutional power structure is outlined with a direct throughline established to the Center, beginning with the Board of Trustees and funneling down to where the Center and its various institutional partners are within DU’s organizational chart and hierarchy. The presentation states the purpose of the workshop is to demonstrate how “sustainability is the work of everyone” and how “collaborations are vital and key to success.” Regarding the Board of Trustees, the presentation recommends to “know their mission to align our mission.” Here, DU’s power structure and how it dictates the work of its various organizations is made clear, encouraging students to work with and leverage this system.

Interpretation

Interns are encouraged to think about how their work fits into larger systems, including within the context of their teams, the Center, and DU as an institution. They also are asked to consider sustainability as a system—and one involving social,

economic, and environmental efforts. Interestingly, despite systems thinking being a learning objective, the directors do not offer training on systems thinking. It is not uncommon to hear the concept referenced during Center activities and meetings, including “systems approaches,” but it does seem like a nuanced capacity students may need operational help to develop.

Connections between the new green learning agenda framework and the directors’ efforts are clear here. Systems thinking and “working within complexity” are both transformative capacities listed in the third level of Kwuak and Casey’s (2021) framework. This systems approach is necessary for students to develop ecological literacy (Kwuak & Casey, 2021), which entails understanding the interdependence of socioecological systems. The directors appear committed to this cause given their focus on social sustainability, but they did not use the word “ecological” nor define it in their training materials.

Systems thinking is not an aspect of sociocultural learning; however, the focus on institutional situatedness in Center documents points to sociocultural elements. The directors intend for interns to contextualize their work within their teams, the Center, and DU. The directors also intend for interns to collaborate with these networks, understand how Center programs are connected, and recognize how they impact and interact with larger systems. Here, interns are tasked with situating their work within social, historical, and institutional contexts (Wertsch, 1991). Like sociocultural styles of teaching and learning, the directors intend for intern work to be collaborative and involve social practice (Lave & Wenger, 1991; Tharp et al., 2000).

Systems thinking aligns with the next contour: the balance between intern agency and their commitment to their communities. Systems thinking and problem solving requires collaboration between elements of a system, which means interns have to balance their agency with the needs of their teams, the Center, and the DU community. Interns may need to put aside their interests or passions to meet the needs of their communities, thus understanding better how their actions affect the systems at play, which I discuss in the next contour.

Contour Description: Student Agency and Responsibility to Community

Returning to the phrase “get shit done” found in the “Making Sense” presentation, there is a sense that interns are to be responsible with their time and various efforts. Several similar phrases can be found throughout the presentation such as “Your Success Is My Success,” “Half-Assed Work Sucks,” and “We All Fail Forward.” On the “Your Success Is My Success” slide, the spirit behind these various statements is clarified:

We are, before anything else, a team. That means that we help each other, we lift each other up, we set each other up for success. It can be really easy to get tunnel vision and only worry about your project, your team, your own success. But look around, and make sure that everyone around is also doing well. If they aren't, be the first to volunteer your help, advice, knowledge, experience, or support.

In this statement is a tension between agency and responsibility, a theme present in the Center's curriculum.

Across the training documents, the idea that interns have agency in their work and learning is a frequent sentiment. In “2021 Rules for Success,” the directors tell interns

“We want you to try new things. We want you to push on some of the boundaries. We want you to be inventive, creative, and enterprising.” In the syllabus, the Center tasks interns to carry out work that connects “to areas of passion and potential career choices.” Central to the success of the Center is leveraging interns’ interests, motivations, and identities. In “Making Sense,” the directors underscore this point. They tell interns, “The Center for Sustainability only exists because of you. From the beginning, it has been shaped by the students who pass through its walls.” The statement makes clear that the Center’s programs, the projects teams carry out, and the legacy of the Center are the result of individual interns and the work they do on their teams.

The directors recognize this push for creativity and agency comes with the chance for failure. They tell interns, “Fail often, but always learn something from those failures.” The clarification statement for Rule 5, “Half-Assed Work Sucks,” says, “If you say you’ll take on a project, take on that project with your whole effort.” Based on these statements, interns are intended to choose the projects they work on and have the freedom and flexibility to push projects into new areas, but they have the responsibility to their community to see them through. The internship syllabus also highlights a 4D learning objective, “Exploring Character,” which encourages interns to “articulate values, engage in reflection on self and connections to others” and to “examine the needs, perspectives, and capacities of individuals and communities.” The Center tasks its interns to weigh their individual needs and wants with the needs of their team and community. The Center tasks interns with considering how their actions impact the community around them.

The directors consistently reference the Center as a community and that collaboration should be central to the work of the interns and teams. Another rule for success, as part of this collaboration, is to “Give Feedback Early and Often.” Interns are intended to “offer feedback with intention to make each project or endeavor the best it can be,” a process including constantly speaking up about the direction various team and Center projects are headed. Here, the directors emphasize feedback that makes the project more “efficient, effective, or awesome.” In the handbook, the directors state they have “developed a new model for student employees” that “combats” the “siloed” nature of previous years, with an emphasis on creating a “greater feeling of belonging and teamwork.” This new model is meant to facilitate “cohesive camaraderie and a feeling of being part of the Center family.” In the “2021 Summer Training Plan,” the directors cite a central purpose of the “Making Sense” presentation, which is to reflect on “how everyone can be successful and feel part of this community this year.”

The directors also hope this community brings students joy. In “2021 Rules for Success,” the directors highlight the importance of a “Work Hard, Play Hard” mentality:

If we aren’t having fun, then what is the point of saving the world? Make friends, laugh, joke, infuse some fun and silliness into the work you are doing. Coming to work should be a joy, something you look forward to each week.

The directors hope the Center is a place interns relish working and learning within, which is, of course, the hope for most workplaces, but at the Center, this drive is foundational to its success. For the Center to succeed, it must be a community in which a “diverse group of students” come together to collaborate, share ideas, work and learn from one another,

and aid the community around them. Interns are meant to leverage their strengths and interests to accomplish projects throughout the year and be responsible to do right by their community.

Interpretation

The energy at the Center is palpable, especially during all-staff meetings. Before meetings start, interns joyfully update each other on their lives, talk about Center programs, or lean on one another for support. During meetings, interns will interject, share their successes and struggles, and the room will erupt into “woos.” The Center, at its best, can be a site of deep connection and support.

The directors intend for the Center to be this kind of community, one that supports one another, one filled with joy. The directors also expect interns to follow their passions and to be enthralled by their work. This passion chasing should be tempered by their duty to the communities around them, namely their teams and the Center. The punk aspect of the interpretive frame has not been invoked yet, because many contours already discussed appear quite “drab” and unpunk compared to this contour. This contour is the first that stuck out to me; it was something I felt from the beginning, and something that really gives the Center its “punkness.” A ramshackle group of interns and fellows, led by the directors, pushing boundaries, doing the best they can, and lifting each other up. The spirit of “do-it-together” can really be felt frequently at the Center. However, as I discuss in a later contour, the directors also expect this community to get off track easily—again, a defining feature of the all-action punk ethos.

The language the directors use in their statements to interns also exemplifies aspects of the Center's punk aesthetic. Unlike in a typical classroom or work setting, the directors come out and use language like "get shit done" and "we'll fuck up," which signals to interns that this workplace, and its CoP, are different than the formal institutions they may be used to. Such language keys interns into the type of language acceptable to use within their teams and Center meetings and represents a feature of meaning construction and language use within the CoP that is the Center (Wenger, 2008). It also highlights how one's unfiltered expression of identity and perspective is respected and valued at the Center. Like with punk, the Center has a "no nonsense" attitude.

From the sociocultural perspective, the directors speak to the nature of whole-person identity and CoP memberships (Lave & Wenger, 1991; Wenger, 2008). They want interns to bring their full selves to the position, influencing the nature of practice because of their interests and experiences. Here, interns are granted legitimate peripheral participation, negotiate meaning and enterprises with their fellow teammates, and even change the nature of practice substantially within their respective teams (Lave & Wenger, 1991; Wenger, 2008). Interns are intended to reify new team programs and practices; however, interns must be *mutually* engaged with their teammates to maintain community coherence (Wenger, 2008), which involves the feedback systems mentioned, leaning on teammate support when needed, working together, and weighing the community's needs.

From the TSE perspective, the directors intend for the interns to acquire and practice many of the skills in the second level of the new green learning agenda framework. These green life skills include collaboration, communication, creativity,

leadership, negotiation, and teamwork (Kwuak & Casey, 2021). The focus on building community also is an important building block in developing a feminist planetary consciousness, where interns, as Kwuak and Casey (2021) stated, have “awareness of the interconnectivity humanity’s challenges and the state of the planet” (p. 4). By developing deep connections to their community at the Center, and identifying with this community and its work, they can work toward understanding this interconnectedness.

As foreshadowed, this balance of agency and community can get off track at the Center, a reality the directors try to control with goal setting. Goal setting can be a powerful tool in sociocultural settings, especially informal spaces like the Center (NASEM, 2018). The directors seem to want to put up “guard rails” to help hone and guide intern activity, giving the leadership a way to track intern progress, which helps ensure interns consider team projects that both align with their interests and support their community. Goal setting is described next.

Contour Description: The Importance of Goal Setting and Reporting

Goal setting is an essential component of the Center’s intended curriculum. The directors deliberately show how sustainability goal setting occurs and aligns with all levels of the university. In the DU organizational workshops, the goals of the Center and individual teams are aligned with the DU’s overall goals. However, as discussed, individual interns are afforded autonomy, meaning they can set their own goals. For this reason, the directors use two principal workshops to guide interns throughout their goal-setting process. Goal setting comes in two forms: individual goals and team goals. Goal setting is an important contour of the Center’s curriculum because there are significant

tensions between how the directors intend for interns to carry out goal setting, how participants carry tasks out operationally, and how participants receive the end result.

The first type of goal setting addressed within the intern training materials is “SMART and Thoughtful Goals,” described in the syllabus as “personal and team goals that have clear and measurable outcomes,” and the associated workshop assists interns in “writing personal quarterly goals for the quarter.” These goals must be included and addressed in team quarterly reports. As noted in the “2020 Goal Setting” presentation, personal goals should incorporate both “the golden circle” (Sinek, n.d.) and be SMART in nature. Sinek (n.d.) described the process of the golden circle as beginning with the “why,” moving outward to the “how,” and moving even further, ending with the “what.” The presentation also elaborates on what makes a goal “SMARTER,” an acronym that can be seen in Figure 14.

Figure 14

The Golden Circle and SMARTER Goal Setting



The presentation also gave a description for what each level of the golden circle means, including the why, how, and what:

1. WHY – Thoughtful communication with our stakeholders is important for creating lasting community relationships.
2. HOW – We will be responsive, clear, and considerate of stakeholder goals.
3. WHAT – We want to build more connections with the Denver community.

Although this goal setting framework is meant for interns’ personal goals, an example is given that is framed within the context of the entire Waste Team. This example is bolded to show how the various elements of the framework have been incorporated:

By the **end of this quarter**, the Waste Team will have developed **the framework for a subscription-based composting service** for students living off campus. **We will measure success by reviewing our progress** at weekly team meetings, delegating time-bound, specific tasks to interns and leads, and delivering a portfolio of protocols that can be reviewed and implemented as a business plan. In order to promote accountability, we will review our deliverables with the directors, as well as a panel of business students acting as an internal advisory board during week 9 of the quarter. (p. 7)

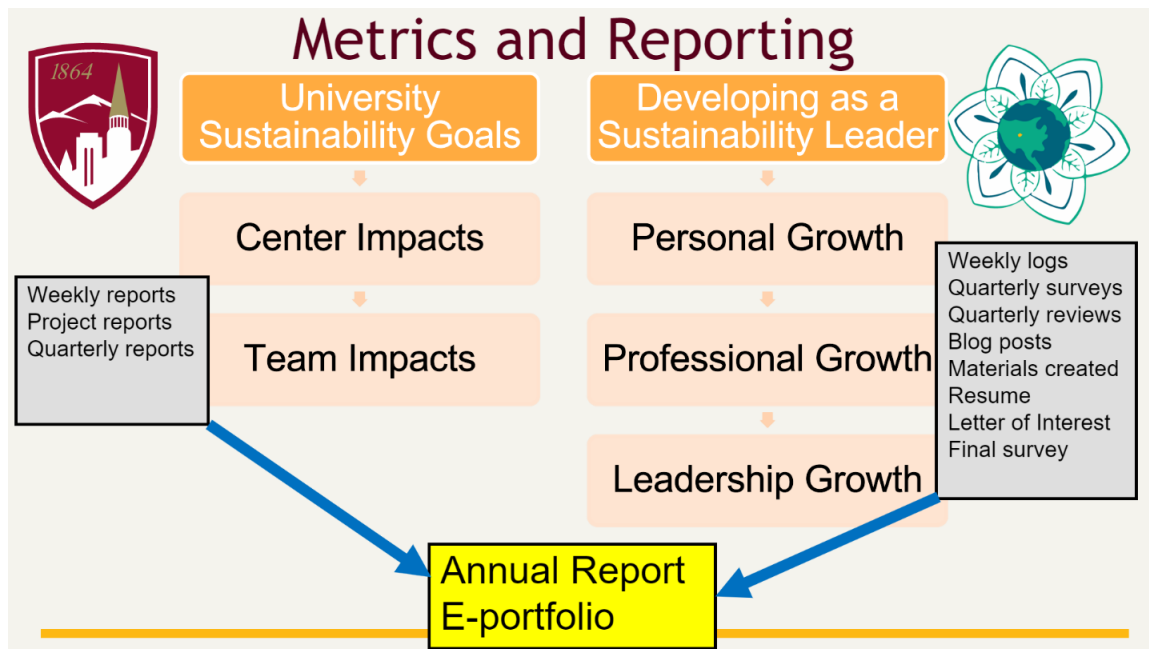
This statement by the directors represents the SMARTER process and is the intended goal setting practice the directors intend for teams to use. For personal goals, the directors intend for interns to create smaller goals that can facilitate the larger team effort. Interns are encouraged to create their own goals, but these goals should align with the framework and the goals of their teams.

The second goals-orientated presentation, “Metrics for Sustainability,” is part of the “Meaningful Metrics and Team Planning” workshop described in the syllabus. The syllabus describes the workshop as providing “time for teams to review metrics that show the impact each team is making on broader sustainability goals.” The syllabus further reads, “These metrics will provide the backbone for team quarterly reports.” In the

“Metrics for Sustainability” presentation, several concepts are discussed, such as why do research, how metrics align with impact goals, what metrics should be collected, research project timelines, team expectations, and how data should be communicated (see Figure 15).

Figure 15

Connection of Metrics, Reporting, Impacts, and Intern Growth



The final step of this process, communicating metrics in team reporting and individual e-portfolios, helps frame the Center’s purpose and internships. A slide in the “2021 Aligning Goals and Measurement” workshop points to the purpose of the goal setting process and gives a glimpse at what the directors intend for their internships to accomplish. This slide (see Figure 15) includes all curricular elements of the internship and situates them within specific learning outcomes for interns and Center programs. The

directors want the Center and its teams to accomplish programs and projects that contribute to DU's sustainability goals. The directors intend for interns to track this impact with metrics. Interns are then to communicate these metrics through annual reporting and e-portfolios. By taking part in this practice, interns are to undergo various types of growth while completing smaller constituent parts of Center and team goals.

Interpretation

The hope for this process is for interns to experience growth that develops them into sustainability leaders. By completing the mission of the internship, interns should experience personal, professional, and leadership growth. With the goal of moving team and Center projects forward, interns may complete tasks such as issuing surveys, writing blog posts, and creating materials. Interns also are intended to produce professional deliverables, namely a strengthened resume and cover letter. Contained in this slide is the totality of what the directors intend for interns to learn and experience.

All contours already discussed can fit into this framework. As part of developing as sustainability leaders, interns must master professional and sustainability skills along with a deeper understanding of social sustainability. Systems thinking is needed to bring the column on the left of the directors' model of metrics and reporting (see Figure 15) into fruition. Agency and community likely exist somewhere at the Center, facilitating systems collaboration and resulting in interns' growth as sustainability leaders. Finally, goal setting and reporting helps document all this work; however, as I discussed later, and maybe qualifying as Center's major other "unpunk" quality because of its "bureaucratic

nature,” participants found the process of goal setting and reporting their least favorite aspect of the internship.

This focus on goal setting does serve the Center by demonstrating the impact it has on the DU community. It also has educational merit. The NASEM (2018) highlighted the importance of challenging but manageable goals for learning. Goals can support cognitive, affective, and behavioral processes associated with learning (NASEM, 2018). In CoP, goals are needed to reify accountability (i.e., tangible goal posts ensuring the community knows when it is on track and when it is not; Wenger, 2008). Interns who create and stick to their goals help their teammates, graduate fellows, and the directors know how they have progressed.

Goals, metrics, and reporting have their place and importance in the sustainability world as well. Data analysis, project management, and research skills are listed in the first level of the new green learning agenda framework (Kwauk & Casey, 2021). Although transformative sustainability focuses on large societal transformations, one that tears down existing systems, many scientific and sustainable metrics are needed to ensure humans react effectively and accordingly to the Climate Crisis (Kwauk & Casey, 2021). Setting goals, tracking metrics, and internalizing and communicating those findings is necessary for transformation.

Transformation is not an orderly process, pointing to the final contour of the Center’s documents, the fluidity of the Center, and its internships. As discussed, goal setting is put in place to help focus intern energy and agency and to cut down on the fluidity of the internships, but sustainability is a complex and constantly evolving field.

The type of sustainability work interns do, the needs of their teams and the Center, and the desires of the DU community change frequently. The next contour discusses this reality and the adaptability interns need.

Contour Description: Unpredictability of the Work

There is a quote in the “Rules for Success” that is emblematic of the unpredictability of the work at the Center. Perhaps trying to lead by example, the directors made their own statement about “failing forward”:

The Assistant Director, The Executive Director, and the Graduate Fellows are far from infallible. We will fuck up, sometimes in very big ways. We might derail a project or realize too late that we’ve sent you down the wrong path. We will also learn from these failures, and we want you to always tell us when we’ve messed something up so that we can keep learning. Don’t let a screw up from the boss derail you (see number 3) but do hold us accountable. (p. 1)

The Center, its projects, and the internships, are built around trying new things, failing, learning from failures, and doing better next time. By the directors admitting “we might derail a project” or “realize too late” that an intern has been sent “down the wrong path,” the directors message that the work at the Center is unpredictable. Projects throughout the year are “fluid,” and this fluid nature requires consistent communication and feedback to keep things “on the rails.” The need to hold the directors accountable when they screw up is extended to teams and individual interns. Because being “inventive, creative, and enterprising” is valued at the Center, projects at the Center can derail or fail regularly. The Center intends for its interns to understand fluidity and unpredictability as part of the program they have entered.

As shared in the discussion about responsibility earlier, “failing forward” and encountering “speed bumps” are intrinsic aspects of the Center’s internships. For the third rule of success, “Those Are Speedbumps, Not Walls,” the directors say:

This job is going to get tricky sometimes. It’s going to get frustrating. You will run into roadblocks, you will run into mistakes, you will run into other people who don’t want to play nice or help your project along. Keep going anyway. Keep asking questions, keep getting help, keep trying to make the project succeed. Trying your best and failing is always okay but failing to try never is. (p. 1)

The directors are careful not to obfuscate the unpredictable nature of the Center. Given interns’ interests and autonomy, DU’s fluctuating interests and goals, and budget and time constraints, various individual and team projects can and do get derailed. Interns, then, are empowered to accept this as part of the internship and to respond with adaptability and tenacity.

Interpretation

This last contour in the Center documents, the unpredictability of the Center, is important because it was a frequent part of participants’ discussions. R described his experience of the Center as “disorganized, and collectively committed to a cause.” For some interns, such as Chelsea, the “disorganized” nature of the Center was challenging. Some participants referred to this as “chaos,” but others opted for “fluidity.” The directors are aware of this fact and choose to attend to it head on within intern training materials. They intend for interns to understand this fact and to act accordingly.

Chaos is another defining punk feature of the Center. Punk is about direct action; it is about thrusting headlong into the unknown; it is, in some ways, about chaos. However, in that chaos is order. For example, a punk song may appear sporadic or alien

to the uninitiated, but after you listen to a few punk records, you notice patterns in song writing, maybe even subgenres, unifying qualities, and how influences come into play. Likewise, a punk show may appear chaotic, but punk shows and their happenings are quite uniform across the country.

Punk is about direct action and reaction as well as the ebb and flow between those poles. In a sense, punk is also a direct reaction to the nature of dominant culture. Similarly, the Center, and the sustainability space, is about trying new things, some that work and some that fail, and reacting accordingly. Like punk, sustainability reacts to the Climate Crisis. Adaptability, coping with uncertainty, and resilience are green life skills found within the new green learning agenda framework (Kwauk & Casey, 2021).

Socioculturalists speak on the importance of the fluid and emergent nature of learning in social practice. Wenger (2008) stated CoP are inherently emergent because of how new people, meanings, and enterprises evolve over time. Adaptability becomes very important in this setting; Wenger (2008) remarked, “Learning involves a close interaction between order and chaos” (p. 94). Similarly, Tharp et al. (2000) remarked on how a sociocultural classroom might appear chaotic to outsiders because of its noise and activity. The directors do not intend for their internships to be chaotic, but the very nature of the work, including how interns are intended to learn, are inherently fluid. The directors intend for interns to react to this fluidity, not in frustration but by being adaptable.

The Center artifacts are meant to provide a backdrop for participants experiences. However, participants spoke on what they perceived to be the Center’s intended

curriculum. These perceptions are weighed against the intended curriculum in the received curriculum section. Participants also expressed and described their own teams' intended curriculum. This curriculum is described and interpreted at the beginning of the next chapter.

Summary of the Intended Curriculum

The Center's curriculum is made up of training materials, often delivered during orientation. These materials include an internship syllabus and handbook as well as an array of PowerPoint-driven workshops. Within these documents are the Center's formal learning objectives and rules for success. Across these documents, several contours emerged. The directors intend for interns' learning to focus on professional and sustainability skills, social sustainability, systems thinking, student agency and responsibility to community, effective goal setting and reporting, and adaptability in an unpredictable field. The directors also provide a framework for how the internship is intended to function and the types of learning interns can expect to experience.

The internships are focused heavily on capturing metrics and effective reporting, a process that advances two primary objectives: (a) achieving university sustainability goals and (b) helping interns develop into sustainability leaders. While creating, facilitating, and measuring the impact of Center and team programs, interns are intended to undergo personal, professional, and leadership growth. Each intern should play their part, taking on smaller scale activities, such as organizing events, issuing surveys, writing blog posts, and creating materials. They should then capture these contributions, and the success of their programs, by constructing annual reports and e-portfolios.

The Center's curricular intentions connect to this study's frameworks and represent a nonformal site of learning reflective of my teaching and punk experiences. The Center has a lean set of curricular intentions, but these intentions are not taught outside orientation. As discussed in the operational section and based on the emphasis of teamwork in the explicit materials, it is evident the directors expect interns to learn these intentions through their own activities. I saw this play out during my time at the Center. Providing a curricular framework and then letting students learn through exploration is emblematic of nonformal education (Eshach, 2007) and museums at large. The Center also feels reminiscent of a punk ethos because of its intentionality around challenging dominant sustainability narratives, cultivating student agency and a DIT attitude, and centering reactivity and adaptability in a chaotic and unpredictable field.

The directors' curricular intentions fit within Kwuak and Casey's (2021) TSE framework. Interns are intended to acquire skills across the spectrum, such as the business and project management skills needed for green jobs, the collaborative thinking and adaptability needed for a green life, and the systems thinking needed for a green transformation (Kwuak & Casey, 2021). The intention is for interns to acquire these skills while contributing to Center and team programs and projects.

Concluding Thoughts

The Center's formal curricular materials help provide context for interns' experiences. These intentions align elements of sociocultural learning and TSE and resonate with my punk experiences. These intentions represent the formalized aspects of the Center's curriculum, but the real teaching and learning happens largely in informal

settings. The directors' intentions focus on *what* they intend for students to learn, and little is said on *how* students are intended to learn these capacities, content, and skills. Like with punk, even though there are clear intentions, things can get operationally off track rapidly, given the emergent and fluid nature of the whole enterprise.

This chapter focused on providing the directors' perspectives as located within official Center documents. The next chapter features participants' experiences and perspectives found via interviews, observations, and artifact analysis. Participants provide a glimpse into the Center's operational curriculum, especially how they learn. The directors play little role in the Center's operational curriculum, and interns are responsible for teaching one another. What participants learn is also discussed.

CHAPTER FIVE: LEARNING ACROSS THE INTENTIONAL AND OPERATIONAL CURRICULUM

This study explored the intended, operational, and received curriculum of the Center for Sustainability. In the last chapter, I explored the directors' intentions for the internships; however, unlike in formal school settings, the directors do not teach interns throughout the year. The directors are responsible for the operational curriculum during orientation, and then teaching and learning is left up to interns and their teams.

Participants discussed how they experienced a rich curricular arc on their teams. Within the teams, the intended, operational, and received curriculum are largely constructed and facilitated by the interns, although there are examples of the directors steering the teams. Here, interns are part of distinct CoP with their own histories, practices, and members.

This chapter explores participants' experiences and perspectives as well as data from the interviews, observations, and artifacts. Unlike in the previous chapter, in which I examined directors' curricular intentions as a means of context setting, this chapter explores the first two sections of the arc as reported by participants. The received curriculum will be discussed in the next chapter. The findings were split up in this way, both for pragmatic reasons due to the overwhelming amount of data but also because of how I have used the various frameworks in this study. Because TSE is focused often on learning outcomes, I used Kwak and Casey's (2021) framework in the construction of

only the third research question, and sociocultural learning guided the construction of the first two research questions. Thus, this chapter focuses on just the first two research questions and the connected elements of the instructional arc: the intended curriculum and the operational curriculum.

The structure of the findings is much the same, with contour descriptions followed by interpretations formulated using my interpretive frame. Before moving into the arc sections, I introduce participants and their artifacts. Because of length, I have included smaller versions of some artifacts, and full versions are in the appendix.

Participants

The names of participants used in the study are pseudonyms they chose at the beginning of the data collection process. Other than the two directors' names, I have removed all other names from interview, observation, and artifact description. The directors are searchable on the internet and appear on the Center's website. It was important to name them while also preserving participant anonymity. During the first interview, I asked participants to summarize their experiences at the Center in a sentence or two. I issued this question to participants before the interview to give them enough time to sum up their thoughts. Participants' answers are included here because they are emblematic of participants' thoughts and feelings about their internships. I also asked each participant if the learning style of the Center was effective for their learning. These answers will be important to consider when exploring the sections of the curricular arc. For this reason, participants' answers to this question are included.

Cleo

Cleo, a team lead for the Sustainability Marketplace, has been with the Center for 3 years and has a wealth of different experiences interning. She grew up in a diverse household in Indiana, with an Iranian father and an evangelical Christian mother, although they are nonreligious today. She said growing up in such a household taught her a lot about social justice and made her interested in sustainability because her father worked in the oil industry. Cleo said her dad joked she “was born to right his wrongs.” Cleo shared her passion for social justice in part because her father “was a person of color who knew how to address the fact that” the destructiveness of the oil industry was “rooted in colonization.” Dialogues on such issues were commonplace in her household.

Cleo chose DU for college because of the Center and enthusiastically applied as soon as she found out it was possible. She spent the bulk of her time at the Center on the Food Team, helping to destigmatize food insecurity by spreading awareness about and running the Center’s food pantry. She said her perspective about sustainability, the DU community, and social justice all changed greatly during her time at the Center. She learned how intersectional sustainability is with social justice and was motivated to push for EJ in her future career. She loved the fluid nature of working and learning at the Center and was excited to lead a team of new interns this year. She spoke about centering her team’s work on the values of “equity, affordability, and accessibility.” She loved teaching and is looking forward to helping the interns learn throughout the year. Cleo shared the following summary of her experience at the Center:

The Center for Sustainability has been a space for professional and personal growth beyond belief, all while offering a deep sense of community in the sustainability world. Having been at the Center for most of my college experience, I feel that it grew up with me and helped me to develop into a critical thinker with a deep dedication to equity and progress.

During the interview, I asked Cleo, “Do you feel this is the most effective way for you to learn?” Cleo responded:

I think personally, yes. I really like hands-on learning, so I really like that aspect of it. I think giving people like at least just tiny bits of responsibility, even when they’re kind of new to something can be really good. And I at least, really liked that. And I had this pressure on myself to like . . . want to help the community and be a part of the community. So, the pressure is definitely internal that like . . . we are a community—like you’re letting down your community if you can’t keep up or if you can’t do something which is something I really didn’t want to do. And not necessarily in a stressful way, more like I just like you want to be a part of it kind of way.

As one of the Sustainability Marketplace leads, Cleo played a large role in its design, organization, and day-to-day operations. For her artifact, Cleo provided a detailed document (see Appendix R), including pictures (see Figure 16), and explained different aspects of the Marketplace, including the design and operations.

Figure 16

Cleo's Artifact



Erin

Erin was a team lead for the Waste Team and, similar to Cleo, had been with the Center for 3 years. Erin grew up in California and attended a small private school. She came to DU because she was attracted to the intimate nature of the school, especially the ability to develop close relationships with her instructors. She also wanted to stay in a “similar environment” as California and was attracted to the atmosphere of Colorado. When asked to clarify what this statement meant, she said she wanted to be somewhere that had both a similar ecological environment and would be accepting of her queer identity. Erin had always found herself “compartmentalizing” her various identities, whether as a student, a daughter, or an athlete. She was careful to separate her various identities, not allowing them to interlap or intersect often. Today, she found herself examining and interrogating “that cycle of behavior.” In the context of the Center, she

was most likely to show the sides of her identity that were tied to being a “scientist, student, and worker.”

In her admission application, Erin applied to another sustainability organization at DU, a job that later opened the door to the Center. A coworker introduced her to the Center, and she even spent time volunteering to sort waste at sports games on campus. Unlike most leads, she was hired to be a Waste lead and was not given a choice about the position she would fill. She was trepidatious about leading a team but thankful she received so much trust and support from the Center directors. She derived a lot of joy and personal meaning from working within ES and believed everyone should focus more attention and effort on sustainability work. Erin was excited to lead a new team and prepared a lot of content to teach her new interns, but sadly the Waste Team was in flux. COVID-19 presented many staffing challenges for DU’s sport stadiums, impacting the Zero Waste Athletics program, a cornerstone of the Waste Team. Despite this, Erin was used to the Center’s fluid nature and was ready to adapt to whatever came next. Erin summarized her experience at the Center:

My time at the Center has been the most rewarding challenge that I’ve undertaken as an undergraduate here. And I’ve gotten out of it, not only what I was willing and able to put in but also what collectively all the staff were able to put in, like that energy.

During the interview, I asked Erin, “Do you feel this is the most effective way for you to learn?” Erin responded:

It's definitely the most enjoyable way to learn things for me. Effective, though . . . [Erin chuckles] I would say it kind of depends on what the project is or what the goal is. . . . There are definitely things where I'm like, "Oh yeah, if I am not with this person and having to get feedback on like all of these things, I can just crank this out really easily." But then it's also like I recognize that feedback and collaboration is important to like making whatever the deliverable is as robust as it can be. So, I don't know.

For her artifact, Erin submitted a "Zero Waste Athletics Re-Imagined" proposal (see Figure 17 and Appendix S). Erin suggested shifting the cornerstone program from a focus on intern labor and facilitation to a broader educational program.

R

R was an intern at the Center and the team lead for the food pantry. The food pantry is part of the Sustainability Marketplace, which means R collaborated with Cleo, although they had different team assignments. R was from the East Coast, a first-generation college student, and a "proud Puerto-Rican." R grew up with a single mother in a small "hippy dippy" town in New Jersey. R attributed his interest in sustainability to growing up in this setting—a small, well-educated town full of aging academics living out their "flower power days." R's uncle was the head of sustainability at a large food manufacturing company, and R grew up very interested in the outdoors and gardening. When looking to apply to schools, he was interested in DU because of Colorado's perceived emphasis on nature and sustainability.

Figure 17

Erin's Artifact

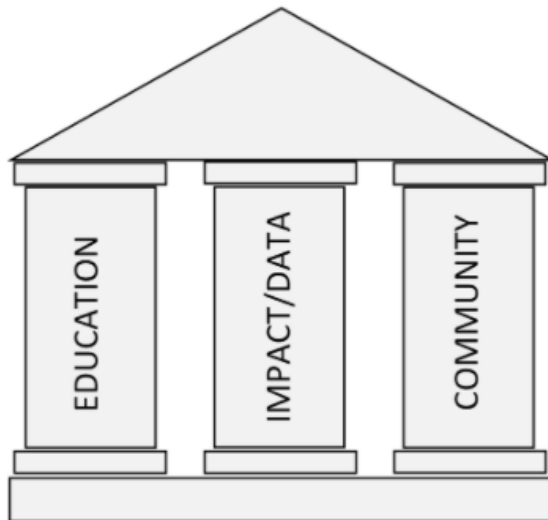
Zero Waste Athletics Re-Imagined

This document is meant to be a guide for the Zero Waste Athletics team and their partners to clarify a path toward a more sustainable future for Zero Waste Athletics program. It is meant to be adaptable to the needs of partners and the context of our community.

The COVID-19 public health crisis has caused all of us to evaluate the priorities and essential components of our programs. As we reintroduce programming like Zero Waste into our campus operations, we want to be intentional about what we ask of our staff and partners, and what purpose these asks serve.

Our program will rest on three pillars: Community, Education, and Data & Impact. These pillars guide the work we want to achieve to best meet the needs of the DU community and reach the University's goals.

- Community emphasizes our conscious efforts to integrate a social justice perspective and community goals and values into our work.
- Education encompasses the specific initiatives we execute with our stakeholders and the broader campus community to inform people about waste reduction, proper sorting, and the impact waste has on the environment and wellbeing.
- Data & Impact refers to the types of data we collect to quantify impact and increase the effectiveness of the program through strategic changes.



Our plan has three phases: Re-education, Foundations, and Integration. Creating sustainable systems that work for the environment and the people within them requires collaboration and a sense of shared values. Our pillars of community, education, and impact reflect not only our values, but the values of University of Denver as a whole.

How do we know when a phase is complete?

R got involved at the Center after spending 2 years at a student organization located in the same office as the Center. During this time, he tutored children from minoritized communities; however, he lost interest in the program because he felt it had a “White savoir complex.” This lack of authenticity, or the use of facades, became a major theme in R’s interviews. R grew up food insecure and was passionate about social justice and food systems. This drive to make DU a more sustainable food system, and the Center’s work, brought R to the Food Team. In his 1st year, R struggled to find ways to get involved, although he took part in some gardening projects. This year, when it was announced that several teams would be restructured, R jumped at the opportunity to lead the food pantry. He wanted to cultivate an environment for the food pantry in which new interns would be taught to understand food equity and have their voices and ideas heard. R had a great deal of skepticism about DU as an institution and saw the Center as a valuable force to pressure the university to be more sustainable and equitable. R did not submit an artifact and was not reachable after leaving DU to be with his family during a family emergency. R summarized his experience at the center, saying it was “disorganized but collectively committed to a cause.”

During the interview, I asked R, “Do you feel this is the most effective way for you to learn?” R responded:

At least for me, I think it’s just because that’s kinda how I was raised. Like growing up with a single mom and stuff who’s very much like DIY touch and go a lot. . . . So, I think that’s how I grew up learning just about the world around me and stuff was a lot of like just “do-it-yourself: figure it out.” And that’s why I

think it's effective now for me as I was definitely confused the first few weeks, not really sure what I wanted to do with pantry, how it was going to look. And then eventually I was just like, "Okay, like this, this and that." And I just—like just through trial and error and personal experience . . . I also learned that . . . the center is a good environment for that because nobody's really going to get mad at you if something goes wrong. . . . It's an environment that kind of facilitates you to learn through failure almost and figuring it out.

Mabel

Mabel is a former Center intern and worked at the Center for 4 years, beginning her internship in 2017. Throughout her tenure at the Center, she worked on multiple teams (even though the distinction between teams was not clear in the beginning), and she finished her internship by leading the Energy Team. Mabel grew up in Boulder, CO, and had always been passionate about protecting the environment. Although she argued growing up in a White, middle-class family in Boulder could be considered "boring," such a background came with its own "intricacies." The opportunity to attend a private university, and the privilege associated with that, was something she, in her own words, attributed to "where I was born, and the color of my skin." Mabel also reflected on her femineity quite a bit, a part of her identity of which she was proud. However, especially now that she had entered the workforce, she noticed "various limitations that are put up," including expectations and gender norms, such as having children and the impact that could have on her career.

Mabel applied to the Center because it sounded more interesting than other jobs available and seemed to align with her values. Mabel's perceptions about sustainability evolved greatly during her time at the Center, and she grew to understand how important social justice is for achieving a sustainable future. Mabel loved the "chaos" of the Center during her early intern years, although she thought the recently added structure was a positive. She was thankful for the autonomy given to her at the Center. She said she essentially could "pitch any project to the executive director and the assistant director," and they would hear her out. Toward the end of her internship, she taught new interns how to carry out the Renter Efficiency Program for Students (REPS), a program in which Center interns visit DU students' homes and help them make their homes more energy efficient. The greatest knowledge she felt she gained from her time at the Center included the professional skills and an understanding of how organizations like the Center function. Although she did not work in a sustainability field, she was driven to only work for companies that "do good for the world" and was ready and willing to push her employers to weave sustainability into their own practices. Mabel summarized her experience at the Center, saying, "My experience at the Center is a mix of a professional and personal growth experience that both allowed me to dive deep into my passion for sustainability and learn about professionalism in general."

During the interview, I asked Mabel, "Do you feel this is the most effective way for you to learn?" Mabel responded:

I think I would have liked a little bit more structure. Especially as a freshman, just being overwhelmed already by college and living on my own and everything. But

it also allowed me to take on some really fun projects. . . . It definitely gave me a lot of like flexibility to just like pitch an idea to the executive director to the assistant director and they'd say and go for it. . . . So, I really like that, I think that was huge but that maybe . . . that's just how I learn in my brain. I don't know if that works for everybody, but . . . I liked it, I think, overall, there could have been a tiny bit more training in the technical stuff when I started.

For her artifact, Mabel submitted a draft of the Energy Team's annual report (see Figure 18 and Appendix T). Mabel graduated in the winter quarter of her last year, meaning she could only contribute to the report for the first 2 quarters.

Chelsea

Chelsea, who left the Center in the spring of 2021, was a team lead for the Waste Team. Like Erin, she was placed into the position by the directors, and she did not have much choice in the matter. She was the only participant who left the Center before graduating from DU. Chelsea grew up in a small rural town in Colorado and was seen as her "small town's environmental person." This experience, and a drive to protect the environment because of growing up in an oil town, brought her to the Center. During her time at the Center, like with the other participants, her understanding of sustainability grew to incorporate larger concepts of social justice. Chelsea said, at times, she felt her peers, or people in the DU community, had a "privileged view" of sustainability, a point she believed made it difficult for people in sustainability spaces to connect with people in rural communities. This point was connected to aspects of her identity.

Figure 18

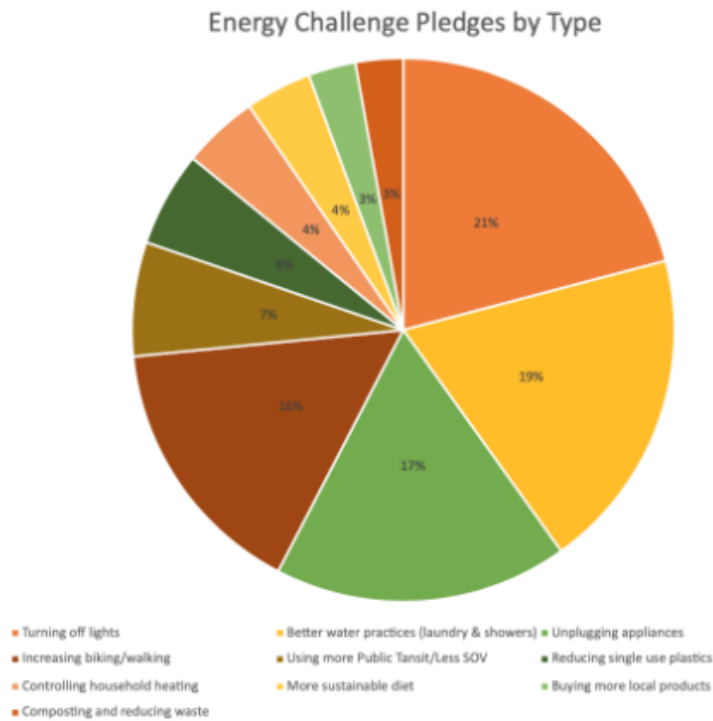
Mabel's Artifact

Winter 2021 Energy Challenge Report

Energy challenge participants

Total Participants	82
Total Pledges	177
Average pledges/person	2.24

% of things participants pledged



Chelsea is White and grapples with her own Whiteness in the context of sustainability work. DU, as well as the Center, is filled with predominantly White students. Chelsea's Whiteness often made it hard "to connect with people of other

identities, especially people of color.” She wanted to speak on issues related to social justice and the environment, but, when she did, it came from a White perspective, despite communities of color being affected the most by the Climate Crisis. Chelsea said this tension was felt at the Center as well, asking, “How do we advocate for environmental justice . . . but most of us are White?” Discussions around these issues, although complex, were also one of her favorite aspects of interning at the Center because she was challenged to weigh and understand others’ perspectives on issues like EJ.

Chelsea was put in charge of the Waste Team during the 2020–2021 academic year, which meant she would have to rebuild the team from the ground up, with Erin’s help, because most of the Waste Team’s primary functions required in-person interaction. This was a challenge for her, and she did not believe she got all the support she needed from her mentors. This was one major aspect of the Center that made her experience “challenging.” She stated there was a mismatch between the Center’s curriculum and goals and what was possible at the team level. Chelsea did not thrive within the Center’s fluid conditions unlike some of her peers. She found it “hard to project the image of leadership,” even though she was supported to do so by the Center. However, in the second interview, she clarified that the Center’s internships could be, and are, a powerful and meaningful experience for interns. She left the Center early because she realized she was unprepared to graduate and began looking for long-term career options. Even though she was not dedicated to working in a sustainability field, she was highly driven to push her future employer to be more sustainable, something she attributed to her experiences at

the Center. Chelsea summarized her experience at the center as “informative, hopeful, and difficult at the same time.”

During the interview, I asked Chelsea, “Do you feel this is the most effective way for you to learn?” Chelsea responded:

Yes, and no. I feel like the Center does a really great job of again projecting the really big picture about what we want for the future, what we want for the DU campus or just for anyone leaving DU spreading sustainability environmentalism wherever they go. . . . I think they did a really great job of inspiring people to want that but when it came down to the nitty gritty [of how to do central team activities], it was kind of lacking. We were just kind of like sent out to do it, [and there] was not a whole . . . lot of resources on how to do it.

For her artifact, Chelsea submitted a proposal for the Crimson Compost program (see Figure 19 and Appendix U). Chelsea sought funding through DU’s Sustainability Committee, and the proposal was approved.

Figure 19

Chelsea's Artifact

Sustainability Committee Funding Application APPROVED

Sustainability Funding Application

Use this application to submit all funding requests. We ask that these are completed 2 weeks before the funds are needed, please submit all questions to suscomm@du.edu

Name *

Email *

Organization Name * DU Center for Sustainability

Type of Organization *

- Registered Student Organization
- Undergraduate Student
- University Department

What are the central goals and objectives of this project? * To enable access and encourage affordable composting for off-campus students and employees living in multiunit or rental buildings – increasing waste diversion rates. Additional revenue will then be used to fund student internships and programs in the Center for Sustainability.

What is the specific plan for this project? Any information regarding community partners and/or a timeline is beneficial to include * The project will focus on increasing the access to composting for students/faculty who live off-campus by enabling access to a close and secure compost toter. The compost toter will be placed at the south end of campus at the English Learning Center, a location that is easily accessible by those in nearby rentals and multiunit buildings such as Vista and UHouse – major off campus student housing options. The toter will be purchased from and contracted with Alpine Waste and serviced by Green for Life. Starting operations and initial sign-ups will be encouraged and advertised in Spring Quarter 2021 and through the summer before operating at full capacity Fall Quarter 2021. A 'Welcome Kit' including program background and information, a compost bucket with a sticker of acceptable compost materials, and toter location and lock-combo will also be provided to those who sign-up for the program. A business website ran by the Center for Sustainability will be created to deal with program operations such as point of

Bertha

Bertha grew up in Kentucky with a community-oriented mother who pushed her to volunteer and care for others. Learning to demonstrate care for her community informed her desire to demonstrate care for the environment also. For Bertha, ensuring the community around her has “the basic staples of Maslow’s pyramid of needs” was an essential and intrinsic aspect of her identity. When asked whether her motivation to apply to the Center interacted with her identity, she replied, “If you consider that . . . service and being community-oriented are cornerstones of my being, then yes.” Bertha also expanded on being a “ravenous student”:

I’ve always described myself as a student of the world. So, I feel like you could place me anywhere and I’d be very happy. And like could see the opportunity in almost any place or any position because there’s always opportunities to learn.

This curiosity to learn, regardless of setting, was felt in her educational and life journey.

Bertha earned her undergraduate degree in nonprofit administration. After graduating, she traveled the world working on different nonprofit contracts, which often involved working with refugees and empowering women. She also had a deep passion for cycling and, during her undergraduate years, worked at a nonprofit bike shop that helped give people transportation access through education and sold bikes at low prices. Given this background, the job listing for the Mobility Team at the Center drew her in.

Bertha was hired at the Center as the graduate lead of the Mobility Team, a position more focused on team organization than hands-on work. This did not stop

Bertha, who said, unlike the other graduate leads, she was very interested in getting her hands dirty and often volunteered on other teams. It was this experience, and the Center's focus on systems thinking, that opened her eyes to what sustainability can be. She became passionate about the work the Food Team did, namely addressing food insecurity, something that inspired her to work in a food pantry post-graduation. Although her position at the Center focused a lot on organizational and team-focusing efforts, she found the Center was "a place of endless amounts of the hands-on opportunities to develop." These types of opportunities prepared and inspired her to work in her position as the director of a food pantry in Leadville, Colorado.

In her statements, and the work I observed her carry out within the Leadville community, there was a clear throughline between her food-related experiences at the Center and how the pantry operates. How she ended up in Leadville underscored her statement about being a "student of the world." During the initial stages of the COVID-19 pandemic, she orchestrated a fundraiser and climbed mountains to raise money for natural disaster relief. This effort found her base-camped in Leadville, a conveniently located mountain town in Colorado at a staggering elevation of 10,152 feet (Colorado Tourism, n.d.). Bertha was "taken in" by a family who was connected to the St. George church where the food pantry was located. She was given the opportunity manage the pantry through this connection and jumped at the opportunity, leaving DU and going to work for the pantry. About her experience at the Center, Bertha stated, "It was eye opening with diverse opportunities for hands-on experience."

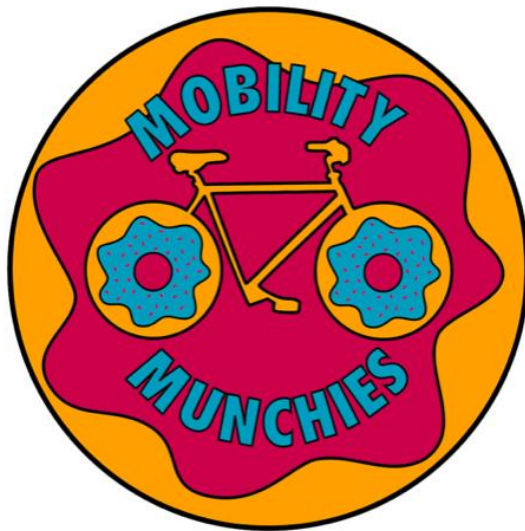
During the interview, I asked Bertha, “Do you feel this is the most effective way for you to learn?” Bertha responded:

Yes. I mean, I think ultimately, how many opportunities do we get nowadays to actually go out and do something? I feel like so much learning is theoretical and in the classroom. . . . The Center is one of the rare opportunities where the theory gets put to practice. . . . It’s just so cool, like all of the different minds that are coming together to solve problems. It, at least in my year there was, it was extremely inspiring.

For her artifact, Bertha submitted a graphic she made for one of the Mobility Team’s programs (see Figure 20 and Appendix V). Bertha had been known to teach graphic design workshops to new interns, even after leaving DU.

Figure 20

Bertha’s Artifact



Introduction to the Learning Discussed in This Chapter

Detailed descriptions of participants, their statements made during interviews, their actions I observed, and their artifacts of learning presented in this section.

Interpretation of these descriptions was guided by sociocultural learning, transformative learning, and the new green learning agenda framework (Kwuak & Casey, 2021).

The pedagogical philosophy of the Center is connected to concepts of sociocultural learning. Thus, this section discusses how the Center's operations and practices connect to sociocultural learning. If the intended curriculum is "what does the teacher plan or desire to happen" (Uhrmacher et al., 2016, p. 24), then the operational curriculum is an account of "what actually happened." The Center directors do not teach in a traditional sense and work behind the scenes; however, they hold weekly all-staff meetings and conduct one-on-one meetings with teams and individual interns, which means the intended curriculum of both the Center and the teams is mostly delivered through team activity. As such, like with the previous section, contours discovered through coding of the interviews, observations, and artifacts are discussed. With the goal of answering, "How do interns learn?," I focus more on the observations in this section.

First, I share a short description of the intended curriculum shared by participants, but most of the discussion in this chapter focuses on the operational curriculum. Data from interviews, observations, and artifacts are described and interpreted. Like with the official Center documents, emergent contours help to unify and explain participants' experiences. I interpret these contours using the interpretive frame and a combination of my perspective, sociocultural learning, and the new green learning agenda framework

(Kwuak & Casey, 2021). However, because there is a shift to the operational curriculum, observations play a larger role. Vignettes from observations are provided and include examples of specific contours. Figure 21 outlines how participant data are presented and discussed in this chapter. Before moving onto the intended curriculum, I cover two reader-guide posts. It is important to remember how sociocultural learning helps frame this chapter, including how this chapter answers the first two research questions.

Figure 21

Organization of Participant Learning According to Intended and Operational Curriculum

Curriculum Area	Sections	Contours Described
INTENDED CURRICULUM	N/A	<ul style="list-style-type: none"> • Teams as communities of practice with distinct curricular intentions
OPPERATIONAL CURRICULUM	Teams As Sites of Learning: How Teams Function	<ul style="list-style-type: none"> • Old-timers, new-timers, and passing knowledge • Collaboration across teams • Teaching and learning in the community • Associated vignettes with contours
	The Role of Identity On Teams	<ul style="list-style-type: none"> • Motivations • Agency • Goal Setting • Associated vignettes with contours

How Interns Learn and Sociocultural Learning as an Important Frame

Interns learn primarily within the context of CoP, meaning new interns are brought onto teams, distinct CoP, and learn from more experienced peers by participating in team activities (Lave & Wenger, 1991). Teams create their own meanings, history, projects, goals, and learning objectives (Wenger, 2008). Because directors give interns agency, and because the interns' learning is housed primarily within their teams, which are distinct CoP, intern learning centers on what they and their teams value (Lave & Wenger, 1991; Wenger, 2008), resulting in dynamically different experiences for interns. This agency also means teams largely dictate the intended and operational curriculum.

Interns are given agency over their own internship experiences. They are allowed to follow their passions and motivations as well as set their own goals. These elements are impacted by interns' own identities (NASEM, 2018). These identities and associated motivations often drive what interns focus on and learn during their internships; however, interns having the agency to follow their own passions can create tensions between interns and their teams. As members of CoP, interns' efforts and learning ideally would be tied to the betterment of their teams. Critically, within CoP, there will be tensions between individual wants and community needs (Wenger, 2008). These tensions can create issues on teams and lead to overall feeling of chaos, as participants discussed, because interns can do what calls to them.

The discussion of the intended and operational curriculum is organized around central concepts of sociocultural learning. When discussing teams and their intended curriculum, CoP serve as an important vantage point (Lave & Wenger, 1991). When

discussing the internal operational activities of teams, CoP and their core elements are foundational. However, when teams go into the DU community, activity settings serve as a helpful frame (Tharp et al., 2000). Finally, when exploring interns' individual experiences, the NASEM's (2018) work (i.e., their discussion of motivations and goal setting) is invoked. Also, Wenger's (2008) conception of member identity as related to community needs is weighed against participants' individual motivations and goals. The rest of this chapter explores how these concepts manifest in the Center's intended and operational curriculum.

Participants' Intended Curriculum

One focus of this study was to explore the intentionality in how directors construct an internship program resulting in transformative experiences for students. Because of how teams become their own CoP, however, interns generate and uphold the curricular intentions on those teams. One director's intentions is for interns to explore their passions and push programs into new areas. Thus, when more experienced interns create or expand programs, it is up to them to teach these new formations to new interns. The Sustainability Marketplace is a strong example of this. Cleo was intentional about constructing a new team, unifying several cornerstone programs with specific intentions. The curricular intentions of participants and teams bared out in the data and represent an important contour. It is the only intentions contour described and interpreted in this chapter. Figure 22 outlines the contours discussed in this section.

Figure 22

Participant Findings: Intended Curriculum

Curriculum Area	Sections	Contours Described
INTENDED CURRICULUM	N/A	<ul style="list-style-type: none">• Teams as communities of practice with distinct curricular intentions

Contour Description: Teams as CoP With Distinct Curricular Intentions

Team curriculum represents the essential aspects of a team’s programs, knowledge, and skills that incoming interns must master. Given that all participants are or were team leads, each mentioned some aspect of an intended curriculum they created or taught to incoming interns. Teams are their own CoP with their own histories, practices, associated knowledge and skills, and members (Lave & Wenger, 1991).

Each participant described specific programs or content they considered essential to the teams, often representing a historical account of a team’s practice. Bertha detailed the Mobility Team’s curriculum as learning “to make sure” historical programs “went off without a hitch and that they continue.” Included in these programs are managing the bike shop and organizing events like “Bike-to-Work Day.” Chelsea described the Waste Team’s focus as “working on student engagement, getting people involved [in] understanding what waste is, where it goes, [and] why it’s important to focus on it.” Both Chelsea and Erin discussed a cornerstone program of the Waste Team. Erin said Zero Waste Athletics is “a huge effort on the part of the Center” for which interns facilitate the sorting and weighing of waste during on-campus sports games. This involves

coordination “with the Ritchie Center, Sodexo, and custodial, who are all part of making and generating that waste” as well as spending time with DU community members and teaching them about waste-sorting policies and procedures.

Mabel described the purpose of REPS, a cornerstone program of the Energy Team, as “a way to tangibly reduce energy in student housing . . . for students that didn’t live on campus.” This program sees interns entering off-campus homes, “training” DU community members on “small things that would reduce [their] energy usage,” such as weather stripping, changing light bulbs, and properly adjusting the thermostat. The Energy Team focuses heavily on DU community education, including events like the “Energy Challenge,” which is an “opportunity for, particularly freshmen, who maybe haven’t even heard of the Center . . . or the Energy Team, to . . . chat with us.”

Participants also described how they shaped their teams’ practices, specifically moving from historical practices to new initiatives. Conscious of curricular efforts to center data and reporting, Bertha mentioned trying to focus the Mobility Team’s energy to collecting data and making it digestible for the DU community. Erin submitted an artifact detailing how she and her team intended for the Zero Waste Athletics program to move from Center staff doing most of the work to educating the DU community about how to measure and divert waste properly on their own. Similarly, Chelsea’s artifact outlined the “Crimson Compost” program, an entirely new effort “to enable access and encourage affordable composting for off-campus students and employees living in multiunit or rental buildings.” Chelsea said the Crimson Compost was something “the

executive director really wanted to start up,” and she was tasked with planning the practice for future interns because she would not be around when it came to fruition.

Both Cleo and R gained leadership roles on a new team, the Sustainability Marketplace. R was put in charge of a historical program housed within the Marketplace, the food pantry, and Cleo led the creation of the thrift store, also housed in the Marketplace. Given that the Marketplace houses the thrift store, gear garage, food pantry, and Crimson Compost, Cleo expressed intending for the team to focus on advancing “equity, affordability, and accessibility.” As result, both new interns and Marketplace patrons need to learn about issues such as food insecurity and the affordability of things like clothes, homewares, and camping gear. She gave a concrete example of how she hoped her team would teach new interns about “the difference between a food desert and food apartheid” as well as systemic causes of food insecurity.

R said, as the new leader of the food pantry, he hoped to “expand our user base” and attempt “to modernize our system substantially.” He “inherited” a “relatively disorganized” practice and process from the previous lead. Along with these efforts, he intended on “teaching current support staff and interns about the operations and DU as a food system,” including “more [of] the nitty-gritty and details” of the pantry. Finally, R commented that, in previous years, he never felt empowered, saying he “could be more involved” than he was, “but there weren’t really many opportunities for interns.” This included not being heard during team meetings. He hoped to create a team in which new interns feel they have the agency and autonomy to explore their own ideas.

Interpretation

Starting at the Center can be “acronym” and “program-name overload.” The Center and its teams have a rich history of programs, which can take years to master. No intern can facilitate and master every program, necessitating the need for teams. Even though the teams operate under the Center, participants spoke about how each team’s curriculum accounted for most interns’ time rather than the Center’s curriculum. As I discuss later, the interns do the bulk of their learning within the teams, which largely occurs through activities and participating in practice.

To use a nonformal learning analogy, the Center represents the HCC, a museum whose intended curriculum is largely about human relationships with the physical environment and how that environment has shaped society. There are, however, many smaller, hands-on exhibits allowing museum goers to dig into specific areas of history. Here, the curriculum may be slightly different but always anchored in those intentions. When teaching students about Colorado history, we only had time for four exhibits, meaning each school group was responsible for mastering a slightly different intended curriculum. The Center is the museum, and the teams are its interactive exhibits. The interns share in the social practice of exploring and mastering the content of those teams.

Again, using metaphor, the Center has a punk identity, meaning the Center is informal, built on agency, and structured loosely, or sometimes, not at all, which means teams can do mostly what they want, moving teams in radically new directions. Team members can follow their passions and dream up new meanings and projects for their

teams. Thus, the intended curriculum on a team can shift rapidly, demonstrating how the Center is perhaps too informal to function in the same way a museum does.

Broadly speaking, each team is its own CoP with its own programs, one in which newcomers are meant to integrate into (Lave & Wenger, 1991; Wenger, 2008). New interns are given legitimate peripheral participation, a process in which they participate on their teams, master knowledge and skills, and eventually gain the ability to participate in and lead their teams. This program can be historical; the process of moving from a new intern to a lead involves mastering and internalizing this history (Lave & Wenger, 1991). However, interns also can guide and evolve their teams' practices based on their identity and interests (Wenger, 2008).

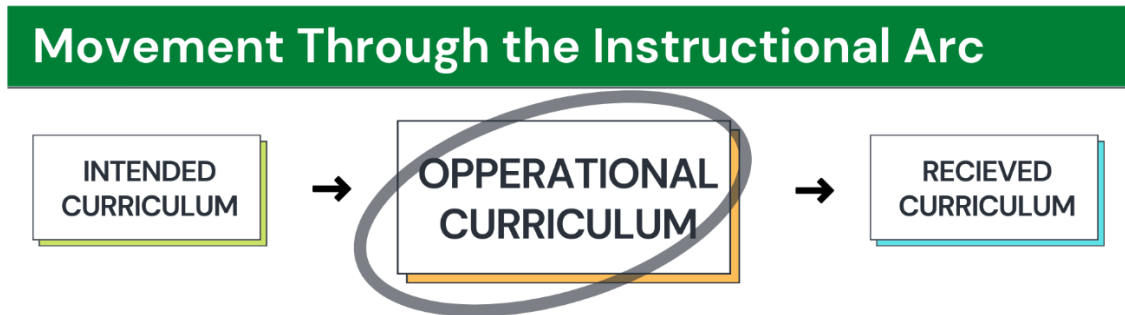
In all cases, each team has its own set of curricular intentions comprised of both historical and evolving practices. These intentions often relate to major skills within the new green learning agenda framework (Kwuak & Casey, 2021). For example, Zero Waste Athletics is in "environmental and ecosystem management," event planning connects to networking and communication, and destigmatizing food insecurity falls under "ability to analyze unequal systems of power" (Kwuak & Casey, 2021, p. 7). Teams' intended practices, skills, and knowledge can all fall under learning objectives common to TSE.

The rest of this chapter focuses on the Center's operational and received curriculum. Figure 23 represents this movement. Given that teams have their own curricular intentions, the next section explores how these intentions are operationalized in

team practice and activity. Before moving onto to the operational curriculum, I share a story about the punk world that connects to the Center’s operational curriculum.

Figure 23

Section of the Curricular Arc Under Discussion: Operational Curriculum



How to Play and Book a DIY

When I first started playing and booking DIY shows, I did not read a book, watch instructional videos, take a course, or engage in any other traditional methods of learning. I simply observed how my bandmate, who had more experience, navigated such ordeals. I would follow his lead, stepping in when a task seemed manageable. While in the practice, I watched his movements, saw how he handled situations, and asked questions if need be. When we weren't playing shows or setting something up, we might have conversations about the best tactics. Then, after enough shows, observations, and conversations, I felt confident to carry out the practices on my own. I knew exactly what to ask promoters or venue contacts, what to expect of load-in, how the run of show might go, where to set up merch, how to ask about sharing gear, and so on.

The first show we were supposed to play was at a house-venue in Laramie, Wyoming called "Babe Haus." Our guitarist, and the most experienced punk, was from Wyoming, and it became very clear that we would have an easier time driving north and playing a show put on by some of his friends. However, for reasons I won't get into, our journey across the border was halted instantly when he was pulled over by a police officer and spent a night in jail. Our first real show took place miraculously in our hometown of Fort Collins, Colorado, when the same guitarist received a random phone call from a friend who said a band dropped off of a show. I was elated. I didn't care who we were playing with, where it was, or how many people would be there.

This show was a whirlwind of learning. We packed my SUV with multiple amps and instruments and tore over to a random house located near the university. "Load-in" occurred by pulling into the driveway, without any direction, entering through the front door, and snaking around people and corners in the house. Our guitarist's friend who put us on the show led us to a living room where we could place and set-up our gear, acting as a pseudo stage. Some punks sat on a couch in the living room and asked us our name. They seemed pretty excited about it, saying something to the effect of, "That's DOPE!" After setting up, I moved awkwardly around the house, meeting new people and checking in to see if there was a "door person" to collect donations by the front door. There was not. I would liken the show more to a house party than an actual DIY show. We ended up playing to maybe 10 people, although the reaction was great. The other local band, who set up the show and who were incredibly drunk, also played, and people sang along to their songs and bantered during set breaks. It was not a good DIY show, yet I was elated.

I brought up Babe Haus because it became my archetype for what constitutes a good DIY house show. The person setting up the show is in frequent and consistent contact. They likely receive show inquiries over social media, which is also how they find local bands. They might then make fliers, post events on social media, and go through different channels to promote the show. They tell you how to load in, where you are playing, and what gear you need to share. There will be a door person taking donations. Once you enter the house, there will be a place to set up merchandise. There are two to three local bands that perform a “band-sandwich,” allowing the touring band to play in between bands that likely have more draw. The people running the show will not be drunk. Once the show ends, the touring band receives the donations from the show. Finally, the touring band is provided a place to stay. Almost none of this happened at our first show. However, I learned all of this by playing several shows at the Babe Haus. I then saw this behavior modeled consistently in the best and more renowned punk spaces. Although I have not been an intern at the Center, this is likely how they learn to work on their teams.

The Center’s Operational Curriculum: Team Practice, Activity, and Identity

The Center is a nonformal institution, so it is natural for students to have agency over their learning (Eshach, 2007). Such spaces give some operational control to students, meaning they often are responsible for delivering some part of the curriculum to themselves or to their peers. This practice is common in nonformal spaces such as museums where students may choose the exhibits they want to focus on or may excitedly share findings with peers, saying phrases like, “Look! Did you know . . .?”

Still, museums, especially those designed for teaching all age groups, are designed in ways that can highly structure students' experiences, consciously reigning in aspects of the operational experience. For example, when I worked at the HCC, facilitators introduced each exhibit, delivering a curriculum using practices and standards tied to the local school district. Then, students would be turned loose to highly constructed and designed exhibits leading them through specific experiences.

Conversely, in punk spaces, even highly structured spaces like Seventh Circle, there is little guidance for how community members learn and operate in these spaces. There are rules loosely enforced by volunteers; however, in most cases, the venue's prominent leaders will not be seen teaching or guiding people through punk history, politics, or practices. This information is exchanged during informal conversations with bandmates and friends, by the performers or by observing others.

I suspect the Center directors want their internships to operate more similarly to the museum and not the punk space. In this situation, interns and teams function in a very informal environment, similar to one in a punk space, or the types of spaces Lave and Wenger (1991) described, such as workspaces bonded by their ability to carry out specific practices. This distinction is important because the Center has "internships" and not "jobs." In this sense, there is a level of expectation that learning takes place, and students are not entirely expected to simply carry out a job with few mistakes, if any. The Center's punk identity is important here; participants remarked how this "grassroots" and "not super corporate" vibe is important for their experience. But, when the intention is placed on learning, questions surface about how effective the punk spirit is in ensuring all

students have consistent and meaningful experiences that are educative and not miseducative (Dewey, 1938). Participants provided insight into how almost all the operational burden is left to the teams, not to the directors, creating important tensions for some students.

This operational discussion explores how interns learn on their teams, the role of identity in their unique experiences, and how teams navigate campus spaces. In the discussion of teams, CoP help explain how teams function to onboard new interns and organize around shared enterprises (Lave & Wenger, 1991), whereas activity settings help explain how teams learn while carrying out work in the DU community (Tharp et al., 2000). This operational discussion is split into two major sections: (a) how teams function and (b) how identity impacts learning. Figure 24 outlines the contours discussed in this section.

Figure 24

Participant Findings: Operational Curriculum

Curriculum Area	Sections	Contours Described
OPERATIONAL CURRICULUM	Teams As Sites of Learning: How Teams Function	<ul style="list-style-type: none"> • Old-timers, new-timers, and passing knowledge • Collaboration across teams • Teaching and learning in the community • Associated vignettes with contours
	The Role of Identity On Teams	<ul style="list-style-type: none"> • Motivations • Agency • Goal Setting • Associated vignettes with contours

Teams as Sites of Learning: How Teams Function

The directors do not teach in any formal sense nor lay out intentions for teaching practice in the training documents. I asked participants how they thought they were intended to learn and how they learned in practice. Participants shared it was the directors' intention that they learn in "hands-on" and collaborative environments. Everyone discussed a similar phenomenon using different terms. Bertha, Cleo, and Mabel used terms like "hands on," "being thrown into the work," and other immersive learning strategies. R named "experiential learning." According to participants, students are thrust into teams and their work, learning through trial and error, and leaning on their peers. The learning that takes place is largely "project based," which bared out across the interviews, observations, and artifacts. I also asked participants to reflect on whether this style of learning fit their needs as learners.

Cleo contrasted what she felt was the Center's intended pedagogical philosophy with what happens in practice. She said:

I think there's an intention that's almost more classroom-ish—that like it's going to be lecture . . . like verbal lessons and a lot of instruction. And I don't think that that happens all that often, even when it's intended to. I think it's much more hands-on in actuality, and it's much more a kind of getting thrown into it sometimes which some people I think definitely can't handle.

The tension between the museum and punk examples becomes clear. The directors hope to have a highly formalized program with immersive informal learning opportunities, but

almost all learning occurs in informal spaces. Students are then responsible for teaching one another, which as Cleo pointed out, can be challenging.

When discussing how interns learn at the Center, participants either appreciated how teams functioned as a vessel for collaboration and practice-based learning or had an uneven experience. In all cases, participants discussed how new interns learn from more experienced peers, often by participating in team activities and programs. Teams are distinct CoP (Lave & Wenger, 1991) that carry out their practices and joint enterprises in varied and unique activity settings (Tharp et al., 2000). This section first explores how teams are CoP and then moves to the activities they carry out in the DU community.

Contour Description: Old Timers, Newcomers, and Passing Knowledge

In CoP, “old timers,” or more experienced community members, teach newcomers either directly or indirectly (Lave & Wenger, 1991), which can happen in the form of instruction on behalf of the old timer, or the newcomer picks up knowledge and practices by meaningfully taking part in community activity alongside the old timers (Lave & Wenger, 1991). These newcomers move across their trajectory toward becoming an old timer, someone who holds the greatest level of knowledge about practices, historical understanding, and the like (Wenger, 2008).

Bertha provided an overview of how team-based teaching and learning took place during her time at the Center, one reflecting this type of collaborative and “organic” learning. Bertha’s example is a glimpse of perhaps the “best-case” scenario for learning at the Center: teams full of diverse interns, working in harmony to complete projects:

One of the coolest things just about the Center was how it brought together all these different focuses into one room, into one table. So, while I might not have known that much about food access or waste . . . the fact that we are always working together and always looking for ways to kind of partner and combine our programs—it was just it was so wonderful. I don't know—it was just like constantly a new learning opportunity.

Bertha expanded on what made learning at the Center unique in a university setting:

Ultimately, how many opportunities do we get nowadays to actually go out and do something? I feel like so much learning is theoretical in the classroom . . . the Center is one of the rare opportunities where the theory gets put to practice . . . it's just so cool . . . all the different minds that are coming together to solve problems.

Bertha also said interns were not limited to learning about only what their own teams were accomplishing. She said she “got much more out of” her experience by volunteering on other teams, such as the food pantry and Zero Waste games. Bertha said volunteering to help other teams was not “necessarily required” but encouraged, and she was “so excited to learn about all these other initiatives.”

Chelsea provided a more “frank” analysis about how learning took place in the Center. Oftentimes, teaching fell squarely on the team leads' shoulders, which could be difficult with incoming staff. Chelsea described these challenges:

I guess teaching was one of the hardest things as being a team lead is because . . . especially if one of our teammates was a freshman . . . not really having a clue what the Center was right off the bat because they just came to college . . . it was

really hard, especially because they didn't have like the training workshop that we had really.

Onboarding new interns was a challenge for Chelsea and a central part of her role. She said she "was happy to be that person [new interns] could just feel comfortable with and be able to communicate with," but she found teaching them to be difficult because she was in the process of "still learning" herself. This was exasperated by the pandemic, a time Chelsea felt she "had no idea what the heck was going on." Chelsea reflected on what got her through these tough times:

It was nice to know that, as a lead, I was someone [new interns] could talk to . . . or even work with to get just an idea of what they may be able to do have purpose with the Center. And also, just working with . . . that inner community with my other team leads, was a really awesome experience.

Teaching and guiding new interns was both a difficult and a rewarding experience for Chelsea. Having the support of other leads on her team helped her navigate her leadership position.

When asked what Chelsea taught and learned, she said she tried to stick to Waste Team-related content:

I would say, as a lead on the Waste Team, I did a lot more teaching about waste, more so than . . . about the general goals of the Center, because, for me, my priority was the Waste Team. I kind of wish I was able to communicate and teach more about the Center. But the end of the day I just felt like I didn't have enough

time . . . nor would I be able to communicate that as efficiently as like the assistant director would be able.

Chelsea felt responsible for teaching new interns about Waste-specific skills, goals, and knowledge but did not feel comfortable educating them about the Center. Here, learning focused on the practices of the Waste Team and the institution around it.

Erin, like Chelsea, also focused teaching on Waste Team activities; however, Erin pointed out how the pandemic impacted what she taught interns. For Erin, teaching and learning on the Waste Team should revolve around learning about the team's essential programs:

One of the goals I set was to be a mentor to the people on my team as I had mentors in the past. . . . I definitely learned a lot from them. And so, I want to help impart some of that knowledge as much as I can. And especially having such like a technical role of like, "this is how a Zero Waste event is run . . . Here is your check list and here is how it's accomplished, or like one way that it can be accomplished. You are modeling after me as a leader." So yeah, I definitely saw myself stepping into that role.

Erin saw her role as modeling essential aspects of the Waste position to new interns to provide them with the essential tools they would need to carry out those tasks. Erin passed the knowledge she learned from previous leads to the next generation of interns. Unfortunately, Erin said this plan had not unfolded as expected because the pandemic brought Zero Waste Athletics to a halt.

Instead of imparting the essential information Erin thought she would need to impart, she shifted to prioritizing interns' interests. Erin described this as a "consequence of COVID-19":

. . . all the knowledge that I thought I was going to be able to bring, I'm suddenly not. And so, I've turned back to sort of like my collaborative . . ." What does this look like in the future for you?" As well as like, "What do I think it looks like in the future?"

Instead of focusing on the "checklists" and modeling Erin mentioned, she found her team, including its new interns, had to get creative about what the team's future would be. On the Waste Team, the curriculum, and teaching and learning, had become "fluid."

Interpretation. When I first started playing DIY shows, there was no formal onboarding. I was thrust headfirst into a show and quickly learned the meanings, practices, enterprises, and repertoires of a good DIY show. I went from a newcomer to a central contact in my part of Colorado, someone the younger punks looked up to and could learn from. This trajectory, from new punk to competent contact and promoter, happened through legitimate peripheral participation (Lave & Wenger, 1991). I started with minor roles, and by joining in practice and learning from more experienced punks in my community, became effective in my role. This learning process is common in informal spaces, such as in jobs and other life activities (Lave & Wenger, 1991; Wenger, 2008). Although the Center is in a formal educational institution, the interns learn in ways similar to how butchers or artisans do—through CoP.

Bertha described the Center as a place where a diverse group of students come together to share their skill and knowledge to solve problems. Bertha described mutual engagement, the process by which a community of people navigate the meanings of the actions in which they engage collectively (Wenger, 2008). Diversity makes mutual engagement possible because it leads to balancing ideas and perspectives, sharing knowledge, and negotiating (Wenger, 2008). Bertha also described the Center as a place where “theory gets put into practice,” the very stuff of CoP (Lave & Wenger, 1991). Center interns are committed to joint enterprises, or collective responses to sustainability issues on campus, and reify, or make concrete, practices and programs addressing those challenges (Wenger, 2008).

If teams at the Center are diverse groups of students committed to joint enterprises, then new interns must develop both an understanding of those enterprises and the practices to address them. Chelsea spoke about this, stating a lead’s role is to teach new interns what their roles are and how to navigate a purpose at the Center. Leads have the greatest level of accumulated knowledge on their teams, understanding the history of practices, programs, and meanings held by the teams.

New interns enter a team in a state of becoming, beginning as a newcomer with a trajectory toward becoming a team lead (Wenger, 2008). They can reach this trajectory by engaging in practice, learning from leads and more experienced peers, and negotiating meaning (Lave & Wenger, 1991; Wenger, 2008). In the case of new Waste Team interns, Chelsea said she helped them learn about waste issues and programs but rarely taught

them about the Center. For Chelsea, it sometimes proved difficult to onboard new interns because she did not feel she had reached the level of mastery she needed to help them.

Erin outlined what new Waste interns might learn and how they should do so. In the case of Zero Waste Athletics, Erin might provide a team artifact, such as a checklist of important procedures and information. Then interns were meant to “model” after her, learning through observation and participating in less difficult tasks. Using the checklist, interns could learn to navigate processes to accomplish a successful zero waste event. Erin also discussed how, due to the pandemic, her accumulation of knowledge was suddenly not helpful anymore, and her team had to negotiate new programs and purpose. She granted new interns the opportunity to shape the history of what it means to be on the Waste Team and what that team does. This speaks of the emergent nature of CoP being shaped by the evolving membership and surrounding conditions (Wenger, 2008).

Although the new green learning agenda framework does not provide a model for learning, it does account for what interns learn in their CoP (Kwaku & Casey, 2021). For example, interns on the Waste Team learn skills that fall under environmental and ecosystem management, or environmental knowledge and awareness (Kwaku & Casey, 2021). The next contour explores the role of collaboration on and across teams.

Contour Description: Collaboration On and Across Teams

Participants often highlighted collaboration but they also pointed out collaboration was not always actualized. Bertha painted a picture of true collaboration between teammates in which interns work together in harmony toward their project goals. She also mentioned reaching across teams was common and helpful. Although

participants felt collaboration was important for working and learning at the Center, each intern framed collaboration differently and not in the same terms Bertha did.

Collaboration is a key component of social communities in sociocultural learning (Lave & Wenger, 1991; Tharp et al., 2000; Wenger, 2008).

When asked how important collaboration was in her internship, Cleo placed her comments within the larger societal context and demands of the global Climate Crisis.

She responded:

Critical, I would say. I think that there's no way any of the work we can do is done by one person ever. And I think that also that's just the direction education and the ways humans interact should be heading. I think we are in a currently very individualistic society and global paradigm. . . . I think collaboration is an important aspect of collectivism that we should be heading towards because I at least personally don't think you can have a sustainable future with that individualist mindset. So, I think collaboration is not only good for making better work, but also, for making us better people.

The importance of collaboration at the Center was twofold for Cleo: (a) to improve the quality of interns' work and (b) to help them understand they are part of a collective.

Although no other participants framed collaboration within this larger context, all spoke of its importance, even if it did not always happen as successfully as it should.

Mabel said collaboration was "100% key" and was how her team got "all" their "best ideas and problems solved." Erin said, "While there is a lot of collaboration, a lot of projects also happen" individually. She said she did "bring ideas back" to her team to

“get feedback on them,” but she did not know if “all the learning takes place in as a collaborative space as maybe should happen, or what the directors designed for.”

However, Erin thought collaboration had improved this year, saying, “There is so much cross team communication that’s happening,” because of how “the Center is restructured this year.” Erin clarified that this restructuring necessitates interns “informing so many other people of the work” they do.

R was skeptical of whether the restructuring had led to more internal and cross-team collaboration. He explained there was some collaboration within the Sustainability Marketplace, but it still felt fragmented in the way it did when every program was a separate team. He highlighted “internal collaboration” but added:

Even though I’m one of the Market managers, I still very much feel like the pantry’s my thing, and that’s what I do. And then like other people will manage . . . the gear garage or the thrift store and that’s their thing. And while we all fall under the same umbrella and we collectively manage it. . . . I don’t know about the operations of the gear garage really.

R said the Marketplace still felt “siloeed” for leads who specialize in one of the programs; however, support staff and new interns learn how to run the various programs’ day-to-day operations. On cross-team collaboration, R said, “The Market Team, we don’t really collaborate with anybody else outside of our own team.” R admitted, when it comes to “putting on events and promotions,” there is “definitely collaboration” with the Programming Team.

A major element of collaboration in teams is the construction of artifacts. Erin mentioned even if team members create team artifacts on their own, they are to receive feedback from others, incorporating this feedback into artifact design. Each participant submitted an artifact, and each holds a different purpose for their teams' practices and enterprises. For example, Cleo submitted a document detailing the parts of the Sustainability Marketplace she designed. Her artifact represented how she designed the daily practices of her team intentionally, namely organizing items the team would sell. Erin, however, submitted a protocol document, outlining how Zero Waste Athletics should be carried out going forward.

Overall, both internal and cross-team collaboration appeared contextual for each participant. Some participants felt their teams collaborated often and effectively, both in learning skills and knowledge as well as in accomplishing projects. Others felt collaboration happened in some ways but could be improved in others.

Interpretation. In punk spaces, I have heard people shift from using the phrase “do-it-yourself” to “do-it-together.” DIY has been shorthand for rebelling against the dominant music industry—that punks could make and share whatever they wanted without the help of traditional venues or labels. But, in punk spaces, nothing is done “by yourself.” Even if someone is a prolific artist in a region, they likely have bandmates and play in spaces run by the community. DIT does not imply there is not a tension between the individual and collective in punk spaces but rather declares that punk does not happen without a collaborating community. This collaboration, however, is not always harmonious. At the museum, students were most engaged when they explored interactive

exhibits requiring collaboration. But I, or the students' home teacher, would step in if students were not working together. The DIT attitude of a collective working together and doing the best they can, even if there is tension, resonates at the Center.

Wenger (2008) spoke frequently about how there is always tension in social learning communities, and the push and pull between the individual and the collective is inherent in such spaces; however, learning together in social communities is valuable and demonstrates how nonformal spaces can be powerful because they are untethered from traditional teacher–student relationships. The directors strive for teams at the Center to collaborate constantly, both internally and externally. Collaboration may not always occur, but it is an undercurrent in what happens on and between teams.

Both Wenger (2008) and Tharp et al. (2000) provided interpretations of the important building blocks of social learning communities. Wenger described a community as a collection of mutually engaged members committed to a joint enterprise who share a repertoire and negotiate meaning in practice. Similarly, Tharp et al. (2000) discussed how, in activity settings, groups of students join in joint productive activity, work closely together and with the teacher when needed, and work to reach intersubjectivity. The goal for such a classroom is for these groups of students to work and learn in harmony. Erin referenced the directors' intentions, stating she thought this was roughly how they intended teams to collaborate, but this closeness only happened on specific occasions and in some contexts.

Wenger (2008) warned CoP do not imply harmony or constant collaboration, but they do set up mutual accountability and a shared history. Wenger (2008) stated the

upside of “shared histories of engagement” is that they can “become resources for negotiating meaning without the constant need to ‘compare notes’” (p. 84), which captures more accurately what happens in and between teams.

Team artifacts represent one such resource for negotiating meaning (Wenger, 2008). Protocols can outline a teams’ essential practices in relation to a joint enterprise and be useful in ensuring mutual accountability between team members as well as teaching new interns, especially documents like Erin’s and Mabel’s artifacts. Teams and individual interns reify these artifacts to make their practice more effective and tangible (Wenger, 2008). The reification of these artifacts can be a central aspect of an intern’s role, as was the case with Bertha who designed marketing materials for her team.

R spoke on how there is internal collaboration in the Marketplace, but this internal collaboration does not necessarily mean he knows how to carry out every program within the community. Instead, each member does their own part, committed to the larger joint enterprise, while trusting each other to make choices that honor the community’s shared history and mutual understandings. This division of knowledge and practice also illustrate how R mastered the practices of only the Food Pantry but not the rest of the programs on the Marketplace Team, given those programs represented different teams until this year.

Erin stated there are often programs that can be carried out by one person, but the important part is that that person returns to the team to receive feedback and input. Most participants agreed some level of collaboration is important, especially for the mission of sustainability. Cleo said collectivism is inherent to sustainability work and is what society should be moving toward. In the sociocultural sense, she referenced how CoP can be

global (Wenger, 2008), an interconnection of people committed to regenerating the ecological world. She also referenced a feminist planetary consciousness (Kwuak & Casey, 2021) in which people come together to tear down oppressive systems that perpetuate the Climate Crisis.

The rest of this section highlights two observation vignettes exemplifying both participants' statements and the concepts discussed.

Vignette Description: Cleo – Navigating Protocol During a Team Meeting

While observing Cleo leading the Sustainability Marketplace, it was possible to get a clear picture of how interns on the team learn and collaborate within their CoP. Cleo began the meeting by discussing various team protocols and what new interns should expect throughout the year. Cleo navigated the discussion by frontloading the meeting with information and then opening the floor for new interns to ask questions. During the meeting, some protocols were already set in stone; however, for others, the collective deliberated on how the Marketplace should operate moving forward.

Within these deliberations, new and old interns participated, showing how knowledge is passed from team leads to new interns and how new interns are given a voice in the Marketplace's direction. Interestingly, toward the end of the interaction, R mentioned he is still in contact with the previous food pantry lead who has been integral in how R has constructed the pantry. Here, knowledge was not only passed between current interns but also from interns who had left the Center. The vignette of Cleo follows:

The meeting begins with each intern giving a “high and low.” They describe what is going well for them and what is not. Once this is over, Cleo moves the meeting along and begins explaining the new protocols of the different departments in the Marketplace. She begins with the thrift store, saying, “We are going to start treating it like Buffalo Exchange, and people can only come in and donate once a quarter. We will be tracking this using peoples’ 87 numbers” (a badge and number given to students and staff at DU).

Cleo continues to explain thrift store protocols and points to her computer screen, showing the form everyone should use to check in students. The form tracks students by their ID number, whether they have a coupon, and how much they have donated. Cleo continues, “It’s a donation . . . they are lucky enough to get a coupon for a donation.” Cleo also says tracking this money and the donation will be important for quarterly reports and metrics. Cleo then describes how the coupons will work:

That’s kind of that, getting into more of the protocols—I know that was a lot of information at once. Eventgoers will get stamps once they go around to the various Center locations. Once they fill their book, they will get a coupon to use at the Marketplace. This will be recorded in the same place as the donations.

Cleo points at the screen and shows the team. Intern 1 asks a question about the stamp card, and several team members deliberate about how to handle the stamp card. They cannot reach a perfect protocol and decide to table it for a while.

Cleo explains some basic functions of the job, largely having to do with how to check people in. Once she finishes, she transitions to R who explains some of the food pantry protocol. R begins to explain various pantry protocols. He references materials he

created for other team members to do their jobs more effectively, saying, “Please make sure the shelves are looking good while you are here.” He adds, “Also, I will need a volunteer after this because I have tons of groceries in my car. That’s basically it.”

To support what R said, Cleo adds, “That’s a good note—I know that the thrift store can be the funnest part of the Marketplace, but the food pantry is the most important thing that we do. Make sure that is being looked over and checked out.”

R remembers he forgot to say something: “Oh ya and . . . ” and continues to explain the protocols. Intern 1 is confused about what R says and asks, “Wait, can you explain that to me?” R replies, “Ya! Of course,” and then explains the protocol again. Cleo, surprised by this information, says, “I think that is news to all of us.” The graduate fellow agrees, saying, “Yeah, that’s the first I’ve heard of it,” causing the group to deliberate about this food pantry policy. Finally, they land on what the protocol should be, and Cleo and R communicate a declarative and actionable policy.

The policy still is not clear to one of the interns, who asks about the protocol, although they do not have the language to articulate their thoughts. R responds, “I am just a little confused about what you’re asking.” Cleo, reassuring the intern, says, “We’ll definitely develop a very clear protocol sheet to have for everyone.” Cleo points at another intern and asks, “Do you want to explain more Crimson Compost protocol?” The intern gives an overview of the Crimson Compost but admits “all the protocols have not been worked out” and chuckles.

R interjects, “Oh I just thought of one more thing,” and explains more food pantry protocols (i.e., how to check people in). An intern who has not said anything asks

R to clarify how patrons should be checked into the food pantry. R gives a general overview but adds, "I am still working this out, I have been talking to [the previous pantry lead] who ran the pantry last year to work it out." R then explains the specifics of checking food in and out, a process involving measuring quantity and weight. R finishes and the room grows silent. Cleo asks, "Any other questions?" Nobody speaks up.

Interpretation. In a CoP, all community members are meant to be legitimate and active members, learning from one another, sharing ideas, and taking part in varying levels of participation (Lave & Wenger, 1991). This legitimate peripheral participation bared out in the observation of the Sustainability Marketplace meeting with Cleo. Although Cleo led the meeting, pushing it in specific directions, new interns were free to ask questions, voice their opinions and ideas, and help make major decisions. Like with Bertha's statements about her own team, each member was treated as a subject, given agency and a voice, regardless of their role or level of power. Many core components of CoP were in play.

Cleo began the meeting by frontloading information, explaining the historical practices of the team and its programs to new interns. Early in the meeting, new interns took a particularly peripheral role, and Cleo helped them negotiate meaning (Wenger, 2008). For example, Cleo discussed the coupon and stamp card systems, specific practices with associated artifacts and procedures the team had reified.

Similarly, R discussed food pantry policies and practices as well as materials the team created to improve their practice, aligning with the purpose of artifact reification in CoP (Wenger, 2008). As the meeting moved on, new interns interjected and asked

questions, even helping with deliberation about procedures and policies. These interns were granted true legitimacy, taking a more active role in practice and helping to shape the team and its programs (Lave & Wenger, 1991). Finally, R referenced the historical nature of the teams' practice, stating the previous lead's practices had endured and needed to be understood.

Vignette Description: R – Tending to the CRC Garden

I observed R helping during a clean-up of the Collegiate Recovery Center community garden he helped to create the year before. During the previous year, the Center had a Food and Gardens Team, the obvious program to create and maintain a community garden. However, the team was dissolved with the food pantry moving into the Sustainability Marketplace Team. The Programming Team created the clean-up activity and recruited volunteers from the rest of the Center's programs. R decided to help the team because the project had been meaningful to him before.

During the observation, R frequently asked the programming graduate fellow questions about the local flora and fauna. This fellow is mentioned frequently in the observation, so, for conciseness, I gave her the pseudonym Gale. Gale was also Cleo and R's graduate fellow on their previous team. When asked if it was common for team members to learn from graduate fellows, R replied, "No. I would say that in my experience, because I worked with three different grad leads directly, Gale is uniquely hands-on and involved." Throughout the observation, R studiously tended to various parts of the garden, especially at a specific point where he dedicated a great deal of time

scrubbing overgrowth off a stone walkway, demonstrating just how meaningful the project was to him. The observation follows here:

The Garden is located at the Collegiate Recovery Community, a cute early 20th century stucco building painted white. The building is off a side street near the Ritchie Center, the large stadium on the DU campus. In the back, there is a large garden and lawn with scattered picnic tables, benches, and garden beds. In the center of the garden is a meditation area. There is a small grey wood bench with white foam pads, a brick patio in a circular pattern, all surrounded by native Colorado plants. Leading up to the meditation spot is a sunken stone path. The air is crisp and chilly, but when the sun peaks over the Ritchie Center (located behind the CRC), warm rays of sunlight peak through. The garden beds, four wooden structures, are across the yard from the back door. Next to the beds, a handful of pumpkins are lined up, presumably grown in the yard.

An intern asks R if the plant he just pulled is a weed. He says he thinks so and starts to explain the distinction but is unsure. Gale comes over and gives a technical definition of what counts as a weed. R starts to rip overgrown dead plants off the wood fence and pauses to ask Gale if he should. She says he should and explains what type of plant it is and why it grows by climbing up the fence.

R and the other interns discuss how they do not care about having a big and nice home when they get older, just one filled with a bunch of cool plants. The three engage in small talk about a breakfast spot in Denver while they strip the weeds off the chain link and wood fences. Gale comes over to give them some direction and then walks away. I overhear Gale ask the other intern R is working with, "Were you at the Bridge Garden

earlier?” (another garden clean-up that occurred earlier in the day). The intern replies, “No I wasn’t.” Gale wonders out loud, “I wonder how it is going.”

The two interns go back to engaging in small talk. One asks the other where she is from. She says she is from a suburb of Denver. Next, R asks one of the interns what they did the night before. She says she watched Harry Potter, and they continue to discuss the night. R exclaims, “Whoa, that’s a lot of overgrowth cleared out,” and kicks an impressive pile of dead weeds. He continues clipping dead plants and talking to one of the interns.

Gale starts furiously scrubbing and uncovering the sunken stone walkway that has been covered by overgrowth since the spring. Once the clipping is complete, R and the interns make their way to a maroon metal bench toward the back of the yard that is covered in fruits and vegetables from the garden. R asks Gale if she has tilled the beds and she says she has. He picks up a tool and tills them for a few minutes.

Several people working in the garden congregate around a picnic table near the back door of the house. It is covered in bagels, coffee, and other accoutrements. They take a bit to stop, snack, and chat.

R wanders over to the pile of dead weeds, and there is an enormous plant. He asks Gale if they are huge chives. She says yes and she wants to give them a try even though she does not think they will be good. Based on the context of their conversation, it becomes clear that one of the interns with whom R was speaking is his roommate. As she leaves, they discuss going to a “Friend’s-Giving.”

R asks Gale what else they should do. “More weeding?” he asks. She says most of the day was spent weeding and the beds were full of plants at the beginning of the day. Gale comes over to me and asks me about where she should upload photos onto Microsoft Teams because there are three different spots for them. She chuckles, realizing she has interrupted some important work. I smile and tell her it is fine. I describe the correct protocol, and she wanders off.

Gale seemingly passes the torch to R, as he scrubs the overgrown stones. The person who runs the CRC starts to put bright purple planters back into the beds. After some time, once R finishes clearing out the overgrown stones, he drops the dead grass on the giant pile of plants. Gale comes out of the CRC building and starts to talk about how cats are really bad for the local ecology, despite owning one. R asks Gale, “Aren’t they really bad for the locals bird species?” Gale responds, “Yea, they’re the number one danger to local birds.”

Interpretation. This vignette could have been included in the discussion of activity settings, but it also pointed to the nature of community identification at the Center. R told me he had been on the Food and Gardens Team the previous year, a team Gale led, which meant he helped create the CRC garden with the rest of the team. Given that the maintenance of the garden was not his responsibility anymore, I asked him why he chose to help anyway. He said, “I think it is really important to me because it felt like that was something very hands-on that I was directly contributing both to the Center, to a sustainable cause, and just to the community in general.” He also has a close connection with Gale, who he said “is uniquely hands-on and involved” compared to other graduate

fellows. His choice to continue the garden project demonstrates an experience of CoP multi-membership, identification, and reconciliation to maintain one's identity across boundaries (Wenger, 2008).

The Center's focus on both cross-team collaboration and student choice results in interns often participating in other teams' activities. People belong to multiple CoP, some in the past or in the present, with varying levels of participation and membership status (Wenger, 2008). Along with this, membership in a CoP, and internalization of that community's practices and histories, becomes part of someone's identity (Wenger, 2008). This is especially the case if the individual is engaged actively and has their ideas heard and respected (Wenger, 2008).

R still identified with the Food and Gardens Team, along with Gale, and chose to exercise some level of peripheral involvement with the garden project because it was personally meaningful. He reconciled this dual-team involvement by recognizing the importance of the garden project, both to himself and to the DU community. R's identification and care toward the project was evident in how he tended to the garden, including scrubbing the stone walkway, and in how he spoke about the project afterward. He had been a part of that team's history and wanted to stay in touch with this history.

There are also examples of legitimate peripheral participation in this vignette. Even though R could handle the manual labor, he checked in with Gale to see if he had done things correctly. Not only did Gale help guide him through how to weed effectively, but she also gave him tidbits of information about the local flora and fauna, which came

about naturally as part of the work and demonstrated how knowledge passed from Gale, a gardening old timer, to R, a relative newcomer.

The information exchanged is fundamentally tied to the first level of the new green learning agenda framework, focused on basic and practical environmental skills (Kwuak & Casey, 2021). However, the garden project demonstrates a powerful and transformative project (Kwuak & Casey, 2021). The Center created a community garden, which sustainably produces food, for a DU recovery center. Students battling addiction are not only given a nice garden space in which to relax or meditate but also are provided with local produce. R recognized the importance of this project and chose to help because he understood the potential transformative power of the project for the local community.

Although the last three descriptions focused on teams and their connections to CoP, the next contour describes how another important sociocultural concept, activity setting (Tharp et al., 2000), is central for learning at the Center. Teams are CoP that conduct activities in various DU community settings. These settings are important because their makeup alters the type of learning taking place and who is involved, and these settings can offer distinct experiences from what an intern might have during a team meeting or other internal team activity.

Contour Description: Teaching and Learning in the DU Community

Almost all the work teams do is community facing. Center teams conduct their programs in the DU community, with a focus on educating other students, staff, and faculty. Team activity does not occur in isolation from the DU community. Even if team activity involves working together on a project in the Center or the Marketplace, the

result of the project will center on integrating and interacting with other DU community members. As teams refine their practices and programs, they use activity settings in the community to test ideas and engage with non-Center staff. They then can bring the findings of these experiences to their team meetings and further refine and evaluate their programs. Within these community outreach opportunities, new interns also learn more about their teams' and the Center's programs.

I observed this process in Cleo's team meeting. The work of the Marketplace is patron facing; thus, the team explored ways to improve their programs to better meet patrons' needs and to smooth out the Marketplace's processes. During the protocol discussions, new interns learned about how the Marketplace functions and why it has the policies and projects it does. The team also wanted to develop ways to leverage the Thrift Store to educate the community about the Center's other program. One way was to increase signage. Cleo admitted the thrift store "tends to be well known and well liked . . . some of the other resources at the Marketplace go a little under the radar." In response, Cleo said, "[We] actually want to make more inclusive signage to show that we're not just a thrift store. We are the thrift store, the bookstore, the food pantry, the garage, the bike shop, and Crimson Compost."

Besides the service-focused Bike Shop and Marketplace, most team activities center on community outreach. Several participants highlighted the importance of outreach in their programs. Erin spoke to this effort when she described the purpose of an event titled "Sustain-a-Ween":

The Center has previously done at least one large event every quarter to get the entire student body and the DU community—so not just the students . . . involved in sustainability and get knowledge out about the programs that we do and the values that we’re trying to promote on our campus and in our community spaces. So, Sustain-a-Ween was that event for fall quarter where we just tried to get a very large effort out to promote sustainability. Encourage those values, educating . . . just getting knowledge, the word out there, encouraging participation.

Erin’s team led a waste-sorting game at this year’s Sustain-a-Ween, an observation I describe later.

In Erin’s artifact, an outline for the future of Zero Waste Athletics, a huge focus of the program was on community outreach and educating the DU community about zero waste efforts, which includes giving the community the tools they need to have their own zero waste program within their buildings, clubs, and programs. However, community engagement has not always been a smooth process for the Waste Team. Chelsea said, for her Waste Team, one of the “biggest problems was engagement with students.”

Although Chelsea recognized outreach as an important part of her team’s programs, she found this outreach challenging. Part of this challenge was that not enough resources were provided to her team so they could engage the DU community effectively. Chelsea chalked up this challenge to the specific programs she was a part of:

You know we weren’t like the Energy Team. We weren’t like the Bike Team who . . . went to people’s houses to fix their bikes. Or the Food Team that dealt with

people with food insecurity. We dug through trash. And so, [the directors] would challenge us be like, “Oh yeah get student engagement, you know this is how you get people involved in with sustainability.” But then we [would] try to think of ways to do that. We were just so stuck. We knew we wanted to engage with people; we knew we wanted to spread this type . . . of sustainability, but we didn’t know how to.

Chelsea felt there was mandate from the directors to engage the DU community but not “a whole lot of resources on how to do it.” Chelsea indicated how teams engage the DU community varies from team to team. How-to resources are not provided, and teams need to be creative.

Following Chelsea’s comments about how it is easier to engage students on other teams than on the Waste Team, both Mabel and Bertha discussed their outreach successes on their teams. On both teams, activities take place in unique settings, leading to development of unique skills for both interns and DU community members. Mabel described how the REPS works:

The Denver DU area is not particularly known for the most energy-efficient homes. And they’d seen a lot of years, a lot of wear and tear, so that the program was created to just do small fixes. You know, we’re not going to be installing a ton of insulation and . . . putting in a double pane windows and things. That’s above what we can do, but we would go in and do things like weather stripping along the windows and the doors and putting some . . . tiny insulation around

. . . and training you on how to have your thermostat adjusted properly . . . and changing out light bulbs.

Mabel also added that DU community members get a free Illegal Pete's burrito by participating. According to Mabel, this, along with improving their home's energy efficiency, is a "win, win, win" and "one of the best" Energy programs.

During the early days of the pandemic, many of the Center's programs were put on hold, greatly impacting the Bike Shop, whose programs work with DU community members. These programs include repairing student and staff bikes, free of charge, and teaching community members how to fix their bikes or how to take advantage of alternative forms of transportation. Bertha spoke on how the Mobility Team adapted to the challenge of continuing community outreach without the shop open. She said the team "even did like phone banking once" and "look[ed] at local legislature and tr[ie]d to share information about that to get more bike lanes, or more buses." She said it was "easy to get trapped . . . in the DU bubble," and she hoped to see the Center "expand a little bit more beyond the DU bubble." Cleo spoke on how she often tried to get DU community members out of their bubbles.

Cleo, who also worked in admissions, says she "sell[s] DU often." She said DU "loves to talk about sustainability," and she used this commitment to engage potential DU students and families about the sustainability work the campus and the Center do. Cleo also mentioned an instance in the previous year in which the assistant director had her go into a DU classroom to teach students about food insecurity. This story is discussed further in this section; however, Cleo framed the experience as deeply important for the

DU community. She said, “I don’t know who would have done that had the Center not existed . . . with students who could talk to other students about these issues.” Cleo concluded the story, saying, “DU would look a lot different without the Center,” and its efforts to engage the DU community. This experience represents a unique activity setting in which Cleo taught DU students about food insecurity while making them aware of the Center’s food pantry.

Interpretation. In my experience, activity is the cornerstone of nonformal learning. In the punk world, each new show, in each new venue and each new place, resulted in me learning something new. Booking and running a local fest taught me something new. Running live sound at a fest, even though most of my formal audio experience occurred in a studio, taught me something new. These are extremely informal examples, but at the HCC, exhibits represent highly formalized activities that guide learners through specific knowledge and skills. In informal and nonformal spaces, the specifics of learning will change radically based on where and when it is taking place and who is involved (Tharp et al., 2000). Another reason the Center feels punk to me is its focus on getting into the community, getting into peoples’ faces, so to speak, and exposing them to new ideas. The Center’s teams are effective because they carry out programs in specific spaces.

At the Center, teams are CoP that carry out programs through activity settings in the DU community. This split between teams and programs contrasts the less formalized aspects with the formalized aspects of the Center. Teams become CoP naturally, and interns learn through legitimate peripheral participation; however, the purpose of the

teams, from the directors' perspective, is not education but rather grouping students so they can "get shit done," but interns are meant to learn when carrying out an activity, such as programs, in settings like the Campus Green. Interns also are meant to teach the DU community in these activity settings.

Lave and Wenger (1991) stated their theories of CoP center on what happens in informal learning spaces with informal processes for learning. The categorization of CoP is more of an analytical tool than a formalized process a teacher might use (Wenger, 2008). Tharp et al. (2000), on the other hand, discussed activity setting as a classroom practice, which aligns with how interns learn and teach the DU community when conducting their programs out in the world. Although CoP are not necessarily tied to a geographical location, formalizing place and setting are central components of the activity setting and at the Center.

Interns and their teams use activity settings to accomplish goals and teach each other. Because the Center is an informal institution, the setting of activities varies based on team, goal, and project. Tharp et al. (2000) framed activity setting in journalistic terms (i.e., the "who," "what," "when," "where," and "why") of the learning activity.

The four observations of this study involved vastly different types of activities, with different interns at different locations, who focused on accomplishing different tasks. These tasks represent joint productive activity, or "when people work together toward a common objective or to produce something together" (Tharp et al., 2000, p. 57). Tharp et al. (2000) stated, through joint productive activity, two rare but powerful educational phenomena can occur: (a) people put aside individualistic goals and motives

to coalesce around common motives and (b) subject–subject relationships are created. Both interns and the DU community also learn more about the practices and language codes specific to sustainability (Lave & Wenger, 1991; Tharp et al., 2000).

This activity is common to the Center. Throughout data collection, participants mentioned countless activities and projects such as Zero Waste Athletics, the food pantry, the Sustainability Marketplace, phone banking, conducting research, holding community outreach events, gardening, and so on. Although interns have individual goals, their teams generally work toward central projects, and all share common motives. If a team plans an event like Sustain-a-Ween, the event is not successful unless everyone works together, doing their part, and stays with the project until the end, which might mean interns put aside their interests or goals to help their team complete a shared project.

Again, the “why,” or content of these activities, is tied to the acquisition of skills and knowledge common to the sustainability field (Kwuak & Casey, 2021). If interns teach the DU community about how to sort waste, then interns also must know how to sort waste. This focus on conducting activities in the community serves as a vehicle for interns to learn green practical skills as well as higher level skills such as collaboration, critical thinking, and analyzing unequal systems of power (Kwuak & Casey, 2021). The next two vignettes demonstrate how teams use activity settings to both learn important skills and teach the DU community.

Vignette Description: Cleo – Teaching DU Students About Food Insecurity

Cleo provided an example of how the Center tried to put teaching the DU community into practice. She shared this account of what happened and why it mattered:

A business professor reached out to the assistant director last year, while I was on the Food Team, about how she was teaching a class to some marketing students. I think they were talking about food insecurity. One of the students . . . [said] something along the lines of like, “Why don’t poor people just work an extra job instead of going to a food pantry.” And she immediately emailed the assistant director—it was like, “I don’t even know where to begin this. Like can you guys come in?” [The professor] was like, “Maybe if they hear from other students, it’ll help them understand the problematic way that that was said, and the issues behind that.” So, the assistant director gave us the option and me and [Gale] said, “We’ll do it. We want to come talk to these kids.” So, we put together a presentation on destigmatization, which we already had been working on . . . it’s kind of an ongoing campaign that . . . became part of when we went into this business class. . . . We [had] this huge presentation and it was like very baffling to see that these kids, like, were just so disconnected. [Gale] and I used our own student schedules, like . . . what we were being paid and our expenses . . . we made charts of it anonymously. . . . But, we each have that, just showing . . . [with] our normal schedule . . . we don’t have enough money . . . that we use the food pantry sometimes to supplement basically. . . . And it was so funny to watch them be like: [Gale] and I are both working like 30 hours a week and paying all our own bills. And for them to be, “That’s unrealistic” . . . that’s not an unrealistic, [that’s] literally our lives. So, I think that that was just a really important component because by the end of that we could tell that like we had

made a breakthrough. And the professor thanked us and emailed a few days later that from what she could see that the students had kind of started to talk about it better. And the whole presentation was on . . . destigmatization, and equity issues and systemic issues, [and] why some people need to be using the supplementary resources. So, I think that like, I don't know who would have done that had the Center not existed with students who could talk to other students about these issues.

Cleo provided a glimpse into the various ways the Center tries to engage the DU community. In this example, Cleo and Gale entered a marketing classroom to supplement the curriculum with information on food insecurity and social sustainability. Cleo made the important point that, at the Center, students sometimes can better engage other students on social sustainability issues. This type of learning experience was unique to the Center's activities, and it was the type of experience Cleo felt the university could not offer otherwise. Also, Cleo and Gale gained tangible skills in teaching and communicating social sustainability ideas to a larger community via firsthand experience.

Interpretation. This vignette is a strong example of how teams leverage activity settings to educate the DU community. Using Tharp et al.'s (2000) journalistic analogy, the "who" is Cleo and Gale along with a classroom of undergraduate students. The "what" is teaching a class about food insecurity. The "when and where" are the temporal and physical locations of the class. Finally, the "why" is expanding students' understanding of social sustainability issues. Included in this "why" is helping students to be more empathetic and to analyze unequal power systems (Kwauk & Casey, 2021). By

participating in this activity setting, Cleo and Gale must not only develop in-depth knowledge of social sustainability issues but the ability to teach and facilitate dialogue. Also, by altering the “who” of the activity from the professor to Center interns, the activity becomes more effective.

Within an educational context like a classroom, it may be important to disrupt typical social sorting practices, such as pairing students with different peers with whom they may not already be friends (Tharp et al., 2000). This practice can be a powerful tool because it can expose students to new ideas, or a peer with whom they have not worked may have useful skills or knowledge to teach them (Tharp et al., 2000). This practice might also help to disrupt social sorting patterns that occur outside the classroom (Tharp et al., 2000).

In this example, the professor struggled to break through to students, but intentionally grouping the students with Cleo and Gale made it easier and more successful to discuss food insecurity issues. Because Cleo and Gale are in some ways peers with the undergraduate students, they could leverage this status to disrupt students’ dominant conceptions around food insecurity issues, demonstrating how power relationships in activity settings can be leveraged to result in specific outcomes (Tharp et al., 2000). Because Cleo and Gale were on level footing with students in the class, the students were more receptive to their ideas about food insecurity.

Vignette Description: Erin – “Sustain-a-Ween” and Sorting Waste

Erin said the Center usually has a large, quarterly event to get “the entire student body and the DU community . . . involved in sustainability and get knowledge about the

programs we do.” Part of this effort is to highlight the “values” the Center, in Erin’s words, is “trying promote on our campus and in our community spaces.” Before the observation of Erin’s team, I wandered around the campus to see what the teams were up to. The Center’s tables dotted the campus green and Anderson Academic Commons, both located roughly in the center of the DU campus. Each team had their own table set, educating the DU community about sustainability and their programs.

Each team also drove patrons to other tables using a “punch card.” I asked Cleo about the punch card in the follow-up interview because discussion around them made up a good portion of the Marketplace meeting I attended. Cleo explained:

The Center punch cards were a project started by the Programming Team. But it very much involves the Marketplace for kind of [what is] considered the payout of the punch cards. So, the idea there is that . . . the DU community gets one of these cards that have six different punches, and then they can get those spots punched out by attending . . . either: Center events or visiting different locations like the bike shop or anything to do with the Center for Sustainability. And then once they have gotten six punches on the card, they can cash it out either at the bike shop, the thrift store, or the gear garage. So, it’s very much a Marketplace thing.

Cleo clarified when someone redeems a completed card, they can get things like a “free tune up at the bike shop” or a “\$5.00 coupon to the thrift store.” She said the punch cards also are a “new project to promote the Center for Sustainability as a whole and to get people to see that we are all connected.”

Erin's observation took place at the Waste Team tabling event, which was part of Sustain-a-Ween. The purpose of the event was twofold: (a) to teach DU community members about proper waste-sorting practices defined by Denver County and (b) to distribute punch cards and teach patrons about the Center's programs. When I arrived, a group of new interns were staffing the table, which housed literature on the Center and waste sorting. Erin was leading the waste sorting game, which involved asking players to quickly sort a stack of waste into their respective cans (i.e., waste, recycling, compost). Erin then scored each player based on how well they sorted their waste. She used the opportunity to teach the players about Denver's guidelines, a common occurrence because players frequently made mistakes.

During the observation, Erin did little in the way of delegation to new interns, who mostly were left in control of their various positions. The Waste Team members were careful to ensure players received information on all the Center's programs, and Erin frequently probed players about where they were from and used this information to inform how she spoke about Denver's policies. She also jumped at opportunities to go into depth about DU's zero waste efforts. This vignette is from the observation:

The event is in the center of the campus green, a large and picturesque quad in a central part of campus. The Waste Team's tables line a purple and red brick walkway that cuts the green in half. Across from the waste table is a pumpkin carving contest held by a different student organization, DUPB. The air is brisk, although the sun has broken through the clouds, making the sky deep blue and expansive. Music pulses through the

green from a speaker set up at DUPB's table. The Waste Team has competing music blasting through a small cellphone speaker.

The sunlight bounces off surfaces and buildings in the green. The buildings are a mix of new and old: traditional cottage brick buildings with ornate features; ultra-modern structures of glass and mixed materials gleaming in the sun (copper, a staple color of DU's); and Sturm, a brutal, monolithic, square structure towering over the other buildings. A tour group streams around the green, curiously shifting their focus to the event. The whole affair is bustling—a mix of students, friends, and student organizations.

As I approach and get set up, I hear Erin teaching some students about sorting waste after they complete the game. Erin jokes, "You cannot recycle crushed cans. If you see a frat boy crushing a can on their head, stop them!" (Everyone laughs). She continues, "A plastic container like this can go into the recycling; however, if it has food stuff in it, it cannot be recycled." Erin asks each student which piece of trash was whose and scores each person. Once completed, she brings them to a large leader board near the main path through the campus green. She adds contestants to the board based on their trash sorting score. The board is handled by another intern, and Erin quickly resets the sorting game and runs over to the welcome table.

Another intern turns to me and says, "So far I have made it to every event today, and they are all wonderful." I smile and say, "That's good!" The action stops for a bit, and all the interns get together and discuss the day. I hear an intern say, "So many people have come up today and asked me how to get involved." The team discusses various initiatives to make it easier to dispose of waste properly on campus. An intern

says, "I wish more dudes on campus cared about sorting waste." Erin quickly retorts "Some dude's care! The dudes in my environmental program do care about it." The two go on to discuss sorting waste in their own lives, and Erin expresses guilt for using a Starbucks cup and not a reusable one.

Someone is talking to the interns at the welcome table and asks Erin how to compost his apple. They engage in some playful banter, and then he asks if he can play the sorting game. Erin enthusiastically replies, "Of course!" She explains the rules to him and then drags him over to the game area. They continue to discuss the rules, and he runs over to the cans to begin sorting. Erin takes out the waste and explains where it belongs. She is playful with the participant as if she knows him. She then explains some specifics on how the campus composts. There is a lengthy back and forth between the two in which the player asks Erin questions, and she answers. Finally, another intern shows up and stops the conversation so the participant can be added to the board.

New participants line up, and Erin runs over to help them. Another intern comes over and asks Erin if she needs help timing. She gleefully says yes. They discuss the game, and Erin says the game is based on Denver's waste sorting rules. Participants laugh and say they are from New York. Erin laughs and tries to assure them, "Hopefully some of the rules are the same!" They complete the sorting game, and another back-and-forth about how the players sort waste, what the rules are, and general knowledge ensues. Participants are led to the big board to be scored. Erin frantically resets the game and tells a passer-by they cannot throw actual trash in the cans used for the game.

Two students walk up to the welcome table, and the team explains the rules to the game. The students do not want to engage in the game but take some materials about the Center. Once they leave, the team discusses another DU student organization's (DUPB) pumpkin carving event across from the sorting game. The interns discuss how that organization gets a large amount of funding, said in a somewhat disparaging manner. One intern says, "be respectful," and the team shifts topics. Erin says it was good that the event was across from DUPB's event because it brought traction to the Center.

At this point, another student comes up and is interested in the game. It seems she knew the intern operating the board, and that intern takes over for Erin. At some point, the event seems like it is running by itself, and Erin jokes to the newer interns, "I'm delegating!" They all laugh. It turns out Erin also knew the last student, and they seem to play club sports together because she asks Erin if she is coming to practice today. Erin replies she is and then brings the student over to get a prize bag. The player thanks everyone for the experience and says she got some stuff from the thrift store event. One of the interns tells her about the different things the Center does, and the student seems interested in learning more about the events and the Center.

The team discussed that they should all race, but that Erin cannot play because she would beat them all. The action slowed down, and the team started to just discuss their lives. At some point, they talked about baking. Erin and another intern jumped in excitedly, "Oreos are vegan!"

Interpretation. This is another example of an activity setting used by a team at the Center for teaching and learning. What is unique about this activity setting is that it

was part of a larger event, Sustain-a-Ween, which takes a systems approach to educating the DU community. Each team held their own activity at the event and intentionally drove DU community members to other teams' locations, facilitated using punch cards to incentivize DU community members to check out each teams' events in exchange for a free item from the Thrift Store. This strategy demonstrates the teams' foci on systems problem solving as well as how the Sustain-a-Ween event helps DU community members understand sustainability as an interconnected systems issue (Kwuak & Casey, 2021).

Internally, on the Waste Team, members take part in various aspects of activity setting (Tharp et al., 2000). The team is committed to joint productive activity, namely operating the waste sorting game and informing the DU community about the Center. Both new interns and Erin worked to reach mutual understanding with participants and curious onlookers, sharing knowledge about Denver's waste sorting policies and related tools and language. Team members navigated power relationships, taking ownership of different aspects of the event, with Erin having the largest responsibility. Finally, the "when and where" are the campus green during the Sustain-a-Ween event.

The hope is that DU community members feel empowered to try effective recycling and composting. The Waste Team leveraged both the peer status of interns and DU students as well as the informal location and activity, enabling the Waste Team to teach students in ways they may not experience in the classroom. Because the activity takes place outside, any person can walk up and join the game, which means diverse of perspectives are exchanged and engaged.

By DU community members engaging in the activity, they not only learn essential sustainability skills (Kwuak & Casey, 2021), but Erin also gets opportunities to develop her abilities to teach and facilitate learning. Further, Erin gets to practice team delegation, something she joked about during the observation because of her “hands-off” approach. She reflected on this approach to delegation in the interview as a skill she wants to develop further.

This activity setting served as a test site for Erin, giving her a glimpse into the interns’ abilities and informing how she treats future events and activities. In the second interview, she said, “It was definitely also interesting for me to see like, ‘Oh, who was stepping into which role and who’s stepping up to like, take on these things?’” Another upside of the activity was that it prompted the Waste Team to discuss and reflect on DU’s waste diversion practices. During the observation, the team discussed these policies and thought about practices they could take on. By taking part in the activity, the team was inspired to shape their practices and joint enterprises based on their experiences of the activity (Wenger, 2008).

Summary of Teams as Sites of Learning

This study’s second research question asked how interns learn at the Center. Participants provided a glimpse into how this learning takes place. The directors do not teach in any formal sense, and teaching and learning are left up to the teams. Teams at the Center are distinct CoP, with their own histories, enterprises, practices, artifacts, and members (Lave & Wenger, 1991; Wenger, 2008). New interns learn to navigate and master these programs and protocols through legitimate peripheral participation, a

process by which they engage with team activities at a lower level of participation, learning from team leads (Lave & Wenger, 1991). During this time, leads model behavior, explain policies, and grant new interns agency, allowing them a role in shaping future team policy. Over time, new interns get more comfortable with their team's programs and protocols and begin to take more central roles on their respective teams.

Teams are collaborative spaces, where interns are mutually engaged, share goals and projects, and are provided a voice in the team's direction; however, collaboration does not always happen in practice. Some participants said that certain projects are achieved more easily by a single person and that people do not communicate as effectively as they should. Tensions between the individual and collective are inherent in CoP, and an important component of team collaboration is for interns to check in and provide feedback to each other while working independently (Wenger, 2008).

By operating programs in the DU community, teams use activity settings (Tharp et al., 2000) to onboard new interns and teach other students, staff, and faculty about sustainability content and knowledge. During these activity settings, interns gain greater knowledge about their programs while developing important skills. For example, Cleo and Erin developed teaching and facilitation skills while educating DU peers. At the CRC garden, R gained knowledge about the local flora and fauna by taking part in joint productive activity with his previous graduate fellow (Tharp et al., 2000).

Teams also use these activities to workshop ideas and adjust team practices and programs based on how the activities go over with the community, which was observed during both the observation of Cleo's team meeting and during the waste sorting event

when the team began to think about how to address DU's waste diversion policies.

Within the context of teams, and in the DU community, interns learn to master skills and capacities found within the new green learning agenda framework, such as environmental knowledge and awareness, collaboration and leadership, and the ability to analyze unequal systems of power (Kwuak & Casey, 2021).

The discussion on the operational curriculum focused on both how teams act as sites of learning and the role identity plays on these teams. New interns are onboarded to their team's practices and knowledge by taking part in team activity. Thus, over time, these interns internalize this knowledge, and are able to teach the next generation the same, or somewhat evolved knowledge and practice. Identity shapes how interns interact with this learning, specifically in which projects they take on and the learning goals that they set. The rest of the operational section focuses on identity as an important driver for learning. On each team, this can result in tensions between the individual and collective, but most participants reflected that their identities were an asset to each team's success.

The Role of Identity on Teams

Throughout the interviews, participants discussed how their identities were both valued by the directors and intended to play a role during participants' internships. Participants stated the directors were intentional about how they select the students who make up the Center and where those students are placed within the programs. Chelsea said, "In regard to making teams, I think they definitely look for a wide variety of people from different backgrounds, including majors." The directors also intend for interns to explore their passions and push boundaries, and they are granted agency to do so. Erin

commented, by getting to know more about interns' identities, the directors "channeled that in to figuring out ways that identity could be of use at the Center or could spark a potential interest."

Several participants felt that these intentions were operationalized and that identity and agency were significant drivers in their internships. However, some participants were hired into specific leadership opportunities and not granted the same level of agency as participants hired as general staff. Participants also provided insight into what their motivations were, where they came from, and how they guided their work on a day-to-day basis.

Whole-person identity is a central and important concept within CoP (Lave & Wenger, 1991). Wenger (2008) defined identity as "negotiating the meanings of our experience of membership in social communities" (p. 145). Negotiating meaning impacts how CoP members engage with the communities' practices, histories, and meanings (Wenger, 2008). Community members choose how to participate in CoP, which can result in tensions between community needs and individual aspirations (Wenger, 2008). Finally, membership in CoP becomes core to peoples' identities (Wenger, 2008). CoP need to be made up of diverse individuals because they lead to greater negotiation of meaning as well as sharing of knowledge and perspectives (Wenger, 2008).

When interns are hired at the Center, they bring with them a rich body of unique experiences and membership in multiple communities, which impacts how they learn, carry out programs, and interact with their teams. This identity also impacts how they shape their teams' policies and histories. Interns come with unique identities, made up of

their experiences from the different communities they take part in. Interns' passions come from this identity. These passions, and what interns find important to their lives, can drive and motivate how they interact with their teams and the Center; however, motivations may come from places other than passion. For example, Cleo highlighted her passions and her perceived duty to her communities as different but important motivators.

Being part of teams also impacts interns' negotiation and development of their identities. For example, leading the Waste Team means something different for Erin's identity than leading the Sustainability Marketplace does for Cleo. Cleo remarked on how her diverse identity impacts her relationship with her team, enabling "easier access to making students from different backgrounds feel comfortable on the team—and represented and seen." Identity is an important driver of learning at the Center because the directors do not teach interns nor facilitate learning on teams. Interns' motivations, which come from a variety of places, the goals they set, and their passions and agency, drive and sustain learning. This section explores how identity is operationalized at the Center and how it interacts with teams and learning.

Contour Description: Motivations

The NASEM (2018) stated student motivation to learn "is influenced by the multiple goals that individuals construct for themselves as a result of their life and school experiences and the sociocultural context in which learning takes place" (p. 6). Motivations can come from one's internal passions, connected to their life and school experiences, but also can come from external forces that push students forward (NASEM, 2018). Motivations also sustain learners as they complete their goals (NASEM, 2018).

Motivating factors, as well as interest, were discussed with participants. Both intrinsic and extrinsic motivations played a role in what participants chose to learn and work on. Some participants felt their team's needs outweighed their own interests. Others found their passions propelled them forward. Cleo spoke on this duality:

I think it's a combination of intrinsic and extrinsic motivation, which I think is healthy for most people. So, I think there's definitely a layer of it, that like I'd be lying if I said I don't want like the recognition from my parents are like "oh you're doing cool work" or stuff like that. And just like my own personal recognition of like, "I'm killing the game right now." But then there's definitely a huge component of it that is, "I want to the team succeed, I want the Center to succeed." I want other people to be like "this is such a good program; we should implement in all schools." I want to see that because I think that's heading towards the sustainable future we need for future generations.

Universally, participants agreed both intrinsic and extrinsic factors played a role in what goals they set, what they hoped to achieve, and what they hoped to learn. Speaking to this duality, Mabel said:

I think it was kind of both . . . I think there were parts that I didn't want to do to do, like I hated writing reports . . . but then there are also a lot of things that I did [that I] really was passionate about . . . loved doing.

Participants' internal factors, such as passions and interests, as well as external factors, like doing right by their team and community, played a role in how they experienced their

internships. For most participants, internal passions were one ingredient motivating them; however, R highlighted these passions were the main motivating factors in his internship.

Although R admitted it was both, he said “mostly internal” factors drove him. R said this was especially the case now that the new food pantry was up and running. Because the pantry was “smooth sailing,” R could focus on doing whatever he wanted to “make it better than it already is,” freeing him up to experiment, take risks, and go outside the bounds of what the food pantry had been historically. R jumped at the opportunity to manage the food pantry in 2021 because doing so allowed him to exercise his ideas. He also commented on this goal, saying, “I want to be . . . confident that I left at least my little piece of the Center and the University better than when I came into it.”

Cleo made a similar comment, saying she wanted to lead the Marketplace because she “was invested in a certain project” and “wanted to see it done the way” she “had envisioned it.” Bertha said coming into the program “passionate about mobility and sustainability” and “wanting to make a change” were drivers of her experience at the Center. She applied to the Mobility Team to explore those passions, and having “the agency to make that change was definitely a big influencer.”

For most participants, doing right by their community or their teams played a large role in their desire to work and learn. Erin said interns “definitely have agency over what goals” they set; however, the goal setting process for her was “very much motivated by what team” she was on. Erin was motivated to do the job “she was hired to do”:

For me, there’s always the idea of like, “What job was I hired to do? And how can I achieve things that I think I’m supposed to achieve in this role?” And so those

are definitely—they have always been a big part of my goal setting. [Which] has changed a little bit this year because I think that the job I was hired to do is changing as I'm in this position. And so, I might have to change sort of where I see my goals for this year.

For Erin, it was critical that she follow a specific path, one dictated by what had been demanded of her role historically. She said her personal interests “drove what teams” she “gravitated toward.” However, related to carrying out the team’s work, Erin said she opted to “help . . . the Center achieve its goals as opposed to [her] personal goals.”

Besides internal factors, Cleo said she had a commitment to her community. She said she felt a pressure telling her, “We are a community—you’re letting down your community if you can’t keep up.” She clarified that this pressure did not cause her stress but represented her desire “to be a part of it.” Cleo also referenced having “a really great mentor,” her team lead her 1st year. The team lead made her feel “so secure and happy to be [there]” and gave her purpose. By having this experience, she wanted to “pay it forward” with new interns who joined the Center. She wanted to cultivate the community she felt. Cleo, like other participants, weighed both internal and external motivators. An intern’s passions and other intrinsic motivations help drive student learning; however, external motivators, like commitment to the team, are also significant driving forces.

Interpretation. Punk is nothing without its passion. In fact, I would say I have never met more passionate people than those booking and running DIY shows. People in the scene are given opportunities to share their art with others, to hear and discover the next best thing, and to ensure their community is taken care of. The generosity

experienced on tour is unrivaled. In Saint Louis, a friend with whom I have only hung out in person for maybe 10 days throughout our history, let us take over his apartment while he was away on a trip. He understood our passion, our drive to play in a city hundreds of miles from our own, and extended his home as respite from the road. This offer is commonplace in DIY and demonstrates how personal motivation to perform is tied to the motivation to take care of the larger community. You cannot have one without the other.

In informal education, I have witnessed the importance of intrinsic motivation. In the museum, students are given free rein to explore the content within exhibits of most interest to them. This motivation propelled the type of content they learned and the activities they experienced. One student might relish learning about the Dust Bowl, and others might excitedly examine cliff dwelling dioramas. It was rare that I, or other facilitators, would interrupt this interaction within exhibits, giving students control over how they experienced the operational curriculum. At the Center, interns are motivated to learn, and they sustain this learning because of their passions as well as the needs of their teams and the community. This motivation is what enables and propels their learning, not the facilitation of directors.

In CoP, members can choose how to engage with their communities (Wenger, 2008). As interns develop a sense of belonging on their teams, by participating and negotiating meaning with others, the teams become more central to their identities, and thus, a larger motivating factor (Wenger, 2008). R did not seem to find his team a large motivating factor but rather focused on his “own little piece.” He was driven by his experiences and passions, not necessarily shared experiences with his teammates.

However, Erin felt a deep commitment to her team and doing right by its history. Her own team's needs propelled her forward.

Motivations are important for teachers to capitalize on within the classroom and help sustain learners toward accomplishing goals and learning (NASEM, 2018). Intrinsic motivation can be especially powerful because it ensures a student is interested and passionate about their learning (NASEM, 2018). R was passionate about moving the food pantry forward, potentially transforming its form and practices. However, Erin was committed to her team and motivated by the team's history, namely preserving and maintaining its programs (e.g., Zero Waste Athletics).

In all cases, participants' motivations were important because they affected which of their teams' practices and programs they engage with. Thus, these motivations impacted what they learned, and how they went about learning that content. Cleo learned how to run a Sustainability Marketplace because of her passion for thrifted fashion as well as wanting the Center and programs to appear successful. By running the Marketplace, she had to learn about customer service, sustainable consumption practices, food insecurity, and managing a team. Mabel did not put much stock into reporting, but she loved other aspects of the Energy Team and focused on event planning. These motivations, and control over the operational curriculum, meant participants focused on acquiring skills across the new green learning agenda framework (Kwauk & Casey, 2021). This acquisition varied based on team placement and motivation. The next contour examines how intern agency allows for exploration of projects related to motivations.

Contour Description: Agency

If motivations drive interns' learning, then the agency granted to them allows them to follow those motivations freely. Even though the directors intended the interns to have agency, this did not always play out for participants. Some participants were not granted control over their role placements, or they found the agency they were granted came with several drawbacks. This agency resulted in interns having control over the operational curriculum and left them feeling unsupported. Cleo said the internship involved "kind of getting thrown into it sometimes, which some people, I think, definitely can't handle." However, other participants found the agency rewarding and a significant aspect of how they learned in practice.

Both Erin and Chelsea were hired into leadership roles and did not get to dictate what their role would be. Chelsea said:

I was hired on to be a team lead . . . I went into my interview, and they said they're going to be looking for the Indoor Waste Team lead and that I—when we were picking the teams [we] wanted to be in my 1st year, I had to be on the waste. So, there's like no "buts" about it. And so, I always knew that I was going to be a lead.

Chelsea expressed "want[ing] to have that leadership position because" it gave her "purpose at the Center." She was excited "to guide new interns." Erin was more trepidatious about her leadership role, but she slowly felt more confident in her abilities. She said, "I didn't apply for a leadership role, I was . . . very much pushed into it. And I think once I was like, 'Wow, I'm a lot more capable than I thought,' . . . I did apply for

leadership roles.” Erin said this confidence in her own abilities stemmed from developing “relationships with . . . mentors and leaders” and “seeing that they [had] confidence” in her and her abilities.

Chelsea also remarked on how intern autonomy could create problems for individuals and teams. These “problems” tie into the Center’s fluid nature. Chelsea felt lack of direction from the directors could be difficult to manage. She said interns “definitely had agency to kind of set [their] goals, which [was] awesome because it inspired people to speak out, inspired people to say what was on their mind what, what they had passions about, what they had interest about.” For Chelsea, this had drawbacks:

At some points I kind of wish . . . that the Center, like the directors . . . brought a little bit more of their goals on the team just because then we [would] kind of know what they’re looking for. In terms for the reports . . . they would try to communicate that, but it would be something so broad and grand that we would have to set up mini goals try to figure out, but then we’d be worried that we weren’t meeting those goals or like didn’t quite have their vision in mind.

By not understanding what the directors’ visions were, Chelsea said her teammates, “especially in the middle . . . or near the end of the quarter,” felt they “hadn’t done a whole lot.” Chelsea said if individuals were given more direction and consistent support from the directors to pursue that direction, then they might have been more successful.

Bertha expressed a somewhat counter opinion, finding that despite her teammates having a great deal of agency, her team stayed on track and had direction. She said she “worked with a wonderfully diverse group of people on the Mobility Team: from people

who were passionate about bikes, from people who couldn't care less about bikes and who didn't know anything about mobility." For Bertha, the key to the Mobility Team's success, was the Mobility Team lead whom she said "was just phenomenal about connecting with [her] and being that link between everyone." Bertha expanded on how the team lead made accomplishing goals easy: "So, I feel like whenever we did have a deadline or goal . . . there was always a reminder for it." Bertha never felt she was "alone in trying to herd cats or something."

For Bertha, having direction as a team arose from having a specific team culture. She remarked that it was "very well understood by the entire group that [they] all respected each other [and] all listen to each other." By cultivating this culture on her team, Bertha said the group wanted to make sure they "didn't let each other down." In this example, individual interests and autonomy were balanced with respect, clear communication, and not wanting to let the group down.

Regardless of how this agency manifested on each team, and if participants valued this agency, participants universally agreed their voices were heard by the directors. Mabel spoke on this last point:

I think that's one of the main things that I liked about working at the Center. Like I could basically pitch almost anything to the assistant director, and she would at least hear me out . . . and ultimately would always kind of, unless absolutely ridiculous, would basically tell me to run with my ideas.

Bertha agreed with this statement, saying, "100%. When we had an idea, it was heard and considered." Cleo made a similar comment as Mabel:

I've always felt that I have the agency to like, not just like complete my goals, but advocate for them and to communicate with like mentors like the assistant director and the grad fellows about like, "Hey, I don't think this is happening, or like I'm frustrated by this, I don't know how to get over the step," and things like that.

Some participants, such as Mabel and Cleo, expressed having autonomy and agency was one of their favorite things about the internship at the Center. However, Chelsea said she thought her team may have been more successful if they were given more direction and support from the directors. Erin also indicated preferring to align her work with what the Center goals were and thus struggled with knowing how to get involved if the goals changed, like in the case of Zero Waste Athletics. These discrepancies between participants point to how the internship experience was personal and contextual.

Interpretation. Being on tour is a sink-or-swim experience. People can talk about what it is like, give helpful pointers, and even help plan and pick routes. However, all this forethought can go out the window if your van breaks down or you do not have a place to stay at night. You must think on your feet and adapt quickly to your situation. You are likely not going to have a well-experienced punk sage walking you through every experience. All you have is yourself and your bandmates.

This is contrasted with the type of learning that takes place in a museum. Even though students are given agency to roam around, if they do not understand an exhibit, they can come back and ask about it, or if it is not working correctly, the facilitator can troubleshoot it for them. These students do not have agency over the exhibit specifics,

just that they get to choose from them freely. The Center's internships are much more like the punk example. The directors lay some groundwork, but it is up to interns and their teams to navigate what they are supposed to do and how to do it. If something goes wrong, it is also on teams to determine how to resolve it.

This agency crops up in both the intended and operational curriculum. The Center is explicit about granting interns agency and room to push boundaries, explore, and fail. The directors are not concerned with performance; the directors are concerned with whether interns try their hardest to learn and develop in ways that are meaningful to them, which stands in interesting contrast to the directors' statements about "getting shit done." The model for learning is hands-on, messy, and relatively slow compared to a regular lecture format. Because students learn in this environment, they may not be "getting shit done" quickly, if at all. Students are granted freedom, which can be powerful, but lends to the internship feeling fluid.

The result of this freedom is interns having responsibility for the operational curriculum. They choose how to participate in their teams, and leads are responsible for onboarding new interns. This control over the operational curriculum results in different experiences for interns based on their abilities and team placements. For example, Bertha spoke about how her team members were effective collaborators, where everyone felt heard and seen, and that there were adequate supports in place. However, Chelsea's team often felt helpless, and she wished the directors were more involved with the everyday direction and practices of her team.

Agency is important for CoP, is an essential aspect of legitimate peripheral participation, and enables newcomers to be active participants and collaborators (Lave & Wenger, 1991). New interns' ability to participate actively, even without a depth of knowledge, is the exciting part of agency at the Center. This guaranteed and meaningful participation enables interns to take active roles in shaping their teams and their practices. Several participants discussed how the directors are receptive to them pitching new ideas. At a curricular level, the directors may be taking a too-hands-off approach to facilitating the operational curriculum, resulting in an uneven experience for interns.

On Chelsea's team, it is possible no single intern had a deep enough understanding of the team's history and practices, lacked a solid joint enterprise to coalesce around, or did not have the tools to stay mutually engaged (Wenger, 2008), which affects the types of curriculum interns can receive. Using the new green learning agenda framework, Bertha's team got chances to practice capacities such as collaboration, teamwork, and solidarity (Kwuak & Casey, 2021). However, Chelsea's team could not practice these skills fully, struggled with adaptability, and felt they were not supported adequately by the directors.

The directors are not entirely behind the scenes. They try to shape some of what interns accomplish by pushing teams to use goal setting. This final contour explores how goal setting interacts with teams and learning.

Goal Setting

Effective goal setting was a consistent contour of the directors' curricular intentions. Several training workshops focus on goal setting, and goals are a central pillar

of the directors' vision for how the internships should function. Participants established goal setting as a priority the directors hoped interns took seriously; however, in practice, participants had mixed feelings about goal setting.

Cleo articulated it was important to have team goals; however, the importance of personal goal setting was something she did not like about the internship. She shared:

I've always definitely struggled with goals, personally, as a method for tracking success and doing things. So, it's not my personal favorite, but I definitely can see the merits and benefits of having yearly team goals. I think that's really important and has been helpful. Like, "We're not hitting our goal yet. What can we do to get there?" I don't personally like the personal goal aspect of it but that's just me.

All participants, except for R, had similar feelings about goal setting: They could see the importance but did not find it useful for various reasons.

Erin admitted "goal setting is a great practice," but, as interns, she said, "We don't take the time to check back in with our goals and make sure we're meeting those goals that we set at the beginning." She said it is "easy to get caught up in like the small tasks that you can check off," as opposed to those "big picture goals." Mabel said not liking goal setting was just a "me thing." She expanded, "I've never set a 5-year goal, I probably should, but like that's not how my brain works." Mabel found goal setting "a little more tedious than effective" despite acknowledging it "probably overall" kept interns "on track and was probably more helpful" than how she felt in the moment.

Chelsea said what made goal setting difficult was the "nitty grittiness of what that actually mean to achieve those goals." For Chelsea, it was exciting to begin each quarter

by setting goals, but new interns “were just honestly stuck on how they could contribute in any way.” She said, as the quarter went on, her teammates became increasingly “worried that they weren’t reaching the goal[s] on time.” Chelsea felt goal setting was “really helpful” but was “one of the hard things about the job.”

R was the only participant who found goal setting a comfortable process. When asked how important goal setting was for his internship, he said:

I want to know how I can make the most of it. And I think that being given this job is a very good opportunity for my personal and professional goals of growth.

And I’m a pretty goal-oriented person. . . . It’s definitely important for me where I want to be able to hone my managerial skills and how I am as a collaborator and a worker. And also, like figure out [how to] set goals for myself on how I can leave both the Center and the University better off than when I came. And yeah, I don’t think I’d be able to do that [without] goals just because . . . I’m . . . just not the type of person that would thrive under those conditions.

R found goal setting important for his personal and professional growth, and necessary for him to “thrive” in the internship. Unlike other participants who admitted goal setting was important, he did not remark on having mixed feelings about the process. He admitted he enjoyed setting goals for himself, which tied into who he is as a person.

Interpretation. It would be an understatement to call the staff at the Center driven. They are diverse, hardworking, passionate, critical, and often joyful. Interns often become absorbed in their projects, pushing to make even a small difference on the DU campus. They remind me of the punks I grew up around—people fighting to share their

arta and make spaces safer as well as fervent in their desire to smash the state. Although punks accomplish things, some of which are profound and expansive, they do not go through a formalized goal-setting process. There is urgency to their action, and they make decisions following their hearts. The Center interns are similar in this regard. They like action, they like making a difference, but at least with participants, they do not care for deliberately setting goals to guide that action. Mabel and Cleo thought their aversion to goal setting was a personal “me thing,” when most participants did not appreciate how goal setting manifested at the Center.

The NASEM (2018) provided guidance on goal setting in a sociocultural classroom: Goals should be challenging but manageable, focused on learning and not simply performing a task effectively, and tied to student interest. Further, students with strong intrinsic motivation tend to set goals for themselves and enjoy increasing competence (NASEM, 2018), which is interesting because of how the different participants viewed goal setting. R, who said he was intrinsically motivated, was the only participant to appreciate the focus on goal setting and even added he is a very goal-orientated person. He also mentioned wanting to increase competence: “I want to be able to hone my managerial skills and how I am as a collaborator and a worker.”

Interns are free to set whatever goals they want. In practice, the directors are not explicit in the types of goals interns should set and give interns agency and freedom to set the goals they desire. These goals are generally open ended, focused on learning and accomplishing new things. R mentioned he “thrives” by having large goal posts to head toward. However, others, such as Mabel and Cleo, found formalized goal setting pushed

by the directors cumbersome or unenjoyable. Chelsea felt goal setting could be a point of stress throughout the quarter, especially if interns felt they had not accomplished enough.

This last point is important because it reflects that Chelsea's teammates may have operated under a performance mindset and not a learning-centered one (NASEM, 2018). Even if the directors did not focus on performance, interns still internalized that they were not successful because they were not accomplishing their goals. Again, this tension between "getting shit done" and learning through a hands-on process appears. Even if the directors do not expect high performance in practice, they set up the expectation that interns should be accomplishing things quickly and effectively. It also may be the case that Chelsea's teammates were setting goals that were too lofty and not manageable or that they were not supported enough by the directors to carry through with their goals.

In the case of participants like Cleo and Mabel, the formalized goal setting mandated by the directors felt more like a "chore" or "homework" than helpful for their learning process. This demonstrates how there are tensions between the intended and operational curriculum. Because interns learn in CoP, and are responsible for that learning, they may find goal setting unenjoyable because it is in service to the directors and not to their trajectories on their teams (Wenger, 2008). Teams plan, develop practice, and set goals and protocols naturally throughout the year; therefore, it is likely both Mabel and Cleo set up informal goals throughout their internships, a process they did not find cumbersome. They may not be conscious of this goal-setting process because they are interested in the work they carry out (NASEM, 2018).

Cleo mentioned finding team goal setting helpful, but the personal aspect was not meaningful to her. Erin also found the personal aspect of goal setting unnecessary, but the team goal setting was necessary to collaborate effectively. This supports the mismatch between the operational curriculum on teams and the directors' intentions. For example, Cleo loved working and learning on her team, and she recognized the importance of team goals, but creating formalized personal goals became a chore because it was disconnected from the learning of interest to her. This also might apply to Chelsea's situation. She was focused on setting goals for the directors, goals she was not sure how to achieve, instead of setting meaningful goals with her team.

The final contour of the operational section explores how identity results in vastly different learning experiences for interns. Interns can follow their passions, resulting in team placement, working on specific projects, and developing unique skills.

Vignette Description: Leveraging Identity in Practice

In the interviews, several participants gave concrete examples of how their various identities manifested and impacted their learning experiences. Each participant had unique internship experiences tied to their own identities, interests, and motivations. These experiences sometimes aligned with and contributed to their teams. In other cases, the experiences diverged from the practices inherent to their respective teams.

Bertha – Getting “Taken Under the Executive Director’s Wing.” Bertha said, because she and the executive director were both equally interested in transportation and mobility, it was very easy to connect with the director. Bertha remarked:

[The executive director] is also a very passionate . . . about transportation. So, getting to work under his wing was just an incredible opportunity. And I felt so encouraged. He was always trying to send me to conferences or different . . . opportunities to network and learn about transportation and different communities. And so, I know this was something he was really passionate about. So, I feel fortunate that I kind of got to ride along on his passion as well and benefit from that.

She clarified that this was not unique to her and that “no matter what department you are a part of or what team you’re a part of you had . . . opportunities to grow and learn and connect beyond DU.”

Cleo – An Identity, A History, and Experience. Cleo discussed how her identity, and her associated experience at the Center, led to her team placement. She also thought her identity was helpful in bringing inclusivity to her team and to the Center.

Cleo reflected:

I do think my identity is important to [the directors], especially with the choice to put me on the Marketplace Team . . . as the thrift store manager. I think one aspect of that identity is just also being older, being a senior, being dual enrolled in graduate school. . . . The marketplace was a brand-new team without any returning grad fellows, so I think it gave them . . . peace of mind to have me be in charge of the team as one of the people . . . who had been at the Center for the longest. . . . An identity and history and experience is something that I think that they have appreciated. I do also think to a degree, my multicultural background is

appreciated because it gives me easier access to making students from different backgrounds feel comfortable on the team and represented and seen. We have talked a lot at the Center, especially last year about how sustainability is oftentimes a very White field . . . and that's something the directors really want to push the DU Center for Sustainability away from . . . to make it clear that we're . . . a very inclusive space, and that sustainability is . . . for everybody.

Cleo was placed as one of the leads at the Sustainability Marketplace because of her “history and experience” with practices associated with the team. Although it was a new team, it was comprised of multiple disparate programs representing “customer-facing” aspects of the Center.

Cleo's cultural background also potentially enabled her to make her team more inclusive, leading to the empowerment of new interns who did not see themselves in the larger sustainability field, which manifested as focusing her teams' energy on the pillars of “equity, affordability, and accessibility.” Cleo said, because she grew up in a diverse family, she was deeply interested in issues of social justice and how they intersect with sustainability. She was working to expand the scope of sustainability from “White-dominated” conceptions to a field focused on equity and inclusivity.

Erin – Being Seen as a “Scientist, Student, and Worker.” Erin discussed her tendency to “compartmentalize” her various identities, careful to only show her various sides based on the context she is in. She said the directors see her as a “scientist, student, and worker” and try to craft her internship around those identities, which manifests in their vision of Erin as a strong leader. Erin shared:

I think what would be important for them in terms of my identity would be like me seeing myself as a leader and seeing myself growing as a person. Because I know that that's a big part of this internship is like, "How are you developing? What kind of skills can we give you to continue to take on this development path?" Sort of, "What goals do you have for yourself, you then, and like, how can we support you in achieving those?"

Erin's internship experience is centered on advancing her path of being a leader, scientist, student, and worker, and the directors have supported her in achieving that growth.

R – The CRC Garden: “Directly Contributing to the Center, a Sustainable Cause, and the Community.” I observed R helping during a clean-up of the Collegiate Recovery Community (CRC) garden. The community garden was created by the Center's Food and Gardens Team in partnership with the CRC in Spring 2021. When asked about the project, R said:

The CRC Garden was really cool because it was my first big project last year that I kind of got to take the reins on with the grad lead. And it was really cool because I'd always had an interest in sustainable food systems and like just gardening in general. I like to garden, so, it was really cool to have an opportunity to help create—we created a meditation and vegetable garden for the Community Recovery Resource Center. And it was for like students who are recovering from addiction and past traumas related to that and such. And we built them a meditation garden and a vegetable garden for them to take care of and utilize.

. . . I think it is really important to me because it felt like that was something very hands-on that I was directly contributing both to the Center, to a sustainable cause, and just to the community in general.

Throughout the observation, R studiously moved about the garden, tending to the work he started 6 months before. The purpose of the clean-up was to complete maintenance on the garden R and the Food and Gardens Team created during the previous academic year. R took on the project because it aligned with his interests and commitments to food systems, partially tied to him growing up “food insecure.” The success of the garden, and what it represents, was meaningful for R. Both on the construction of the garden and the clean-up, R was not instructed by the directors to carry out the projects. He carried about both tasks because he found them meaningful.

Interpretation. In these examples, the ways identity, motivations, goal setting, and agency manifest is unique for each intern. For Bertha, her choice to work on the Mobility Team began with her passion for bikes. She applied to the position because of past experiences working in bike shops; however, she found her love of transportation mirrored and fostered by one of the directors. Cleo’s wealth of experience at the Center led to her leading and helping to shape a new team. Building on her own cultural experiences, she pushed her team and their efforts to be more intersectional and inclusive.

In Erin’s case, parts of her identity were a focus for the directors, who fostered experiences for her to become a better leader. Erin felt she presented parts of her identity depending on the context she is in, so the directors latched on to how she is a scientist, student, and worker. Finally, R, who grew up food insecure and was thus passionate

about food insecurity issues, focused on creating and maintaining a community garden. He also made large contributions to the project the year before, so it was an important part of his history. Each participant channeled their identities, passions, and interests in various ways at the Center, given the freedom and agency at the Center to explore projects they found meaningful.

In all cases, identity impacted the types of experiences participants pursued and the skills they developed according to the new green learning agenda framework (Kwauk & Casey, 2021). Bertha developed transportation skills related to environmental and equity issues. Cleo worked on creating solidarity on her team and shifting the power dynamics within sustainability. R focused on learning how to build more sustainable and just food systems. Finally, Erin developed her own leadership skills.

One's identity represents the communities and histories in which they participate as well as how they negotiate meaning across those identities (Lave & Wenger, 1991; Wenger, 2008). Many participants discussed how their upbringings, cultural experiences, or interests affected how they interacted with learning experiences at the Center. Developing an identity while participating in social communities involves negotiated meaning, the process of participating and reification (Wenger, 2008). Interns chose how they participated both on and across teams. They also negotiated why a project or program was meaningful for them and their histories as well as for the community.

Bertha's experiences on the Mobility Team were meaningful to her because they fed her interests in biking and transportation. R's experiences in the food pantry were meaningful to him because they aligned with his experiences growing up food insecure.

Not all participants, however, discussed how their identities and meanings contributed to their respective teams.

Cleo felt her experiences and learning contributed to making the Marketplace more effective and inclusive. Her assets contributed to the history and practice of that team. Similarly, R considered how his contributions to the CCRC garden helped students deal with past traumas as well as the Center and the community. He often spoke about how he wanted to improve the food pantry for future generations and members, but Erin and Bertha discussed their identities, and associated experiences on their teams, as building personal growth and not how those experiences led to the growth of their teams. Erin and Bertha's comments point to how TSE, and transformational learning, is widely individual focused (Lange, 2018). This lack of emphasis on individual learning contributing to growth of teams suggests there is work to do to centralize relationality and commitment to teams within the internships.

Summary of the Role of Identity on Teams

Interns learn from one another on their respective teams while carrying out joint projects and programs. These teams are distinct CoP with their practices, meanings, joint enterprises, histories, and members (Lave & Wenger, 1991; Wenger, 2008). Identity is important to CoP and impacts how members participate and negotiate meaning in those communities (Lave & Wenger, 1991; Wenger, 2008). Identity is a central component of interns' learning process because it impacts team placement, the types of programs interns take on, and the perspectives interns bring to each team. This perspective sharing shapes the meanings and practices on the teams. Three participant contours—

motivations, agency, and goal setting—tie to identity and represent the different pieces of how identity shapes learning experiences at the Center. These three contours result in diverse and unique learning experiences for each intern; thus, identity contributes to how interns learn at the Center.

Motivations are important for the learning process and can be effective if they are intrinsic to the learner (NASEM, 2018). Participants weighed both intrinsic and extrinsic motivations related to their experiences. Some participants, such as R, were guided by their interests and passions. Others, such as Erin, felt a strong duty to their team, aligning their efforts around what would improve the team and support other interns. Because interns are given agency, they can follow their motivations freely; however, although some participants appreciated this agency, the agency created tensions for others and their teams. This agency empowers some interns; for example, Mabel and Bertha discussed how they could pitch any project idea to the directors and be heard. For Chelsea, this hands-off approach from the directors left her feeling directionless and unsupported at times. Agency also is an important component within CoP but results in interns following their passions toward projects and goals that may not support or improve their teams (Wenger, 2008).

The directors try to rein in students' learning experiences by pushing interns to set meaningful goals every quarter; however, almost all participants found this process to be laborious, similar to homework. Some participants admitted having team goals to coalesce around was helpful, an important component of CoP (Lave & Wenger, 1991), which may be explained in a couple of ways. First, interns are unconscious of their goal-

setting processes because they are passionate about their work, and this formalization feels unnatural. Second, the formal goal-setting process is meant to appease the directors, even though teams are largely responsible for the operational curriculum, disconnecting goal setting from the meaningful learning happening on teams.

Identity and the three contours impact the types of learning experiences interns have. Bertha and R discussed how their interests led to team placement. Cleo was put in charge of the Sustainability Marketplace because of her history and experience. Further, identity impacted the projects interns took on, skills they developed, and the goals they set. Erin focused on leadership while Cleo tried to model inclusivity. Bertha delved into transportation issues, and R focused on developing sustainable and equitable food systems. Each participant attributed these various foci to some element of their identities. Identity drives the ongoing development of skills across the new green learning agenda (Kwuak & Casey, 2021). Bertha and R both cited developing skills tied to environmental awareness and equity issues, and Cleo and Erin discussed working on becoming better leaders. Cleo focused on developing solidarity and inclusivity on her team.

Concluding Thoughts

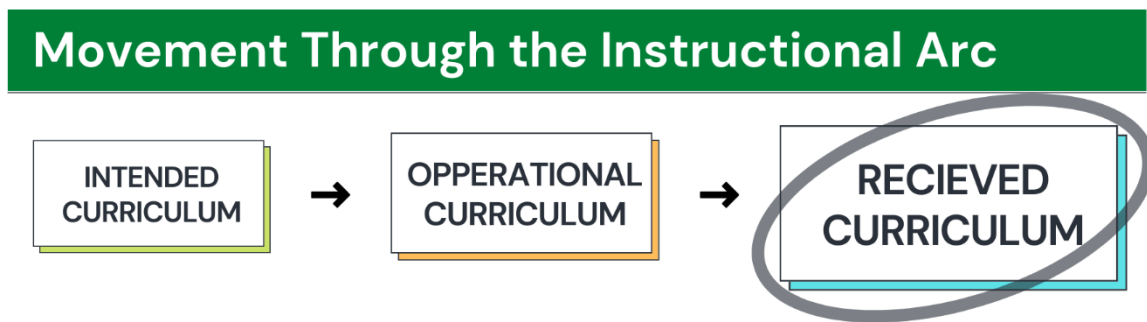
The Center is filled with passionate interns. These interns learn through experience, driven by both internal and external motivations. The directors quickly set them free to take part in teams and challenge themselves. This freedom can be powerful but also daunting. Interns and teams are placed in charge of the operational curriculum; old timers teach newcomers, and newcomers learn by joining in team practice and activity. This can be rewarding but difficult based on team dynamics and individual

intern needs. The balance between unmitigated freedom versus a desire for security feels similar to my experiences in punk—being thrust into the unknown, driven by passion, and dependent on my community. At times, my experience in punk has been beautiful, rewarding, overwhelming, destructive, isolating, chaotic, connecting, and heartwarming. In short, punk is complex, and although it can be challenging, it is also filled with love and solidarity.

The final findings chapter focuses on the received curriculum and answers the question, “How do interns experience transformative sustainability curriculum?” If the Center is punk, do interns experience that same sense of love and solidarity? At least participants seemed to think so. Figure 25 symbolizes this movement.

Figure 25

Section of the Curricular Arc Under Discussion: Received Curriculum



CHAPTER SIX: RECEIVED CURRICULUM AND TRANSFORMATIVE SUSTAINABILITY OUTCOMES

The Mark Punk Has Left: Receiving Love and Solidarity

Not every punk experience I have had has been enjoyable or rewarding. I remember early on, playing in a pizza shop in Logan, Utah, where a passerby yelled a homophobic slur at us while we performed. There are countless shows I have either attended or booked that have not gone well because of attendance or technological issues. I have been on the road with nearly no money in my bank account. I have dealt with several vehicle-related issues, cancelling shows, and eating into the band fund. I have had conflicts with venue owners and people running shows. Although daunting in the moment, I have been left with a feeling of love and solidarity by participating in DIY.

Few times were as challenging for punk (and the music industry) as the early days of the pandemic. Shows were over for the foreseeable future, artists lost their livelihoods, and locally owned venues shuttered. The pandemic saw a wave of small venues shut down or bought up by mega-industry giants like Live Nation (Newman, 2020). Locally, nearly every single DIY space either closed or came close. Still, punks remained deeply connected because of social media. Early in the pandemic, a wonderful trend popped up that saw punks sharing the “riff challenge.” Friends would write a short guitar riff (a passage or phrase on a guitar involving a repeating series of notes) and share them with

one another. Included in this sharing of riffs was the tagging of others on social media, challenging them to write and share their own riffs. I tagged punk friends across the country, from the East Coast to the West, which was during a time that I had poured myself into a short collection of songs, something I never would have had time to accomplish without the lockdown. My heart was full, and I felt love from all corners of the country. I felt the solidarity and interconnectedness of countless people with whom I had shared the road, a stage, or our homes.

Over a year later, once vaccinations had become commonplace, a friend finally could throw a punk festival in Denver. He had started a punk label a few years prior, and the label had started to see success. He brought in bands from all over the country, invited locals to play, and sold out festival passes almost instantly. The fest was held at a local and decrepit theater in Denver, neglected by the local economy. This was both a pragmatic and noble decision. The fest would be too large to hold at a traditional punk venue, but it brought in hundreds of people who bought drinks and supported the local theater. The festival was entirely volunteer run, a collective and momentous effort to bring punks together after such a long and arduous time.

I volunteered my audio skills and ran sound, despite having little formal live production experience. Ironically, but a true demonstration of punk attitude, the sound board was on the giant stage while bands played on the floor of the theater. There were two "stages," with the performing band facing the next band setting up. When a band finished, the next band would start almost immediately, with punks about-facing and shuffling to the other side of the theater floor. Punks are known for being rowdy,

jumping, running into each other, and swinging their hands and bodies wildly. If someone fell, everyone would stop what they were doing and aid their fallen comrade. I ran sound for a band that had taken off during pandemic, and when they started, the crowd went wild. The vocalist shoved his mic into the crowd, and young punks screamed the lyrics back at him. Again, I felt love and solidarity. I felt the transformative power of bringing punks together to share in the interconnected beauty of performance and art.

The Center's Received Curriculum: Transformative Sustainability Outcomes

The last two curricular arc chapters of this study focused on the directors and participants' curricular intentions as well as how interns and teams took part in the Center's operational curriculum. The final findings chapter focuses on what participants took away from those experiences. The study's third research question was concerned with whether participants experienced transformative learning (TL). Data were sorted into various contours according to ideas within TL and the new green learning agenda framework (Kwauk & Casey, 2021) and then interpreted using the interpretive frame.

Participants reported learning experiences that matched ideas described in TL (Mezirow, 1981) and TSE literature. There was some conceptual congruency in what participants took from the program, such as "interconnectedness," "perspective transformations," and a host of green skills and capacities. However, how they spoke about those concepts varied by participant and their team contexts. I separated the received curriculum into two major sections: (a) outcomes from TL and (b) outcomes from the new green learning agenda framework. I provide contour descriptions followed

by interpretations involving my perspective as well as elements of sociocultural learning and TSE. Figure 26 outlines the various contours I discuss in this chapter.

Figure 26

Participant Findings: Received Curriculum

Curriculum Area	Sections	Contours Described
<div style="border: 1px solid black; padding: 5px; text-align: center;"> RECIEVED CURRICULUM </div>	<div style="background-color: #00b09b; color: white; padding: 10px; text-align: center;"> Outcomes From Transformational Learning Theory </div> <div style="background-color: #00b09b; color: white; padding: 10px; text-align: center;"> Outcomes From the New Green Learning Agenda Framework </div>	<div style="background-color: #00b09b; color: white; padding: 10px;"> <ul style="list-style-type: none"> • Transformations of: <ul style="list-style-type: none"> ◦ Perceptions of sustainability ◦ Perceptions of DU ◦ Perceptions of self </div> <div style="background-color: #00b09b; color: white; padding: 10px;"> <ul style="list-style-type: none"> • Skills for green jobs • Green life skills • Skills for a green transformation </div>

Like with previous chapters, this chapter addresses a research question, examining how interns experienced TSE. For contextual set up, this research question is answered before moving on to the findings.

How Have Student Interns Experienced TSE?

This chapter explores what participants learned as part of their team-based learning process, examining the received curriculum from participants’ perspectives and how they experienced TL. Participants reflected on experiencing deep and dynamic perspective transformations (Mezirow, 1996). These perspective transformations were connected to participants’ understandings of sustainability, DU as an institution, and self-perceptions. Participants also felt the interconnectedness of the community at the Center,

relating to TSE concepts such as relationality and a feminist planetary consciousness (Kwuak & Casey, 2021; Lange, 2018).

Participants also developed a range of skills, including transformative capacities, such as the ability to analyze unequal systems of power, which are important skills in green transformation (Kwuak & Casey, 2021). These learnings were supported and reinforced by “lower level” skills for green jobs and green life skills such as professionalism, environmental knowledge and awareness, adaptability, and collaboration (Kwuak & Casey, 2021). Thus, participants demonstrated how they acquired cognitive, practical, and affective knowledge needed for TSE (Gramatakos & Lavau, 2019). The rest of this chapter represents an in-depth analysis of how participants received TSE learning outcomes as part of their internships.

Outcomes From Transformational Learning Theory

As both Tharp et al. (2000) and Wenger (2008) suggested, teaching and learning through social activity and CoP can result in transformative experiences for students, which was the case for participants. They spoke about experiencing perspective transformations (Mezirow, 1996) and developing deep connections with one another (Lange, 2018). These experiences are discussed next.

Perspective Transformations

In TL, learners undergo disorientating dilemmas in which they are confronted with a worldview that does not match theirs (Mezirow, 1981). Through deep introspection reflection and various other efforts, learners may emerge from this dilemma holding new perspectives (Mezirow, 1981). Participants confirmed they experienced

perspective transformations during their internships. It was common during interviews to hear turns-of-phrase, such as “It opened my eyes to . . .”

Participants typically focused on how their perceptions of sustainability and DU changed because of their experiences; however, a few participants also mentioned their self-perceptions changed as part of their internship. In the case of sustainability, participants reflected on having their conceptions and understanding of sustainability disrupted by experiences they had at the Center, transforming their understandings of sustainability. Participants also commented on learning to be more skeptical of institutions such as DU. Finally, participants’ conceptions of themselves and what they are capable of shifted throughout their internships.

These transformations are another punk touchstone. The Center can feel radical as interns condemn capitalism and whiteness, often critical of their university institution, and show radical love toward one another. In this process, interns learned something about themselves and identified with a larger whole. At times, interns felt like an insurgent force within DU, screaming out to the larger community.

Contour Description: Perceptions of Sustainability

Participants discussed their social sustainability-focused learning in both specific and general ways. Concepts such as the “ability to analyze unequal systems of power” and how participants spoke about them are discussed later in this section. Participants also mentioned a general movement throughout their internship from “narrow” definitions of sustainability to those including expanded social justice components.

Participants discussed how their perspectives of what sustainability means shifted due to their experiences at the Center.

On the 1st week of orientation, Bertha remarked, “I do remember it being very impactful and eye opening.” She also mentioned one of the most eye-opening aspects of the internships was “learn[ing] about the other teams” and how their projects related to sustainability. She said, “The biggest takeaways that I took from the Center was all these different sustainability teams, and what they were doing, and what they were passionate about and focused on.” Exposure to the various programs inspired her to live differently. She continued, “I think that encouraged me to become focused on it just in my day-to-day life.” Bertha also said she came away from the program with “a common language for what’s really been being spoken about in the social justice world and in the equity world.” For most participants, this leap in understanding about sustainability was a large part of their internships.

As a new intern, R said he thought of sustainability as “recycling, reduce, re-use,” but his internship transformed this understanding. He shared, “It isn’t just about like ‘Oh, like recycling, reduce, reuse.’ It is, as an entire umbrella term, an ecosystem almost: like ecological, social sustainability, environmental justice. So, it’s just how they all play into each other.” The sentiment that sustainability should be about more than basics like waste sorting was common for participants. Cleo said:

My view of sustainability has very much evolved from one that was solely environmental focused . . . when I was younger as a freshman, to now where it’s

very focused on more of those social and economic aspects of sustainability and equity.

Like R, she added, “I think I’ve just been less like angry about like, ‘Oh, we need to recycle and compost correctly’ and all those little things, to more like systemic questioning: ‘Why isn’t the world more sustainable?’”

Both R and Cleo highlighted the need to weigh both individual and collective action. They reflected on how traditional ideas about sustainability put blame on individuals, a tendency sustainability spaces need to push against:

I always felt like I was . . . a sustainability conscious person. And then I still like to think that I am. But I still learn that like there’s a lot of room for improvement on my own. But I’ve also learned about the world and such. And I need to know that you can’t just blame consumers entirely all the time for all the problems that we’re experiencing.

Cleo said her understanding of sustainability shifted to “something very like: ‘collective against the stronger power’ . . . and not blaming other people for their situations.” For many participants, the shift in their understandings of sustainability came through discussion and working with others. Participants mentioned being confronted by worldviews that did not match their own and then having to grapple with those views.

Erin said it was both coming to college and to the Center that altered her view on sustainability. On this experience, she said, “It really opened up my eyes to what sustainability can look like.” She expanded:

I hadn't thought all that much about the social sustainability and economic sustainability side of things and through the work at the Center and seeing other people's programs . . . and being like, "Wow, like this intersects with so many different things."

Exposure to other perspectives and programs led Erin to ask herself critical questions:

So, things like, "How do you reduce your energy usage? And like what does that really mean?" Like, obviously it's like a good thing to do, but like what is the actual like impact that that's having? And like, why is this important for the world? And like not only for you, but like for the collective people?

Erin found this new understanding of sustainability to be a "difficult balance at times," but was careful to ask, "Are we focusing too much on the environmental side?" Erin said this intersectional nature of sustainability was something she "wouldn't have thought about certainly before . . . coming to college and to the Center." This shift in understanding came from discussions at the Center. Erin explained, "I think on the social sustainability side and, when people bring their own experiences into it, it's like, 'Wow, this is really different for me versus someone else.'"

Chelsea found these discussions beneficial for her, even if she did not agree with others' viewpoints. By engaging in discussions on sustainability and hearing different perspectives, Chelsea learned to be more critical of how she viewed sustainability, a process that made her both happy and frustrated:

Seeing the way people talk about sustainability or the environment, sometimes I didn't agree with because it seemed that it was very . . . a privileged viewpoint.

You know we always talk about how we need to start encouraging this or that. . . . Sometimes it felt we were shaming people because they just came from a certain background. So that was something else I learned is how to be more open minded about sustainability and the aspects of other people—I mean even my other very close friends here at DU, some of them don't agree with my Center's missions or see it as kind of a privileged aspect. So just learning from other people was kind of the grander scheme of things for me at the Center because it made me really happy, and it also made me kind of frustrated at the same time.

The result of this discussion and critical reflection was positive for Chelsea. She shared, "I came in with a pretty good idea about what I thought sustainability was, and so I will say working at the Center definitely changed that perspective for the better." Her internship gave her a more in-depth and nuanced view of sustainability; however, she also cited frustration, pointing to a disorientating dilemma.

Erin came to understand that "a lot of sustainability has been like motivated people who are willing to go above and beyond and put themselves out of their comfort zones," a fact she struggles with. She shared, "That's been a difficult thing to reconcile to, like, 'How do I bring sustainability to other people when they don't actually want to take difficult steps to make sustainable choices?'" Erin grappled with the idea that, although it is extremely important that the collective chooses to live more sustainably, it is a difficult lifestyle to demand of people.

Interpretation. Mezirow (1981) stated perspective transformations result from learners being forced to challenge the narrative put forth by the dominant culture:

There are certain anomalies or disorienting dilemmas common to normal development in adulthood which may be best resolved only by becoming critically conscious of how and why our habits of perception, thought and action have distorted the way we have defined the problem and ourselves in relationship to it. (p. 7)

Important to TL is how it forces learners to act differently because of their new understandings. Similarly, Tharp et al. (2000) discussed how sociocultural classrooms can serve as a counterforce to the dominant culture. Participants described their perspective transformations in similar terms and learned to become more critical of institutions around them. Like punks, interns learned to be critical of the dominant culture, especially within the sustainability field. Here, they became critically conscious of how sustainability can be inequitable and dominated by affluent, White communities who can make “sustainable” choices.

Regarding sustainability, participants focused on how “personal responsibility” was not enough for living sustainably and addressing the Climate Crisis in meaningful ways. Through their work at the Center, R and Cleo found they could see the full scope of what sustainability is—a collective action and learning to focus on how social justice intertwines with ecological issues. Bertha and Erin described how they learned to view sustainability as more intersectional, an eye-opening process for them. Considering this new information, Bertha and Erin also chose to act differently: Bertha learned about all the small ways she could change her personal habits to reflect sustainable values, and Erin tried to approach sustainability conversations with people differently.

In these examples, participants discussed acquiring skills across the new green learning agenda framework (Kwuak & Casey, 2000), which can be something as small as what “counts” as sustainability, as in Bertha’s case, and larger concepts like collectivism for R and Cloe. A key factor in these perspective shifts is exposure and internalization of team practices and understandings. Several participants named seeing the work of other teams, and having discussions with those teams, as driving their deepened understandings of sustainability work.

At the Center, interns are given legitimate peripheral participation and can participate in various levels across multiple teams, even if that is just engaging in discussion (Lave & Wenger, 1991). As interns are exposed to the unique practices and understandings of the teams, they can gain a deeper understanding of how the practices relate to sustainability, even by participating in small ways, which leads to identification through engagement and practice and thus the transformation of identity (Wenger, 2008). R spoke about how his experiences at the Center modified his concept of identity, specifically in how he perceived himself as a sustainable person.

This process was at times difficult for participants. Erin and Chelsea described experiencing a disorientating dilemma and the discomfort associated with it. Chelsea found group discussions about sustainability at the Center both rewarding and frustrating. She even discussed how the Center’s mission did not align with some of her friends’ views; thus, one of the greatest things she learned from her time at the Center was to be more understanding of diverse perspectives, a practice Chelsea thought was lost in

sustainability spaces because of privilege. Erin found her new intersectional understanding of sustainability “hard to reconcile” in her own life.

Contour Description: Perceptions of DU

Participants’ perceptions of DU as an institution transformed due to their internships. Participants generally reflected a tendency to be more critical of DU, especially in the way they believe the university projects sustainable values but does not demonstrate them. However, Bertha viewed DU in a more positive light because of her internship, saying, “One thing that impressed me about DU is there seemed to be a lot of opportunities to study ecology and sustainability.” Bertha said this, in tandem with allowing the Center to have a large role on the campus, “is a great reflection of the what the priorities of DU, and it’s students, are.”

Other participants mostly disagreed sustainability is a priority at DU. Mabel commented, “I gained more of an awareness . . . for sustainability and where . . . the university is doing a really good job and where we could improve.” She added, “It just shaped my perspective on how organizations operate and how we can ideally do better.” Cleo became more critical of DU. She said the way DU “values” sustainability is not reflected in its practices. “I think it’s a very, like, fake aspect of DU. . . . I would love so much to see DU be as authentic about sustainability as they say they are.”

Similarly, R related this tendency of DU to how consumers get blamed for climate change, when the Climate Crisis is connected to actions of large, powerful corporations. He learned the importance of being critical of such institutions:

I think that DU likes to put up a facade of being a committed to sustainable practices. But . . . it's a very wasteful place and campus that is heavily financially involved in nonsustainable practices. So, I think especially in DU setting, it's important, and also just in general because I think there's a tendency to— consumers get blamed for a lot of sustainability related practices that causes . . . the climate [to] change and such, when in reality, it's definitely corporations that have the most negative impact.

R found much of his learning at the Center focused on learning “about the school as a system and what's wrong with it.” He said, “My bubble was burst pretty much immediately when I got here my freshman year when I realized that not all and I thought it was.” For R, this “disappointment has definitely snowballed even more since working at the Center.”

For several participants, this critical view of DU came from believing DU should “put its money where its mouth is” regarding sustainability. Cleo placed her frustration on how the university distributed funding:

I think working for the Center has made me realize . . . that DU isn't doing enough, and DU doesn't treat us as they should. . . . In my opinion, over the years I've been here, I think they continue to cut our funding, our efforts, [and] they are not working with us.

Cleo said she had “seen DU be a little sneakier than they want the world to know.” DU projects to the world that it values sustainability while also cutting funding for programs that push for a more sustainable campus and community. This awareness of how DU

distributes funds to its various organizations played out during the observation of Erin and Sustain-a-Ween.

The Waste Team's zero waste game was situated on the campus green across from the DU Programming Board's (DUPB) pumpkin carving event. During the observation, DU community members would bounce between the two events, often asking the Waste interns what was happening on DUPB's side. The pumpkin carving event was much larger and "louder" and in some ways more engaging to the DU community than the zero waste game. Some interns noticed this and commented on the DUPB event using a sarcastic tone. One intern responded with "be nice," and they chose to change the subject. I asked Erin about this interaction, and she said:

Yeah, I think part of it was in a joking manner, but also as someone who has participated in other undergraduate student groups, there's definitely like a "seeing how COVID has affected funding for a lot of things." I know that DUPB, and rightly so, has a huge audience and gets a lot of people involved. And so, they should have like a large enough budget to accommodate the types of events for . . . the audiences that they have. But it's also hard to attract a large audience when you don't have the budget to run big programs or like even collect enough materials to be like, "Hey, we can make 50 of these things, so, like 50 people come out and participate." . . . So, I understand why the budgeting happens the way it does. But it's also hard to be . . . at the bottom of the totem pole.

What was surprising about this interaction was that it was not just seasoned veterans of the Center, such as Erin, noticing the juxtaposition of the Waste and DUPB events. Even

new interns seemed aware of the disproportionate funding the other student organization received. Organizational structure and institutional funding are present in the Center's intended curriculum, which translates to interns being critical of how DU projects sustainability while cutting funding for sustainable efforts.

Interpretation. Punks are united by their frustrations of the dominant culture. In politics, punks typically despise of war and state force, “fake” politicians, and policy doing little to improve the material conditions of those who struggle. In the mainstream music industry, punks are weary of how money and power corrupt art and the work of small musicians. Punks band together to carve out DIY spaces, places where they can share art freely and honestly. The Center feels reactive to the larger university system, and interns and their teams organize their activity around pushing against that institution.

Participants described learning to be more critical of DU as an institution. Mezirow (1981) described perspective transformation as becoming critically aware of how one's habits of thought and perceptions can distort their understandings of problems and their places within problems. Mezirow also described how dominant cultural and social expectations can also distort one's view of reality, which was evident in how participants spoke about DU.

R said as soon as he got to campus as a 1st-year student, he had his “bubble burst” when it came to his feelings about DU, and his opinion of DU only got worse over time. R described this “distortion” Mezirow (1981) referred to as the “facade” DU puts up. Several participants discussed how DU projects to the world that it is a sustainable campus, but it does not model sustainability in its actions. R mentioned DU's ties to the

fossil fuel industry and its wasteful practices, and Cleo and Erin highlighted how DU distributes its funding.

Cleo said DU puts forth that it is a sustainable campus but removes funding from one of its important sustainability institutions, the Center. Erin said it is hard to run the Center's programs with the budget DU provides. Erin also commented on how it is a problematic cycle: DUPB engages the campus effectively, but that ability comes from having a large budget. The Center is given less of a budget because it cannot engage the DU community as effectively as DUPB and therefore cannot increase engagement because it has a lower budget.

In some ways, the joint enterprise of teams is to correct how the university is unsustainable (Wenger, 2008). For example, the food pantry addresses food insecurity issues on campus. The Waste Team helps sort and count waste, demonstrating how wasteful DU athletics can be. Teams organize their practices around serving as a counterforce to DU's wasteful and inequitable practices. In turn, teams and their interns identify with this counterforce because it is the work of their internships. They learn to distrust or be critical of DU. This distrust becomes a central component of their identity as interns at the Center, demonstrating how identification plays out in their CoP (Wenger, 2008). This distrust of DU also demonstrates how interns can develop two transformative capacities: (a) solidarity and (b) the ability to analyze unequal systems of power (Kwuak & Casey, 2021). This last perception contour focuses on this identity of self.

Contour Description: Perceptions of Self

Participants mostly focused their attention on how their perceptions of sustainability and DU transformed during their internships. However, a few participants highlighted how they learned about themselves in the process. For Mabel, she learned sustainability was meaningful for her, saying, “I think I learned about myself, that [sustainability] was a big and really important thing to me. . . . Throughout my time, I realized it was definitely a core value to me.”

Cleo found working at the Center allowed her to see how important her role was to promoting sustainability equitably, saying, “I think there’s less of a kind of internalized rage that we’re originally taught within sustainability.” By “working in the sustainability field, instead of just like reading about being zero-waste or whatever,” Cleo said she learned to let this rage go, channeling her energy into promoting “accessibility” for those who “have been cut out the normal structures around us.” Erin spoke about viewing herself differently because of the internship.

Erin said her self-perceptions shifted by working with mentors. She learned a lot about viewing herself as a strong leader:

I think I’ve learned a lot about myself, just with the different people I’m interacting with. And all of them giving me feedback of what I’m doing in terms of my leadership style or before I was in a leadership position . . . like what sort of things I can bring to the table that have just been hard for me to recognize objectively about myself. But that I think they were able to help me see that I do have these skills, and these are things that I already possess that I can build on,

and things like that. Yeah, a lot of leadership skills that the Center has pushed me towards.

Erin said she had confidence in her skills and abilities, specifically regarding leadership, that she would not have had without the internship. The internship was instrumental in her developing her sense of what she is capable of. Other participants did not provide a similar level of reflection on how their self-perceptions had shifted; however, they reflected on how the Center gave them a strong sense of community.

Interpretation. Very few participants discussed how their self-perceptions changed. Some participants did this in passing; for example, Cleo spoke about letting internalized rage go, Mabel found sustainability was a core part of her identity, and R reflected on how he viewed himself as a sustainable person, which points to the Center's collective and social nature and to the contour I discuss next. Participants were focused on how their perceptions of their social contexts changed but not as much on how their self-image had transformed. Erin, however, reflected in this way, highlighting how she grew to see herself as a strong leader.

In CoP, community identity is tied to trajectory (Wenger, 2008). When an intern starts at the Center, assuming they want to stay on for multiple years, they begin a trajectory toward becoming a lead. A lead is someone who engages in a team's practice for some time, understands the team's history and accepted meanings, and can pass this knowledge to new interns. Once an intern reaches this trajectory, they begin to identify as a lead, acting as though a lead should (Wenger, 2008). This process of transformational learning was difficult for Erin, beginning with self-doubt and confusion over the role,

moving through self-reflection and action, and culminating in Erin seeing herself as a competent leader (Mezirow, 1996). This process also allowed Erin to hone important skills, such as leadership, collaboration, and teamwork (Kwuak & Casey, 2021). The final contour focuses on how community proved central to participants' experiences.

Contour Description: Sense of Community

The internship meant different things to participants. One area in which participants were united was how the Center represents a welcoming community. Mabel spoke to this: “My hope with it, I think, was a mix of finding a community as well as . . . having a job I think that’s important.” She said a large part of learning was dedicated to the Center’s community aspects:

I think working at the Center wasn’t just . . . sustainability stuff. A lot of it was the community aspect of working at the Center that I fell in love with. And I . . . really realized how being able to be in a work environment where I felt heard and seen as an individual, not just somebody to get the task done, was really important to me.

Mabel said, “The Center was kind of my community and my people.”

Several participants highlighted how meaningful the Center was for their sense of community. Cleo said, “I really liked the sense of community immediately.” She said her mentors, including the assistant director and her team lead, were “so supportive and kind,” making her feel she had “found mentors and people who were really going to help” her during her internship. Chelsea also felt like a novice initially but was welcomed

into the Center by helpful leads. She shared, “It was all so very welcoming; you know I wasn’t worried about knowing everything which is . . . great.”

When asked how the internship inspired Erin to work in sustainability fields, she spoke about the community and how that motivated her. She chuckled and said:

I feel like this is going to sound really lame. Like the people that I’ve met. I take a lot of inspiration from them and the way that they are driven and what motivates them. And seeing the issues that they recognize and how they still plan to make impacts and things like that. And a lot of that has been motivating not only in my work here, but also to be like, “Wow, there are still people who really care and are really willing to put in the effort in these topics and to make sustainable changes in the world at large.” And like, I should also be doing my part to do that . . . I don’t know, seeing their interest in it, is making me more interested in it, if that makes sense. So, I don’t know if it’s the Center exactly—I mean, it obviously attracts a certain crowd, but I definitely think it’s been the people here and the conversations I’ve had with those people that have been like, “This is something that’s still really important to me, just as it’s important to you. And the ways that it’s important to you makes it more important to me as well.”

For Erin, working with others at the Center, seeing their passions, and observing how they supported each other was instrumental to what she took from the internship. Erin internalized what others found important at the Center and made those things important for herself.

Bertha not only made similar comments in her interviews but also demonstrated this commitment to community in the food pantry work she did. Her internship was meaningful because it demonstrated the importance of community:

However, I will say I'm so grateful for the Center because it got me out of that silo and really got me engaged on campus and with other students . . . being able to see familiar faces really helped my mental health and feeling of connectedness on campus. And purpose.

Bertha also described why the Center has such a strong community:

A system or a program or a product needs to be created kind of by the community itself. Because that almost always ensures a greater investment, that it will be sustainable, it will have that longevity. And I think that that was echoed in a lot of our studies and programs at the Center.

For Bertha, the Center was successful because it built and shaped its program as a community, which ensured “a greater investment” and “longevity” because the interns are empowered to create the internship and program they want. This focus on community was important for Bertha's story because it translated to how she operated and managed the St. George food pantry in Leadville.

In the first interview, Bertha said the Center was influential in leading her to her position as executive director of the pantry. She said:

I would largely credit this to my experience at the Center . . . that opportunity to kind of . . . dip your toes into other teams, and what they were doing, and how you could affect and change a community for the better.

She continued, “I would say it definitely planted the seed for what I’m currently doing.”

Interpretation. The Center feels punk in many ways. It is an insurgent force within DU, full of passionate people doing the best they can to make real change. It is critical of, and frustrated by, both DU and the state of the planet. These qualities give the Center its feeling of “punkness,” but nothing stands out more than how it fosters community. It embodies the DIT spirit. A ram-shackle group of students pushing to build a better world, leaning on one another, and sharing in both joy and anger. The love and solidarity I feel in punk I also feel at the Center. Participants named this as well. It reminds me of what is so magical about informal and nonformal education.

During both this study and my experiences at the Center, I was reminded of watching groups of students at the HCC, working together to explore and complete exhibits. One such exhibit, a dynamite wall, requires students to press dynamite into a fake mine wall, careful to do so in the correct order to avoid a mine collapse. Unsurprisingly, elementary students do not know how to set dynamite correctly, but they try anyways, sharing joy, collaborating, and leaning on their community. These types of museum activities brought students together, helping them focus their collective energy.

CoP and activity settings are prominent aspects of the Center’s internships. These concepts centralize the importance of community (Lave & Wenger, 1991; Tharp et al., 2000). In CoP, modes of belonging can be fostered and are important to the community’s success. For members to feel this sense of belonging, they should be treated as legitimate participants, meaningfully engaged and respected (Lave & Wenger, 1991). As members participate in practice, have their ideas heard and considered, and gain agency over the

direction of the community, they feel this belonging and thus identify as part of that community (Wenger, 2008).

Participants discussed how impactful this idea of community was for them and were thankful for the welcoming community the Center cultivates. Learning at the Center is based on connections between interns, working with one another, developing a sense of belonging, identifying with teams, and carrying out practices in the DU community. TL is not traditionally community focused; Mezirow philosophy centers on personal growth and transformation (Lange, 2018; Mezirow, 1996, 1997). TSE necessitates a TL framework focused on interrelational and interconnected learning (Kwauk & Casey, 2021; Lange, 2018). Lange (2018) challenged Mezirowean conceptions of TL, which are highly individualistic and call for a TL framework focused on relational ontology.

Lange (2018) stated the goal of traditional TL is “fostering an individual’s autonomy away” from their existing worldview and perspective through critical reflection. Lange (2018) contrasted TL with a relational ontology, in which TSE would attend to the dynamics of the whole, and nested systems as much as possible. This includes the contexts, properties, and patterns of interactions in which an individual is embedded, not just the worldview of an individual. It would address as much of the relational network as possible. (p. 291)

Lange’s conceptualization of TSE is sociocultural in nature because it attends to the full social context of the learner and centralizes the interconnected nature of learning in such contexts. Understanding interconnection is an important capacity in TSE because of the interconnected nature of the ecological world. Kwauk and Casey (2021) called for

development of a “feminist planetary consciousness,” which they defined as “a sense of place and identity that positions environmental stewardship alongside an ethic of care and compassion for humanity; an awareness that humanity’s challenges are interconnected with the state of the planet” (p. 55).

Participants came away from the Center recognizing they were part of a larger whole. When participants arrived, they were welcomed by longstanding veterans who helped guide them along their transformational journey. At the Center, participants took part in, learned from, and helped shape the community. Within this community, participants learned to support one another, demonstrate care for one another, care for the environment, and consider how their work and perspectives fit into larger systems. Participants’ TL intertwined with this community, and several participants found this sense of community deeply impactful. When I asked participants what they took away from their internships, several felt this sense of community and interconnectedness was most important.

Summary of Outcomes From Transformational Learning Theory

Participants discussed having TL experiences that fell into two categories: (a) perspective transformation and (b) developing a deep sense of community. Participants reflected that their perceptions of sustainability evolved greatly. Several discussed moving to more complex and collective understandings of sustainability. Others highlighted the importance of exposure to the work of teams in this transformation. Finally, Erin and Chelsea highlighted how this transformation could be disorientating.

Participants also explained how they became more critical of DU as an institution. This was mostly due to how the university projects sustainable values but does not model these values, including how they choose to fund the Center. The work of teams is centered on serving as a counterforce against the Center's unsustainable nature, which helps explain how interns became critical of the institution around them. Finally, Erin highlighted how she grew to see herself as a leader from participating and mastering the work of her team over time.

Participants praised how the Center fosters community, a quality that stuck with them. For Bertha, the sense of community inspired her to work in her field. For Erin, this community, and learning to care for the world in the way her peers do, was the most important takeaway from her internship. The Center fosters strong communities by placing interns into CoP. In these communities, new interns felt supported by their older peers, engaged in practice, and had their perspectives heard. Building this community is important for the goal of TSE, because it helps learners understand the interconnected nature of their work. Learners must attend to the interconnected nature of the ecological world to make transformative change (Kwuak & Casey, 2021; Lange, 2018).

The final section of this chapter focuses on the different types of learning outcomes participants described and demonstrated. These learning outcomes are situated within the new green learning agenda framework (Kwuak & Casey, 2021). The skills discussed are necessary for interns to bring about green transformation, even if some of the skills are smaller and more technical in nature (Kwuak & Casey, 2021).

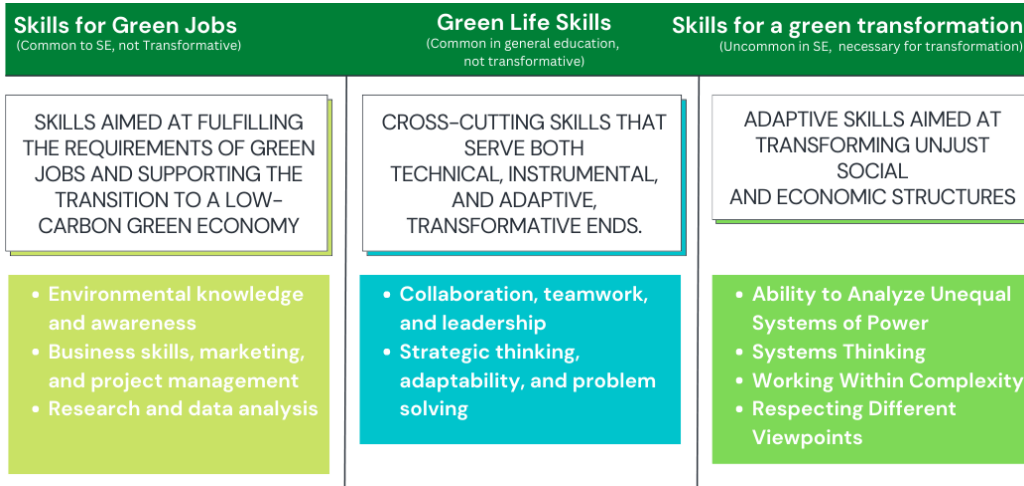
Outcomes From the New Green Learning Agenda Framework

Kwuak and Casey's (2021) framework is expansive, with diverse learning content, skills, and strategies. The framework serves as a toolbox educators can use to construct their programs. Kwuak and Casey (2021) stated their new green learning agenda framework takes a "holistic" view of TSE because it "avoid(s) cognitive design elements from being rooted solely in one epistemology" (p. 49), which centralizes flexibility and adaptability in its design. These skills range from practical and transferable skills that may have little to do with green content to transformative capacities and skills tied to green content. Findings in this section are presented using this framework.

Each level of the framework has its own set of skills that I used to categorize and analyze the received curriculum participants reported. It is also important to recognize several skills provided in the framework could be applied to the descriptions provided in this section. The skills discussed represent how I chose to interpret the examples, as guided by my perception and understanding of those skills. Figure 27 provides an overview of skills participants discussed and their level of importance both within the Center's internships and the new green learning agenda framework (Kwuak & Casey, 2021). Skills are listed and discussed in order from greatest to least prevalent in participants' statements.

Figure 27

Organization of Participant Skills



Note. Skill titles and descriptions taken from Kwuak and Casey’s (2021) new green learning agenda framework.

Within Kwuak and Casey’s (2021) framework, the lowest level represents “skills for green jobs.” Although these technical skills are important, a green transformation cannot occur unless both “green life skills” and “skills for a green transformation” are also acquired by students. This last category of skills is the highest level and is often neglected in SE (Kwuak & Casey, 2021). Transformative capacities found in the final category are important for this study because such capacities are what differentiates participants’ learning experiences from standard sustainability curriculum. Development of these capacities helps to demonstrate how participants experienced TSE (Gramatakos & Lavau, 2019; Kwuak & Casey, 2021).

Contour Description: Skills for Green Jobs

Kwuak and Casey (2021) defined skills for green jobs as “aimed at fulfilling the requirements of green jobs and supporting the transition to a low-carbon green economy” (p. 19). These skills can be considered like the professional and sustainability skills in the Center’s intended curriculum. Most skills for green jobs are not green content related but rather focus on learning outcomes that prepare learners to enter the workforce and innovate within the green economy. These capacities are not transformative in nature but rather practical abilities for work in sustainability fields. Skills for green jobs are common learning outcomes found in traditional sustainability programs (Kwuak & Casey, 2021; Moroye & Ingman, 2013). Many skills found in the framework were present in participants’ statements about the received curriculum. “Environmental knowledge and awareness” was most prevalent in participants’ statements.

Environmental Knowledge and Awareness. Participants mentioned their perceptions of sustainability shifted as result of their internships. In most cases, this was the development of social sustainability understandings and capacities. However, participants also mentioned a broadening of environmental understanding as well as acquisition of practical sustainability skills. Bertha said, by being exposed to the work of other teams, she learned how simple integrating sustainability practices can be. She said:

I didn’t know that much about waste or composting or food pantries . . . as soon as I learned about it and heard about, you know, what the Center was doing on campus, I was like, “Well, those are easy things that I can apply to my own life.”

Bertha learned about simple changes she could make in her life to prevent wasteful practices as well as how to combat food insecurity.

Chelsea said, “One of the big ones that I learned was honestly just three principles of sustainable development.” Here, Chelsea learned sustainable development is comprised of not just environmental principles but also social and economic ones. Chelsea said this made her realize “sustainability is viewed through all different kinds of perspectives,” and she could approach sustainability challenges using different avenues. She also discussed learning environmental basics she missed out on because her “community didn’t have recycling.” She reflected, “I learned a lot about proper sorting, about where our waste goes, where it comes from, and how different communities handle it.” She also said she took a lot from the Energy Team, such as controlling utility use, noting “those little things add up over time.”

Cleo said, “I’ve learned so much about the sustainability world that I didn’t learn of my classes, just through these jobs in these hands-on learning experiences.” A huge focus of this learning was “on more of those social and economic aspects of sustainability and equity.” Managing the Sustainability Marketplace, Cleo developed a deeper understanding of preventing material and food waste. Regarding sustainability skills, she said, “I see myself sometimes having a bit of an edge, even among my peers and my academic classes geared on sustainability.” This “edge” includes “learning specifically sustainability initiatives within the campus, but also the greater Denver area,” such as “what’s compostable or recyclable in Denver.” As the Sustainability Marketplace Team

lead, Cleo said she tried to focus the team's efforts on "equity, affordability, and accessibility," concepts she saw the team integral to "trying to teach and . . . promote."

Some participants stated they wanted to be more intentional about centering social sustainability in their work. Erin said she tried to reflect on how to make her programs more social justice forward, offering examples of how the Waste Team shifted from "just waste diversion." The Waste Team spearheaded the "move-out" event and thrift store. Move-out is a yearly event during which the Center helps 1st-year students move out of the residence halls, collect their left-behind items, and either recycle or sell them at a thrift store. Erin believed both Waste Team initiatives intersect with social justice, a consideration she "wouldn't have thought about certainly before . . . coming to college and to the Center." Erin broadened her conceptualizations about what sustainability is. Erin framed her learning around being able to answer more critical and specific questions, such as "How do you reduce your energy usage? . . . What does that really mean? . . . How to reduce your waste? What does sustainable food really look like?"

Both Mabel and R discussed how the Center helped make their understanding of sustainability well rounded. Mabel described the "tangible practical things" she learned. She was the Waste Team lead while the DU solar panel installation occurred; thus, she said, "We learned a lot about that how—I still don't really understand the science of it, but kind of the power of solar." Mabel said she learned about "personal habit building," such as "reducing students' energy uses" and composting. R mentioned he came in as an already "sustainability conscious person," understanding basics such as "recycling,

reduce, reuse.” He came to understand sustainability as an “umbrella term” that includes the “ecosystem” as well as “social sustainability” and EJ.

Business Skills, Marketing, and Project Management. Acquiring professional skills was a significant portion of participants’ learning. These skills included the capabilities needed to participate and work within a green economy. However, they are not sustainability-specific skills but rather transferable skills to succeed professionally. Chelsea struggled at the Center for a variety of reasons, but she found the internship a valuable work opportunity. She said:

I just want to really emphasize that while I think the Center has a lot of work to do in terms of growing and making it a resource that’s an internship / job that’s really viable to a lot of students, I also think it’s an amazing opportunity for people to just get the foot in the door, especially if their work is related to potentially going into the sustainability field.

Participants gave examples of the professional learning focus within their internships. Cleo said she learned “little things that are really applicable to all sorts of careers and jobs” such as “interview skills, people skills,” “how to send emails to companies to partner with you,” and “how to plan an event.” By managing the Sustainability Marketplace, Cleo demonstrated an understanding of basic business skills such as running a point-of-sale system, pricing and selling items, and working with customers. The position’s focus was on marketing the Marketplace and its various wings as well as managing sales.

Cleo submitted several pictures of the Marketplace as her artifact, stating she played an instrumental role in developing and managing the space (see Figure 28) and Appendix R). With the Sustainability Marketplace and her leadership position, Cleo also developed project management skills. Cleo added the internship “wouldn’t . . . exist without the professionalism aspect.” For Cleo, development of professional and leadership skills was an integral part of her internship.

Figure 28

Pictures From The Sustainability Marketplace



Erin said, “I think the way that I’m experiencing the internship right now, professional development has been more important” than sustainability knowledge. She clarified that a large part of her professional development focused on leadership skills, which I discuss in the next section. However, she demonstrated project management also was a focus of her role as a lead. Erin submitted a zero waste program plan (see Appendix S). Erin and the other Waste Team lead developed this plan during the Autumn

2021 quarter in response to the pandemic and the need to evolve the Center's Zero Waste Athletics program. In it, Erin gave an in-depth report on how the project would change, what its new core elements would be, how they would work and shape the DU community, and how the Waste Team planned to implement the project. This artifact demonstrated Erin learned to write and communicate professionally, to consider the needs of the DU community, and to manage projects.

Mabel and Bertha both cited development of marketing and graphic design skills. Mabel mentioned graphic design as a big part of writing team reports, something she took part in. For Bertha, graphic design became one way she developed during the pandemic when much of the Mobility Team's operations were shut down. Bertha said, "There was a whole re-branding of the Center during COVID, which I got to be a part of too. And I also have some graphic design skills, so that was really fun." In fact, Bertha returned to the Center during the Autumn 2021 quarter to lead a graphic design workshop for new interns. For her artifact, Bertha submitted the logo she created for the Mobility Team (see Appendix V). On the logo, she said, "This was one piece I was particularly proud of."

Research and Data Analysis. Several participants spoke about the importance of reporting within their internships. Each quarter, teams are required to submit a report detailing what their programs are, how those programs are doing, what their impact is, and how teams will improve their programs going forward. Bertha tied the importance of reports back to systems thinking and problem solving, saying, "I think that the way that we address problems, the way that we researched and collected data—these are all just key skills for . . . systems problem solving."

Mabel submitted an Energy Team report as her artifact (see Appendix T). When asked to clarify what she contributed, she said she focused on creating the graphs “and the write-ups about the graphs.” She also planned and facilitated the events listed in the report. Mabel said the purpose of the report was to “explain to other teams, and the directors, kind of what [they’ve] been up to as well as some time for self-reflection within the team.” She added it was a great way “to also build skills . . . like some writing skills that usually pulls in data” and to “home in on graphic skills.” The artifact demonstrates Mabel’s ability to use data and analysis as well as her ability to create and communicate data using graphs, to write professionally, and to plan and facilitate events. Reports are an important artifact produced by teams to represent the fruits of their practice. By taking an active role in organizing and facilitating team projects, communicating the success of those projects via reporting, and using data to inform future projects, Mabel demonstrated learning regarding project management.

Interpretation. When I think back to the formalized environmental education I received, it almost always focused on topics such climate change, carbon emissions, waste diversion, water ways, and biological systems. Schools typically have a hyper-focus on scientific facts in sustainability curriculum rather than on issues such as EJ or grappling with tough questions (Moroye & Ingman, 2013), which is not to say scientific discussions around climate change are not important—they very much are—but they should serve as the building blocks for diving deeper into sustainability issues, especially those attending to social justice and systems problems (Kwuak & Casey, 2021). If

university students are interested in working in a sustainability field postgraduation, then they must develop basic professional skills to navigate green jobs.

The Center internship is a job preparation program, evidenced by how the directors align the intended curriculum with the career competencies put forth by DU. Some of this job preparation focuses on practical sustainability skills while developing transferable professional skills. Interns practice and learn these skills naturally through the work of their teams. Practical sustainability knowledge and skills represent the unique practices and understandings located on the teams (Lave & Wenger, 1991).

For example, on the Waste Team, it is important to master practices related to waste diversion, the joint enterprise of that team (Wenger, 2008). Interestingly, regardless of team, participants named waste diversion as central to their environmental knowledge and awareness; however, on the Waste Team, Erin spoke to pushing beyond diversion knowledge, pointing to her trajectory on her team, in which she moved beyond the mastery of basic diversion skills (Wenger, 2008). Pushing beyond more basic skills and knowledge led to exploration of answering tough questions and centering justice in her work. Mabel was the only participant to mention other basic environmental knowledge (i.e., how solar panels work), likely explained by the fact that she led the Energy Team.

Participants did not focus their entire discussion of environmental knowledge on waste diversion. Several participants named development of social sustainability knowledge and expanding their understandings of what “counts” as sustainability, a significant focus of both Chelsea’s and Cleo’s experiences, which illuminates how experienced interns can move beyond basic environmental knowledge. Chelsea explored

the different pillars of sustainable development, and Cleo's exploration was clear in her work because she tied her work at the Marketplace, a standard sustainable storefront, to issues of equity and accessibility. She not only developed the business skills needed for a storefront but also considered how to address social sustainability issues via policy, which demonstrates how teams act as CoP, which leads to developing unique capacities based on the needs and practices of those communities (Lave & Wenger, 1991).

Although teams have their own practices, there were professional skills common across teams. Several participants named professional writing and communication, event planning, evaluating and managing projects, and research. Each team will need to send emails, develop project plans digestible for a wide audience, design graphics, and report the results of their programs. These skills are likely found in most sustainability fields and represent the basic knowledge learned at the Center that is team agnostic.

Even though teams are communities with their own practices, there is an undercurrent of professionalism tying them together, which may be representative of a global CoP—of being a sustainability professional—that interns learn to internalize as part of their identities (Wenger, 2008). Professionalism and sustainability align with Kwak and Casey's (2021) framework, which posits such skills, although basic, are important building blocks for learners entering green career fields. The next contour focuses on more transferable learning outcomes: non-content-specific life skills.

Description: Green Life Skills

Kwak and Casey (2021) described the second level of their framework as “cross-cutting skills that serve both technical, instrumental, and adaptive, transformative ends”

(p. 19). These skills include “generic capacities” (e.g., adaptability, critical thinking, and reasoning) that are transferable and necessary for transformation. However, they are not, by themselves, skills that can bring about transformation (Kwuak & Casey, 2021). These skills are common to traditional educational spaces, regardless of content area. Unlike skills for green jobs, participants were varied in which green life skills they discussed. Development of green life skills was contextual to the individual and less universal as was the case with green job skills; however, there was some parity in participants’ experiences. Like the previous level, some of the related skill sets were grouped together in this section, which was critical in this section because skills like “collaboration” and “teamwork” are very generalizable and could be applied to any of the participants’ statements with ideas about effectively working with others.

Collaboration, Teamwork, Communication, and Leadership. Participants said and demonstrated that collaboration was an essential aspect of their internships. When asked how important collaboration was at the Center, Cleo replied, “Critical, I would say. I think that there’s no way any of the work we can do is done by one person ever.” For collaboration to take place, teamwork, communication, and strong leadership are needed. Bertha said, as a team lead, “there’s a lot you have to do in terms of organization.” She said, at the Center, there were lots of opportunities to develop team organizational skills. She described honing these skills:

So just basic communication skills. Also, like lots of empathy. You know that you have these undergrads. And so, I was a grad student, you’ve got to be checking in

and creating space for them to express what they're feeling or thinking.

Sometimes on a one-on-one basis.

Bertha added, "So it was a nice opportunity to work, not only with the team, but also kind of as the guide for that team." In this statement, Bertha demonstrated learning to hone teamwork, communication, and leadership skills.

Cleo said her time at the Center was critical in developing these skills. She also pointed to how these skills are needed for collaboration:

I think through my experience at the Center . . . and getting leadership roles here, it has very much developed to me professionally—taught me a lot about how to manage a team, how to make people feel involved, seem wanted, as well as just the freedom and creativity to work on projects and get to see those projects expand and grow and change.

Cleo provided an example of how her ability as a leader grew throughout her time at the Center: "The thrift store started with just a little bookstore sale that I put together when I was at the end of my sophomore year, beginning junior year, and now it's a whole marketplace." What was once a small project of Cleo's blossomed into what is now a core program of the Sustainability Marketplace. Through this transformation, Cleo had to learn the collaborative skills needed to make it successful.

Erin located her development of leadership skills within the context of trying to ensure the Center was as successful as it could be. She said the internship forced her to consider, "How do you develop into becoming an integrated part of [the Center]? Or . . . Where do you fit and where are your leadership skills going to be like most effective in

enhancing this program for yourself and for others?” Erin said her professional development focused on answering these questions.

Earlier, Erin gave insight into how she led and collaborated with others. On collaboration, she said, “I’ve actually found that to be really valuable to the work that we’re trying to do even within our own team, because there is so much cross-team communication that’s happening.” She added, “You just have to be informing so many other people of the work that you’re doing.” She also clarified that part of informing others about the work you are doing is “to get feedback.” With leading, she took a similarly collaborative approach. When discussing the Waste Team’s projects and programs, she asked her teammates, “What do you think about [this]? . . . What does this look like in the future to you?” Erin said honing these leadership and collaborative skills were the most important aspects of her internship.

Cleo underscored how important development of communication skills was. Regarding learning skills, she said, “Talking to people is a big one.” She said effective communication is especially important in the food pantry, and talking to customers “about sustainability and things like food insecurity” enabled her to develop “a lot of speaking and thinking skills on that and teaching other people to think critically on those things and why they’re important.” Here, communication went beyond the confines of team, or within the Center, but expanded to the DU community.

Strategic Thinking, Adaptability, and Problem Solving. Participants demonstrated solving problems was a core part of the internship. There were several examples of how participants used skills such as strategic thinking and adaptability for

problem solving. R said the food pantry was designed to address a specific problem, saying, “I’ve learned just . . . a lot about the food system of the DU itself, and how we can better make it a better environment.” R expressed how the food pantry addressed that on a “microscale”: “We try . . . [to] source everything from like local and organic places and stuff to create a healthier food system.” R learned about how “food systems operate,” and how he could “create a more sustainable one.” R said he planned to use creativity and strategic thinking to improve the pantry in ways no one else has thought of. R demonstrated that the Center allowed him to develop skills connected to problem solving.

Bertha gave a similar example from when she led the Mobility Team: how the team chose to address “a season of transportation.” Because a big focus of the team was on the bike shop, much of the work they did was impacted by the weather. Bertha said, as a team, they shifted to thinking “a little bit more on carpooling, walking, [and] taking the RTD.” The pandemic also affected the Mobility Team because it meant the bike shop could not be open. Bertha said, “I think that really provided the opportunity for us to kind of think outside the box and really capitalize on those opportunities to network.” Bertha expanded on how the team tried to use this opportunity:

So, we still had regular meetings . . . and instead of focusing on DU, what we did was we started looking at other campuses around the US and talking to their mobility directors, or there’s transportation directors, seeing how they did things and what their biggest challenges were, and how they overcame them. So, I really think that, yeah, maybe it wasn’t initially what we thought, [but] it allowed us to take a step back and do a lot of data collection and analysis.

Bertha was not the only participant to demonstrate how she used strategic thinking and adaptability to address problems related to the pandemic, and Erin's entire Autumn 2021 quarter was spent grappling with how to address the fact that Zero Waste Athletics could not exist in the way it had.

Erin, along with the other Waste Team lead, went to great lengths to adapt and plan around the constraints the pandemic placed on the Waste Team. The artifact Erin created and provided detailed how the team would adapt to this problem. The document included the purpose of the new program:

This document is meant to be a guide for the Zero Waste Athletics Team and their partners to clarify a path toward a more sustainable future for Zero Waste Athletics program. It is meant to be adaptable to the needs of partners and the context of our community. The COVID-19 public health crisis has caused all us to evaluate the priorities and essential components of our programs. As we reintroduce programming like Zero Waste into our campus operations, we want to be intentional about what we ask of our staff and partners, and what purpose these asks to serve.

To meet this challenge, Erin and the other Waste lead developed a comprehensive plan outlining goals, intended outcomes, and methods for achieving the stated goals, which involved a 3-phase process for educating the DU community about zero waste and how to bring zero waste policies to their programs.

In the Crimson Compost application Chelsea provided as her artifact (see Appendix U), she demonstrated many qualities similar to Erin. In the application, she

outlined the central goals of the project, the problem it would try to address, the plan for addressing the lack of composting on campus, how she would market the program, how the program would address the needs of the community, how the project advances social sustainability, and how she would measure the program's success.

Chelsea deliberately planned to address the composting problem on campus with adaptability and strategic thinking. The program helps DU adapt to waste diversion problems on campus, specifically the lack of accessibility to composting, which is both expensive and unavailable to most DU students. The program addresses these accessibility issues by offering compost totes on campus as well as a more affordable option for students. As Chelsea said in her follow-up interview, although the initial idea was the executive director's, her efforts and strategic thinking brought it to fruition.

Interpretation. Green life skills will be familiar to educators, regardless of field. They will be familiar to learners, regardless of context. For example, I have honed adaptability, communication, and teamwork by touring with my band. Solving problems is a powerful skill regardless of whether one is trying to pass an exam, build a shed, or write a song. At the HCC, learners had tangible opportunities to practice these critical life skills. In the dynamite wall example, students used both teamwork and attention to detail to solve their problem, namely setting off dynamite without blowing up the mine. In this example, students developed both content knowledge and transferable life skills.

Across teams, participants discussed how they honed green life skills while carrying out their team's practices and projects. These green life skills help prepare interns to meet the challenges of the sustainability field, which is particularly fluid and

complex (Kwuak & Casey, 2021). Communication, teamwork, and leadership are qualities needed for a strong CoP (Lave & Wenger, 1991), and participants demonstrated how they practiced these skills frequently on their teams.

Cleo used her leadership status and agency to build the Marketplace from the ground up, guiding her team to develop the team's new joint enterprises and practices (Wenger, 2008). Erin tied her learning trajectory—becoming a strong leader—to the betterment of her team and the Center. She focused her learning and personal growth and built a stronger CoP (Lave & Wenger, 1991). Both Erin and Cleo named cornerstones of a strong community, specifically ensuring new interns are mutually engaged and have their voices heard (Lave & Wenger, 1991; Wenger, 2008). Cleo also touched on using communication contextualized to the work of her team, teaching food pantry patrons about food insecurity.

Although several participants shared the importance of skills such as adaptability and strategic planning, using these skills was highly contextual to each team. For example, Bertha directed her team to think creatively about projects they could work on during the off season. Erin considered how to adapt her team's cornerstone program, Zero Waste Athletics, to the pandemic's challenges. Finally, Chelsea thought strategically about bringing compost to DU and which problems she was addressing.

In all cases, honing green life skills tied to each team's practices and enterprises (Wenger, 2008), which showcases how green life skills are powerful tools for sustainability professionals given the field's challenging and evolving nature (Kwuak & Casey, 2021). For example, the directors' discussion on the importance of adaptability in

Center work is validated by the fact adaptability is a green life skill within Kwuak & Casey's (2021) framework. The final contour in this section homes in on transformative capacities, skills separating the Center's program from traditional SE.

Description: Skills for a Green Transformation

The final level of Kwuak and Casey's (2021) framework, "skills for a green transformation," represent "adaptive skills aimed at transforming unjust social and economic structures" (p. 7). Kwuak and Casey's (2021) framework centers on learners gaining tangible and practical green skills as well as bringing about transformative change for learners and the global community. This final set of skills has its sights set on the second goal: broad and transformative societal change. These skills are "critical" in their approach, focusing on radical and equitable social change. They are meant to help learners challenge the status quo, disrupt the dominant narrative, and tear down oppressive structures. Participants expressed learning several of these skills, especially the ability to analyze unequal power structures and use systems thinking.

Ability to Analyze Unequal Systems of Power. Universally, participants said their internships taught them how to analyze unequal systems of power. By making social sustainability foundational to the program, the Center intends for students to challenge themselves, as well as the systems in which they participate, to be more equitable. Participants discussed how the internships caused them to reflect critically on their understanding of sustainability. Chelsea made this point while discussing the three aspects of sustainable development, a concept she credited to learning from the Center:

The important thing is that a lot of people think, “Oh, if you just recycle, then you’re being sustainable.” Well, I mean, how does your recycling impact people of lower income? Is this recycling facility emitting pollutants in low-income areas? Then that’s not very sustainable. It’s all about how things kind of coexist with one another.

For Chelsea, the three aspects of sustainable development—the social, economic, and ecological—helped her understand better how sustainability issues impact different communities. Communities with less power in the dominant culture are more affected by the effects of environmental degradation.

Chelsea addressed this point again when discussing the privilege of DU students. She discussed how, in the Center, many interns came from a place of economic power and privilege, affecting how they viewed sustainability issues:

For me, that whole idea, like being angry is because they come from either very liberal place that really believes in sustainability, in environmentalism. . . . So, in their backgrounds, they don’t understand why other groups won’t or can’t do it. Or they just have more resources in order to be more sustainable. They can afford products that are more sustainably made or . . . they [can] offset their carbon footprint. And I’m like, not everyone can do that.

Chelsea demonstrated an understanding that unequal power structures affect how groups of people can engage with sustainability. She said she found it necessary to challenge her peers on their “privileged” perspectives by engaging them in discussion.

Cleo navigated away from placing blame on individuals for the Climate Crisis, focusing instead on systemic causes, and she exhibited a commitment to challenging unequal power structures. On joining the Food Team, she said, “[I] became obsessed with it; loved the event of planning . . . of the food waste aspect, loved the equity aspect of food pantry and wanted to just kind of keep pushing for that.” She also admitted she “has been less angry,” aligning with Chelsea’s comment, and has focused on asking, “Why isn’t the world more sustainable? Why are we like this? Why are these the practices?” Cleo liked working at the food pantry because it facilitated “interacting people that were using the food pantry.” She commented, “I think in some ways, that’s almost one of the most sustainable things we’re actually offering on campus.”

Cleo said the Center helped her develop the skills to analyze unequal power structures by giving her hands-on experiences to work with individuals affected by food insecurity as well as “teaching other people to think critically on” why destigmatizing food insecurity is important. Her story about teaching the business class about food insecurity is an example of developing such a skill. Cleo also demonstrated her commitment to “equity, accessibility, and affordability” by challenging new interns to think about how the Marketplace could better meet the needs of underserved populations.

During the observation of the Marketplace Team meeting, Cleo led her team in examining critically how the program might be inequitable and inaccessible to various communities with less power and began to plan a path forward to serve those communities better. Bertha, after leaving the program, demonstrated a similar and more expansive approach to combating food insecurity. At the St. George food pantry, she

addresses similar issues as Cleo hoped to, namely “affordability, accessibility, and stigmatization.” This commitment to challenging unequal power structures was something Bertha said she learned at the Center.

Erin said the internship taught her sustainability is “an intersectional field.” She expanded, “Actual sustainable change . . . requires a lot more thinking and planning, then what I would have thought before.” She now takes an impact-driven approach to sustainability pattern requiring her to ask:

Who are the people that you’re targeting? Who are the people that are actually going to be able to meet you where you’re at in terms of like, “Can these people afford to donate food or afford to buy a reusable cup as opposed to like a water bottle”? Which like in the long term, it saves money, but like “do you have that upfront money?” and things like that.

Erin said not considering such accessibility issues when trying to do things like “market reusable water bottles” represents “one dimensional thinking.”

Similarly, Mabel commented that event planning required careful attention to “making a really big effort to have anybody and everybody from all different aspects of the university feel at least they could participate.” She said the Energy Team tried to make events “super inclusive,” such as “open mic night.” Mabel also pointed out that REPS was a way to have “anybody from any walk of life . . . participate . . . and there’s no way to have us leave it being in a worse situation and they started.” She said the program symbolized the “ethos of just being open and inclusive for anybody and everybody.”

Of all participants, R was perhaps most critical of how DU and the sustainability space often reinforced unequal systems of power. He commented, “While working on the Food Team last year, and managing it this year . . . I learned that the university does not properly compensate its workers.” By working in the food pantry, he had direct insight into how DU treats its’ employees, sharing:

I’ve learned so much about not only like DU as a food system and stuff, but also just so much about the demographics of the staff, the stigma associated with the food pantry . . . and the type of people that use it. I think that’s kind of why [I’m] trying to create a donation-based, sustainable food system at the pantry. And then also like aiding in-need communities, an at-risk demographic, is kind of like the intersection of like social and environmental justice.

By managing the food pantry, R had access to both patrons’ demographics and income level. He did not divulge such information but said the “school does a really bad job of treating its employees.”

He also juxtaposed how much the university pays its staff with how much it spends on watering nonnative plant species. R shared, “I think one of the things that DU does the worst sustainably, is wastewater on landscaping.” This, and “changing the plants constantly,” is counterproductive, because, in R’s words, “we live in a desert, we waste so much.” R commented on how the university chooses to waste money, and resources, on maintaining local landscaping when it should pay its staff more. For R, the net effect of DU not meeting the needs of its underserved employees is that “it causes workers to be rather apathetic and not like the place around [them].” R spoke about using his ability to

analyze unequal power structures at DU to give back to those underserved employees, starting with developing a “donation-based, sustainable food system at the pantry,” which highlights the importance of systems thinking, a skill several participants mentioned.

Systems Thinking. Systems thinking is an integral part of the Center’s program and was named in the Center’s learning objectives. Systems thinking is a critical component of internships, and participants credited their internships for learning about it. Bertha expanded on this point:

Well, I will say the first time I ever heard the term systems thinking, or systems problem-solving, was at the Center, and was from the executive director in our orientation. . . . I think based on my own experience now in food access, it doesn’t matter like what team you were working on. It’s like those skills applied to literally every aspect of sustainability or any organization you may go on to work for. Because I think that the way that we addressed problems, the way that we researched and collected data: these are all just key skills for . . . systems problem solving.

Bertha also discussed how systems thinking was important for team collaboration as well. She said, “The executive director really emphasized . . . that although we’re all kind of different departments at the Center, we’re not like separate silos. Everything is interconnected.” In Bertha’s words, the Center is a system, and “within that system, there’s bigger systems at play and like changing one thing doesn’t mean that you’ve solved the root problem.” She added developing systems thinking during her fellowship

was “such a valuable skill” to have in her current position, evidenced by how she developed the St. George food pantry.

Mabel, similar to Bertha, said systems thinking was useful in her current position. She said asking “why does this matter?” was “really ingrained by the executive director and the assistant director.” In her current position, she recognized the importance of systems thinking, saying, “In my current job too, that’s been something I’ve been noticing a lot recently.” Mabel said she was reminded constantly of systems thinking at the Center by observing how teams interacted with one another “within the massive conglomerate of the university, which is a huge system.” She pointed to how the Center is a smaller system within the larger DU system, and the programs used systems thinking to collaborate more effectively:

Cohesively, the Center was working as a system too. The food pantry . . . would support the . . . zero waste initiatives and try to get people more tuned into every part of sustainability in whatever way they interacted with it—or whatever part of the system that they touched. And then it was all within the massive conglomerate of the university, which is a huge system.

Chelsea made a similar point, stating, “Our work that we did on our single team is also impacting other teams as well as the people on how they understand sustainability.” Like Mabel, she referenced how the Food and Waste teams often collaborated: “The way those two systems work together while they are separate, is really crucial because food and waste go hand in hand.” Mabel felt the directors tasked teams and interns to grapple with systems thinking and how their work mattered in the larger system they were part of.

For Cleo, systems thinking had “become increasingly important” the longer she was in the internship, which was especially the case now that the Sustainability Marketplace exists. She said, “I think the Marketplace Team specifically shows . . . systems thinking . . . in a physical existence.” Cleo expanded:

All the different markets and the Marketplace have common themes of equity, accessibility, and affordability, which are the values we promote. And I think it makes sense that when you put these systems together; they get to exist together. And it makes sense that they are a united front.

Cleo tried uniting the various programs around the values of equity, accessibility, and affordability, using the system to its full advantage. By visiting the Marketplace, which Cleo helped to create, she understood how various sectors of sustainability, whether controlling waste or improving food access, are intersectional.

Systems thinking also was seen in how the teams coalesced around using punch cards. Cleo commented on the purpose of the punch cards, saying, “It’s just a new project to promote the Center . . . and to get people to see that we are all connected.” Teams at the Center also considered the different ways DU community members could have their cards punched. Cleo continued, “They can get those spots punched out by attending either: Center events or visiting different locations like the bike shop or anything to do with the Center for Sustainability.” It is intuitive why the Sustainability Marketplace would want to promote the cards, given that many of the locations that punch cards are in the Marketplace, which was evidenced by the conversation the team had during my

observation of their meeting. However, the Waste Team, at least during Sustain-a-Ween, were prompt in distributing the cards and getting players to visit other Center tables.

Similar to how Cleo centered the work of the Marketplace in values, Erin remarked seeing teams “encouraged to think about what is the end result and sort of working backwards from there,” so anchoring work in outcomes and values and “working from there to design a system that will get [you] to that point.” Erin gave the example of how the Center tries to design collaborative systems around sustainability issues at DU:

I see a lot of the systems interaction work in terms of the collaboration that we’re asked to do in this work and in this space, collaborating across teams within the Center and also collaborating with a lot of . . . outside stakeholders . . . so, coordinating with them, trying to get them to collaborate with each other. Trying to be a facilitator in sort of like these larger bodies . . . outside of the Center and making connections in the way that systems require interactions and different moving pieces and things like that.

Here, systems thinking pushes beyond internal Center operations and expands to how the Center engages collaborative networks across DU. Like for Mabel, Erin highlighted how interns are taught to work within a larger and more complex system.

Working Within Complexity. Related to systems thinking, some participants felt they learned how to navigate and work within complex systems. Mabel said learning to work within complex systems was an explicit part of the curriculum on behalf of the directors. She felt the directors were strong at giving interns “a lot of insight into the

workings of the university, which are incredibly complex . . . so many politics and stuff.” To Mabel, this was important because these intricacies were “hard to see from so far down as just a student.” The directors also tied Center goals to DU’s broader mission, helping interns to understand how the Center and its programs are connected to larger DU initiatives. For Mabel, this explicit connection on behalf of the directors was important for enabling her to work within complexity. Mabel remarked, “[The directors] were really integral in kind of keeping the message alive—of what our purpose was on campus.” R concurred with this focus of the Center curriculum, saying the trainings were “mostly about the position that DU is in and where they stand in their commitment goals.”

Mabel also described how this focus on navigating complex systems translated to the work she does:

I came away learning a lot about . . . how organizations operate and how businesses operate, because that was kind of like a little mini business. I felt like . . . I had seen [how to] go into professional world, how to talk to your boss, and how to be professional in the workplace, but also show like personality and not just be you know, be able to push back a little bit and show what you actually want.

Mabel felt succeeding in getting DU students to alter their energy use habits required understanding how students are situated within a larger system and developing a work plan to navigate this complex system.

The ability to navigate complexity started with one of Mabel's core position requirements, to "make students more aware about their energy use." She said this task alone required a great deal of systems thinking:

Having to think about the system in general of our university, and how that is to take that one mission [of making students more aware of energy use] and then how do you apply that to the freshmen? And then how did the freshmen interact with their classes as that's what they're doing most of the time, how do they interact with their friends, how do they interact with Greek life? How do they interact with other various clubs or sporting events or whatever. . . . So, in my job position, I always tried to think about all that. And that could've been one subsystem that I interact with.

R also reflected on a similar process for creating a sustainable food system within what he believed to be a very "unsustainable" food system, which inspired him to develop an interest in corporate social responsibility. He claimed the only way to change the nature of large, wasteful corporations is to "bring the perspective that we get from working at the Center to the inside of . . . these corporate institutions." R credited this ability and drive to navigate complex systems to his internship experiences.

Erin said interns are encouraged to "partner with more student organizations," something she tried to do if "there [was] room for intersection." Erin offered an example of discussing how to acquire money for a program with her team, saying she told her teammates, "Oh yeah, this is the channel that you should take to get funding from SUSCOM." Erin also discussed how navigating such partnerships can be complex.

Erin provided insight into how the work of Zero Waste Athletics necessitated coordinating across several complex organizations, which involved getting the entire Center, the Ritchie Center where sports games are held, and food services (which are controlled by Sodexo) on the same page:

It's been a huge effort on the part of the Center for Sustainability, and all its employees, to come and facilitate and sort waste at those games. But we also coordinate with the Ritchie center and Sodexo and custodial, who are all part of making and generating that waste.

Traditionally, the Waste Team had to navigate and coordinate these three distinct and complex organizations to achieve the work they set out to. This year, one key partner, the Ritchie Center, was unable to commit to the program in the ways they had in the past, which meant, this year, Erin had to determine how to keep the work of the Waste Team moving with this added complexity. Part of this navigation required learning to respect and honor the needs and positions of the different stakeholders.

Respecting Different Viewpoints. Participants mentioned listening to others and learning more about their perspectives and worldviews was critical to expanding their understanding of sustainability. Participants noted discussions within and outside of the Center as the main source of learning more about others' perspectives. Participants also stated the directors were deliberate in facilitating these discussions. These discussions were instrumental in guiding participants toward respecting different viewpoints.

Chelsea said, "The directors did a really good job with that . . . during our team meetings." Chelsea expanded, "It was actually in a time where I feel like I learned a lot

about that . . . because everyone was bringing in different perspectives of what you what ecological justice.” She added that the “Center definitely changed that perspective for the better,” and “learning from other people” and interacting with different perspectives made her happy but could be frustrating at times. She elaborated on why these discussions were frustrating, saying, “People had really awesome ideas, and they were so great because they actually believe in the cause. But sometimes their causes were just not seeing the other viewpoint of people.” Even though the Center was good at facilitating discussions between passionate interns, sometimes interns’ passions made it hard for them to see another’s point of view.

Erin mentioned these discussions as well, although she did not address the challenges Chelsea felt. When asked how social sustainability was integrated in the internships, she said:

Yeah, definitely in like the discussions that we had at the Center . . . It’s been a lot more focused . . . on like the social sustainability side and like when people bring their own experiences into it. . . . It’s like, “Wow, this is really different for me versus someone else.”

Erin pointed out that this push-and-pull experience was both eye opening and helped her to see the intersectionality of sustainability.

Bertha said mutually respecting one another’s viewpoints was critical in the Mobility Team’s success. Bertha said the Mobility Team had a diverse group of individuals with their own perspectives and passions but expressed she “didn’t feel alone in trying to herd cats.” She continued, “I think it was it was very well understood by the

entire group that we all respected each other, we all listen to each other.” For most participants, the mutual respect of differing perspectives, in some way, defined their experience at the Center. Mabel said programs at the Center are emblematic of “being open and inclusive for anybody and everybody.”

Interpretation. Transformative capacities are the final piece of the punk puzzle. When I started at the Center, I was shocked to hear how critical interns were of unjust systems. I had worked with students of all age groups within both formal and informal contexts. In my experiences, I had never encountered a group of students as passionate, thoughtful, and critical as the Center interns. The way interns openly criticized DU’s mascot, the Pioneers, or how they pushed for divestment, demanding DU to divest its interests in the fossil fuel industry, was truly radical and powerful. But they are not just all talk—the Center interns led with their values, organizing to challenge unjust systems.

Leading with values and actually doing something, not just talking, is reminiscent of the ways I have seen the punk community respond to tragedy. Every time there is a major legislative bill removing reproductive rights, or horrendous acts of violence committed toward the queer community, punks respond. They might organize shows to raise funds for mutual aid and charity organizations, or bands might donate their proceeds from merchandise to a cause. Like the punks in these scenarios, Center interns work to create a better and more just world. The most powerful tool in the creation of a more ecologically just world is the development of skills for a green transformation (Kwauk & Casey, 2021).

When it came to development of skills for a green transformation, the directors appeared to take more ownership over the operational curriculum. Almost every participant named the directors when discussing how interns are first exposed to skills for green transformation within Kwak & Casey's (2021) framework. From transformative capacities such as systems thinking to respecting differing viewpoints, participants referenced how the directors both taught and led discussions that helped them develop skills necessary for a transformation. The directors focusing formal teaching on experiences on skills for a green transformation creates an interesting situation where it appears the directors allow most content learning to occur within teams and activities but direct the "highest" level of learning outcomes. Do the directors believe each team lacks the level of expertise to onboard new interns in this way? Are the directors concerned teams will not center these capacities in their practices and joint enterprises without an intervention?

The directors may first expose interns to these ideas, but it is also clear that these ideas bear out during team activity and within each teams' practices and shared meanings (Lave & Wenger, 1991; Tharp et al., 2000). Activity setting is very important in developing these skills (Tharp et al., 2000). For example, with the ability to analyze unequal systems of power, participants cited activities that instilled an awareness of unjust systems. Cleo honed these skills while teaching about food insecurity to a business class and by experimenting to make the Marketplace more equitable and accessible. R stated he was confronted with how DU is an unjust system by working in the food pantry, learning about how DU compensates patrons and then comparing this to how much

money DU spends on unsustainable and wasteful landscaping. Here, the campus acts as a lab, where interns explore and develop transformative capacities through activity setting. R likely will take this small-scale observation, how DU is an unjust system, and apply it to larger systems within the dominant culture.

Development of systems thinking and working within complexity also appears in participants' activity settings. Erin said Zero Waste Athletics is a huge effort on behalf of multiple organizations within DU requiring Waste interns to learn how to leverage and collaborate with those networks. Similarly, the Energy challenge required Mabel to consider how there is an entire system causing students to use energy in the ways they do and to think creatively about reaching students effectively given that system. Activity settings are a vessel for collaboration in these scenarios (Tharp et al., 2000). Further, the punch card exemplifies how the Center uses systems thinking to drive DU community members to participate in multiple Center activity settings.

CoP can be insular with specific boundaries (Wenger, 2008), which may require specific members to straddle the boundaries of two CoP (Wenger, 2008). Activity settings, such as whole Center discussions and Zero Waste Athletics, give interns the chance to collaborate and interact at these boundary points. Interns can learn more about each other's teams, gain knowledge about sustainability practices, navigate complex university partnerships, organically engage with DU community members, and hear from diverse viewpoints. This last transformative capacity, respecting diverse viewpoints, is essential for strong CoP and helps support the negotiation of meaning (Lave & Wenger, 1991; Wenger, 2008). Both within and across teams, interns are exposed to diverse

viewpoints that help them to reconceptualize their work and improve practices and joint enterprises.

Summary of Outcomes From the New Green Learning Agenda Framework

Participants described a wide-ranging acquisition of skills and knowledge during their internships. These skills and knowledge fit nicely within Kwak and Casey's (2021) new green learning agenda framework, demonstrating how the Center's internships give students the important building blocks for green transformation. Critical to this mission is to give students a diverse set of skills ranging from simple and practical to complex and transformative (Kwak & Casey, 2021). As part of this framework, students acquire green job skills, green life skills, and green transformation skills (Kwak & Casey, 2021).

Participants described learning skills that fall into all three categories. For example, participants highlighted professional and business skills needed for working as young professionals in a sustainability field, including managing a marketplace, writing grants, and generating official guiding documents. Data and research skills also were important as part of the Center's quarterly reporting.

Participants also described learning green life skills such as adaptability, leadership and collaboration, problem solving, and strategic thinking. This acquisition came through experiences such as managing complex teams of support interns; adapting to challenges of the pandemic; strategically planning projects; and working effectively with other interns, Center programs, and organizations outside the Center.

Finally, participants felt they acquired skills for green transformation. The most consistent two skills participants cited were the ability to analyze unequal systems of

power and systems thinking. Related to systems thinking, participants discussed how they learned to work within complexity and respect diverse viewpoints. These skills manifested through experiences such as developing a deeper understanding of sustainability through both the work on teams and the dialogue between interns, examining how DU does and does not support sustainability, collaborating with other Center teams and organizations outside the Center, and trying to make change within a large and complex university system by engaging various stakeholders.

CoP and activity settings drove the acquisition of these different skills (Lave & Wenger, 1991; Tharp et al., 2000). For example, team placement—teams into which interns are sorted—generally dictates the type of practical sustainability skills participants learned, although this appeared to be an issue of depth more than exposure. For example, all participants named being exposed to waste diversion knowledge; however, only Waste Team members mentioned going deeper, moving beyond waste-sorting basics, and expanding their depth of knowledge about waste issues and practices, which may be explained by the fact that interns can develop and engage in their teams' practices and thus have more time to focus on the work of their teams. However, interns are exposed frequently to the work of other teams through discussions and collaborative projects.

Across teams, participants discussed the importance of transferable skills. In the case of professional skills, these were not generally content specific and may represent what is expected of those entering the global professional sustainability field. However, green life skills and transformative capacities, although not content specific, are driven by team practice and activity settings. In diverse activity settings, and via exposure to

complex sustainability issues, participants could home in on and practice both life and transformative skills, which came from encountering complex problems, collaborating with others, and considering diverse viewpoints.

Concluding Thoughts

The Center often can feel electric. Interns buzz around, sharing joys and struggles, busily working together, and exchanging ideas, which is often reminiscent of the best qualities of both punk and teaching at the HCC. Interns are engaged fully, giving their whole selves, and embody the do-it-together spirit. They follow their passions, self-organize, support one another, and learn through action. Interns get out into the community, engaging fellow students, staff, and faculty on sustainability issues. But the Center also can diverge from the order and structure common to a nonformal institution like a museum. Unlike the HCC, where facilitators participate in the operational curriculum, Center interns are responsible for teaching and learning in practice. The Center feels punk both in its energy, and in the way it is rapidly fluid, evolving, and, at times, unpredictable. Teams are burdened with the Center's operational curriculum at the Center, which can be both exciting and empowering but also daunting; however, individual interns are not alone in this endeavor.

The feeling of love and solidarity was visceral in participants' statements. It was evident during their observations. Interns at the Center have a deep love of their work, for making their community better, for each other, and for making the world a more just and regenerative place. In this love is a solidarity with all living beings. Like with the punk community, it is hard to imagine this love and solidarity not sticking with them, no matter

the situation of the world. Along with this admiration for the ecological world, interns also developed the skill set to act in ways that will make the planet a more just and sustainable place. Internships at the Center can be messy, far from the highly manicured setting of the HCC. But climate work is also messy, and participants showed their experiences at the Center were meaningful and transformative for them.

The final chapter in this study explore the final two processes of educational criticism: evaluation and thematics (Eisner, 2017). The chapter examines how the study's findings can be helpful for the TSE community. The internship program at the Center is fluid, dynamic, and powerful, but it is not perfect, and there are important lessons learned for improvement of the program and for similar nonformal university programs.

CHAPTER SEVEN: EVALUATION AND THEMATICS

Punk as One of My Lived Communities of Practice

Punk culture, as I have experienced it, has connections to the Center and its interns. I spelled out some of these connections during my interpretations of the data, but, in this chapter, I discuss how the Center represents a “do-it-together” learning institution and how this is related to punk ideals and concepts. Given that the Center leans on CoP as its primary mode of learning, it is important to establish how punk is its own CoP to help frame how the Center is punk, given that its own CoP share meaning, practice, and organization found in the punk world.

Punk as a CoP can be analyzed much in the same way I have analyzed the Center’s teams. Punk involves all the same ingredients: different members with different levels of experience, all sharing knowledge and mutually engaging in practice. Just like at the Center, much of this knowledge passes from old timers to newcomers who will some day pass their knowledge down. This knowledge is written down and formalized in some places, but often, it is passed informally, transmitted by sharing in an activity. I have spoken to this directly: I learned what constituted a strong DIY show by taking part in both a bad one and a good one. By playing and working at Babe Haus in Laramie, I learned the practices, knowledge, and meanings central to DIY punk culture. In turn, I became a punk, a core part of identity tied to my knowledge of punk history and practice.

The first show I played at Babe Haus, I was a relative newcomer; I hung out, learned the language, saw how shows should run, where bands typically load in and set up, how they set up merch, how door donations are collected, how to share gear, how the run of show goes, and even the basics of running sound. I was not responsible for any of these things but rather legitimately participated, even if in a peripheral role. Over time, I expanded my punk repertoire and moved away from the periphery of the community toward a more central role. I lived out this CoP in my local community, running my own shows much in the same way I experienced them in Laramie. In Tharp et al.'s (2000) terms, the activity setting was different, but some of the core knowledge and activity simply transferred from one location to another.

This knowledge did not come from nowhere. One of the people who ran Babe Haus had an older brother who taught them everything he knew. Here, the knowledge about practice and activity, and the membership this knowledge bestowed, passed from that person's older brother to them, to me, and then to presumably, the younger generation of punks with whom I worked in my own setting. Part of punk knowledge is not only how to run an effective DIY show but also a whole host of political and historical knowledge. DIY punk is largely an anarcho-communist endeavor. Punks share knowledge and resources, operating their efforts outside the dominant music culture.

Politics are a significant part of punk membership and, again, are transferred from old timers to newcomers. Punks are typically anti-capitalist and critical of institutions, especially the music industry and state. They are very inclusive, looking to carve out spaces for queer and marginalized identities. They often are part of underground political

groups, organization occurring outside the show context. All this knowledge is passed just in the same ways knowledge about practice and activity are.

Punk is a living and breathing community. Its knowledge and history flows through its members, regardless of geographical location. Punk is often both global and local in its form (Wenger, 2008). One can expect roughly the same type of punk experience regardless of location, although there are some local differences. For example, at most punk shows, one could expect the “touring band sandwich,” donations collection, all-ages spaces, volunteers running sound, the sharing of gear, and touring bands housed by some person involved with the show.

This can and will break down. Some spaces a punk might play represent a distinct CoP, one that may not be attached to the punk ethos, and thus they are on the boundaries between a punk and non-punk space (Wenger, 2008). However, the DIY punk ethos is alive in all its members and will transfer in some capacity to the uninitiated through conversation and sharing in practice. Someone might say, “Oh in Denver, we do it this way,” and then that person may internalize that, integrating it into how they handle their practice in their community. Once again, this punk membership, the DIY ethic and spirit, flows out and moves forward in time, affecting future generations of punks.

The next section reintroduces the work of this study and its form, helping to orient readers to how themes and implications are discussed. There is a lot to learn from participants, and this chapter serve as an important encapsulation of their experiences.

Reintroduction to This Study

The Climate Crisis poses a clear and present danger to current and future generations of humans as well as the Earth's nonhuman ecosystems. Countless authors have written about the need for transformative solutions in the face of such danger, as market-based and technical solutions are not enough to protect the interconnected forms of life on Earth (Armstrong et al., 2016; Bell, 2016; Gal & Gan, 2020; Gramatakos & Lavau, 2019; Kwauk & Casey, 2021; Rodriguez-Aboyete & Barth, 2019; Sipos et al., 2008; Walsh et al., 2020). Transformative solutions begin with transformative education (Kwauk & Casey, 2021).

Parents and teachers overwhelmingly support expanded SE in U.S. classrooms (Kamenetz, 2019). As Kwauk and Casey (2021) cautioned, however, standard sustainability curriculum is centered on “confirmative change” that “focuses on maintaining the same systems and structures that have led to our present condition; such change is about achieving greater efficiency and effectiveness” (pp. 13–14), which highlights the need for TSE, a pedagogical strategy employed largely in formal university classrooms (Armstrong et al., 2016; Bell, 2016; Gal & Gan, 2020; Gramatakos & Lavau, 2019; Kwauk & Casey, 2021; Rodriguez-Aboyete & Barth, 2019; Sipos et al., 2008; Walsh et al., 2020). This study was concerned with how TSE experiences can be cultivated in informal and nonformal university spaces.

TSE is the marriage of SE and Mezirow's TL (Rodriguez-Aboyete & Barth, 2019). Although standard SE might be based on teaching learners about the natural environment, or giving them green technical skills, TSE focuses on bringing about

perspective transformations in learners (Gramatakos & Lavau, 2019; Kwuak & Casey, 2021; Lange, 2018; Rodriguez-Aboyete & Barth, 2019). A perspective transformation is the process by which a learner's worldview and understanding are challenged to the point of experiencing a disorientating dilemma; then, they must reframe their conceptualization or understanding of an issue (Mezirow, 1996, 1997). In TSE, students choose to act differently in facing this new understanding (Gal & Gan, 2020; Gramatakos & Lavau, 2019; Kwuak & Casey, 2021; Rodriguez-Aboyete & Barth, 2019; Sipos et al., 2008).

Kwuak and Casey's (2021) presented a holistic model for TSE with their new green learning agenda framework, outlining a diverse host of teaching strategies and outcomes intended to develop students' green technical skills and knowledge, general life skills and dispositions (e.g., critical thinking), and skills needed for transformation (e.g., systems thinking). In this model of TSE, students gain basic or technical environmental knowledge, learning to work within communities using strategies such as collaboration and empathy, and delve into issues using abilities such as analyzing unequal systems of power. Although this or any other model of TSE could be used in a formal classroom, several authors have highlighted the importance of hands-on learning experiences within informal and nonformal spaces that would not otherwise be possible in traditional classrooms (Armstrong et al., 2016; Gramatakos & Lavau, 2019; Kemmis & Mutton, 2012; Papenfuss & Merritt, 2019; Sipos et al., 2008).

TSE is an emerging field, and there are still many gaps in the literature about the practice. Armstrong et al. (2016) wrote that university SE focuses on measurement of learning outcomes and not on students' experiences nor their educational environment. In

a comprehensive literature review on TSE, Rodriguez-Aboyete and Barth (2020) found roughly one third of the TSE literature used “transformative learning” superficially and did not address or incorporate core tenants of Mezirow’s (1997) theory. Rodriguez-Aboyete and Barth also concluded, within the TSE literature, learning outcomes and pedagogical practice often were confused, and more research was needed to detail the practices that can be employed to lead toward TL experiences.

Only one study on TSE within entirely nonformal university spaces could be located (Gramatakos & Lavau, 2019; Rodriguez-Aboyete & Barth, 2020). Gramatakos and Lavau (2019), authors of that study, concluded informal and nonformal learning opportunities were critical to university students’ TL experiences, but more research was needed to investigate students’ experiences.

Review of Study Design

Purpose of Study and Research Questions

The purpose of the study was to examine how TSE experiences occur in nonformal university learning spaces. The study explored students’ experiences in a nonformal, sustainability-focused, university internship program. The study used multiple frameworks in its efforts. First, the instructional arc guided the design of research questions, ensuring all three dimensions of the arc were addressed: the intentional, operational, and received curricula. The instructional arc also aided early categorization of the data as well as organization of the data presentation. Beyond this categorization, I did not employ the arc for the in-depth interpretation found in the findings chapters.

Two additional frameworks played a role in developing research and interview questions and, unlike the instructional arc, were used for the interpretation of data: (a) sociocultural learning (Vygotsky, 1978) and (b) the new green learning agenda framework (Kwauk & Casey, 2021). The former framework aided in explaining how interns learn at the Center, although I used the latter to explore what types of green content they learned as part of this process. This study adds to the literature on TSE in nonformal university spaces and develops a picture of informal TSE that considers the practice, process, and outcome for learners in the program.

The study anchored its efforts around three research questions. This study will now turn to the research questions, briefly responding to them and pulling from the findings discussed in the last two chapters.

How Does the Pedagogical and Curricular Philosophy of the Center for Sustainability Represent a Sociocultural Perspective of Learning?

The directors are not explicit in how their curricular intentions connect to sociocultural learning. The directors also are not explicit in how they intend for interns to learn; however, the directors model sociocultural values in their pedagogical curricular philosophy, even if they are not aware of this fact.

For example, the directors are deliberate in serving as a counterforce to dominate sustainability culture (Tharp et al., 2000). New interns are taught about both social sustainability and systems thinking, concepts critical for centering inclusivity and equity in a field that is often White and affluent (Agyeman, 2008; Kwauk & Casey, 2021). Systems thinking also encourages students to think about how their work and learning

experiences are situated within institutional, historical, and social contexts (Wertsch, 1991). Finally, the directors connect the internship content back to students' contexts (Tharp et al., 2000), which includes designing the program, so it is useful for students' resumes, prepares them for sustainability careers, and aligns core program elements to university job preparation efforts.

How Do Interns Learn?

The directors are largely not responsible for the Center's operational curriculum. There is some evidence presented in the received curriculum section that the directors teach frontloaded content (e.g., transformative capacities) during orientation. But interns learn mostly through the work of their teams, and the operational curricular burden is placed on the teams. Teams act as unique CoP, sites where new interns learn by participating at various levels with their teams (Lave & Wenger, 1991). New interns work with experienced peers, slowly moving toward the mastery of teams' practices, projects, and sustainability meanings. On these teams, interns' identities, including their motivations, drive them to learn content and take on projects.

The teams are organized around joint enterprises, such as the Waste Team's focus on encouraging waste diversion and reduction on campus, or the Sustainability Marketplace's aim to increase access to essentials such as affordable clothing and food. Teams conduct many of their practices in the DU community, unique activity settings enabling teams to refine their projects and enterprises as well as teach both DU community members and Center interns about sustainability practices and knowledge

(Kwuak & Casey, 2021; Tharp et al., 2000). In these activity settings, interns develop and work on their green life skills (e.g., leadership, communication; Kwuak & Casey, 2021).

How Have Student Interns Experienced TSE?

Participants experienced TSE in several ways. First, they underwent disorientating dilemmas and perspective transformations, essential components in TL (Mezirow, 1996). Participants' perspectives on sustainability, DU, and themselves changed radically as part of their internships. Participants also developed a deeper understanding of interconnectedness and relationality (Lange, 2018). Participants were moved deeply by their connection to others at the Center and modeled this connection in their care for the ecological world. Finally, participants developed skills across the new green learning agenda framework (Kwuak & Casey, 2021). Participants learned skills for green jobs, such as business skills and environmental knowledge and awareness, green life skills such as teamwork and collaboration, and skills for a green transformation such as the ability to analyze unequal systems of power and systems thinking.

Before moving to the discussion of themes, I briefly review the methodology and discuss how educational criticism guided answering these research questions.

Methodology

This study used educational criticism for several reasons. Eisner (2017) discussed this methodology as well suited to educational sites and phenomenon that may be ambiguous or not have clear answers. First, TL is a deeply personal and complex phenomena that may not be easy to quantify. Second, educational criticism places great importance on the researcher acting as a critic, a careful eye that understands the

phenomenon under study, enabling them to make the unseen seen (Uhrmacher et al., 2016). I have experience in informal education and at the Center, giving me a closeness and in-depth understanding of the factors at play. Finally, educational criticism highlights the importance of learners' experiences, which are essential to better understanding TSE.

Educational criticism guided the form of this study in several different ways. First, I constructed the research questions around the instructional arc (Uhrmacher et al., 2016). Second, this study included six participants who were current and former interns from the Center and used three data collection techniques common to the methodology: interviews, observations, and artifact analysis. Finally, I structured the findings chapters around four processes of educational criticism: (a) description, (b) interpretation, (c) evaluation, and (d) thematics.

In the previous chapters, I provided a description of participants and their experiences, interpreted using the interpretive frame of this study. This chapter focuses on creating a clear and concise picture of what took place at the Center, with the hope that some findings from this study can improve both the Center's program and TSE. This chapter represents the second two processes: evaluation and thematics.

Discussion of Themes and Implications

Much of the discussion of this chapter focuses on communicating themes located in the findings chapters. Following Eisner's (2017) guidance on thematics, this discussion explores the "pervasive qualities" that "permeate and unify situations and objects" within participants' experiences and how these experiences relate to the interpretive frame. This chapter is concerned with answering the following question: What pervasive qualities

leap out from participants' experiences, and what can they tell us about learning at the Center, a nonformal university internship program focused on TSE? What implications do these themes have for improvement of the Center's program and of TSE?

Thematics and Evaluation

There are large and prevalent themes that help unify participants' experiences. These themes helped me develop a clear picture of how the curricular arc played out within the internships at the Center. This picture is helpful in determining how the Center's program is educative for interns but also points to tensions between what the directors intend for interns to learn, how interns are meant to learn those outcomes, and what interns learn from these experiences.

The discussion of thematics is organized with the following structure: first, the theme is described and situated within the curricular arc. Then, tensions between how that theme manifests in the different regions are discussed. Finally, some implications and areas for future research are briefly discussed to help situate the theme's importance within the TSE context.

The Center IS Punk

In the study's initial stages, when I was grasping onto an inkling of an idea, I could not shake the feeling that the Center is punk. I recognized the DIY spirit in how interns work together, doing their best, all in the face of an institution that does not necessarily want them to succeed. I recognized how radical the Center could be at times, a place where interns openly criticize their university, capitalism, and colonization. I

recognized how emergent the Center felt, an explosive and sometimes unstable force, filled with passionate people.

When I first told my advisor that the Center felt punk, I was looking upon it with admiration, perhaps not attending to the complexity and nuances of that statement. The work of this study has demonstrated to me that the Center IS punk, cementing those initial feelings as true. However, this status as punk also brings with it many of the tensions and complications associated with the punk world.

The Center is punk in several ways. Its internships have a relatively flat power structure. The Center promotes challenging the dominant narrative through social sustainability and transformative capacities. The Center fosters a deeply connected and collaborative community and is committed to the passage of community knowledge and history from one generation to the next. The Center focuses on getting out in the community and changing minds and sharing ideas. The Center pushes for action. Finally, the Center demands adaptation in light of internships and projects that are fluid, unpredictable, and, at times, challenging.

This punk identity was apparent in participants' statements. Cleo commented, "It's not strict or stringent, or like super corporate . . . I like that it feels very grassroots and community-oriented here." Similarly, Mabel said, "I think it was . . . by far my favorite things about working there. It's just like the hecticness of it, but so always coming out in the end somehow." The Center's punk identity is important for the energy it generates and inspires. This energy contributes to its ability to produce transformative

experiences in students. However, this energy, and a general lack of consistent structure across the curricular arc, can produce miseducative experiences for students.

I would be lying if I said the punk parts of my life were always joyful. Truthfully, I have put touring totally behind me. I do not book shows anymore. I rarely attend shows I am not playing. Punk is exhausting. It can feel isolating. The chaos and looseness of the experiences can be overwhelming.

The analogue between the punk world and the Center internships does have limits. I do not think participants at the Center experience anything as extreme as backing a tour van into a pole, shattering the back window, scrambling to find a place to safely park the van overnight in a city where we do not know anyone, and then furiously driving to the next city to have the window repaired before our show the next day. This was a truly harrowing experience, one paling in comparison to some of the tour horror stories I have heard. This has left a lasting impression on me—namely, that the unpredictability of being in a touring punk band makes the whole thing undesirable. I think this aligns with some participants’ statements.

Center interns do not want to be in a city where they do not know anyone who can help them. Interns enjoy the freedom and agency of the open road but also want the safeguards of clear and dependable guidance. Although several participants did not mind getting “thrown into the work,” accepting the challenge, and learning from it, others did not. Chelsea was the only participant who chose to end her internship early, but I anecdotally know other interns who have done the same.

This has important implications for both the directors and TSE practitioners. The directors should continue to foster the DIY spirit, but they need to shift the “yourself” to “together.” The directors could participate more readily in the operational curriculum, aligning day-to-day teaching and learning practices with their curricular intentions. The TSE community, especially formal institutions, should empower students, giving them more agency over the direction of their learning, but this needs to be counterbalanced with an educator-supported operational curriculum. The next theme discusses the difficult balance between honoring the nonformal power of the internships while adding structure for interns.

Too Punk to Be a Museum? The Informality of the Center

The Center’s informal status is important for how the internships operate and the received curriculum they produce. Eshach (2007) distinguished between informal and nonformal education, a distinction important for this study. Informal education is the learning most common to life, the type of learning that takes place far from formalized classrooms, and is found in our various communities, jobs, friend groups, and personal endeavors (Eshach, 2007; Lave & Wenger, 1991; Rogoff, 2003). In the metaphor of this study, punk represents informal learning.

Nonformal learning is the type of highly structured informal learning that takes place in a museum (Eshach, 2007). Although museums are not formalized classrooms with teachers and students addressing district-mandated content, museums have formalized elements. Students move freely, exploring what calls to them, but the choices they have are largely predetermined and structured. Museum designers, and in the case of

my experiences, museum facilitators, point students toward specific content, hoping the students will find them interesting, or even better, will learn something.

This distinction is important for the Center because it aspires to be a nonformal institution. The reduction of formalized barriers enables students to have experiences that are not possible in a normal classroom. Further, those experiences are complementary to interns' formal studies. Center interns can engage with a vast array of different activities, activities outside the academic classroom.

How many college courses have students go into the community and build a wellness garden for fellow peers struggling with addiction issues? How many college courses send those same students back to the garden, harvest its fruits and vegetables, and make sure it is ready for the next harvest? How many college courses could contextualize this experience within transformative sustainability concepts? I suspect very few. These experiences are so important for students at the Center because they provide them with activity settings that are not possible in their academic studies. These experiences enable students to learn through sociocultural learning, giving them a real stake in their engagement and mastery of practice.

Sustainability college courses typically focus on acquisition of sustainability content knowledge, focusing on the cognitive domain of TSE (Armstrong et al., 2016; Shephard, 2008). Teams at the Center provide students with hands-on and practical experiences resulting in meaningful and affective outcomes for students. Participants reflected on how these opportunities supported their formal studies. Erin said her geography courses “talk about sustainability,” and she added “most of the professors in

the geography department are interested in climate impacts.” Erin said she “hear[s] a lot about big picture problems” in her courses and could use her internship to take “some of those ideas, bring them back to the Center, and being like, ‘small scale, what can we do that we’ll have an impact on this thing?’”

The internship also allows interns to see course content in ways they would not have otherwise. Chelsea, an international studies student, said there is “an entire sphere of international studies that’s focused on development . . . on climate change and just health development. . . . So, through my work at the Center, I saw how those things were kind of connecting in my studies.” Mabel described this interaction of her experiences at the Center having “a whole domino effect” that “bled into” her coursework and inspired her to pursue a sustainability minor.

The lack of formality is important at the Center, but, at times, the Center feels like an informal institution, which contributes to its fluid nature. Lave and Wenger (1991) and Tharp et al. (2000) distinguished how their theories are intended to be applied: CoP are a diagnosis of how learning takes place within informal communities, and Tharp et al.’s framework was designed for formal education. Both sets of authors commented that their theories could be applied to other realms of education, but Lave and Wenger were cautious to discuss CoP in a formal context. This split in formality and informality plays out at the Center. The directors intend for the internship to be a nonformal program, with all the structure present in a museum, or in Tharp et al.’s theories, but students’ learning happens almost accidentally, entirely within the confines of their teams.

Learning at the Center does not often feel like a choice between highly manicured exhibits at a museum. It feels like how a band is inspired by another band's piece of music and decides to write a song in that style. Teaching and learning at the Center does not feel like the facilitation at the HCC but like how a band picks a random town on a map, books a show there, and lets the road teach them. These teaching and learning experiences at the Center are significant and meaningful, but the informality of the internships creates tensions.

Returning to the goal setting example, the Center's formalized elements butt up against the informal experiences students have on their teams. The formalized goal setting process pulls students' attention away from the activities they are really passionate about, which may be because the lack of consistent formalization at the Center highlights for interns how "alien" goal setting is within their everyday practices. Also, lack of formalization means team enterprises, activities, and practices do not always align with the Center's intended learning outcomes. Although teams have historical programs envisioned by the directors, teams and individual interns are given the agency to explore any activity or program they want to.

Here, I think the Center is too punk to be a museum. The directors are too hands off when it comes to teams' everyday practices and, in turn, what students are learning. Students often move about directionless or go down a path that is not helpful for their learning. Again, the directors need to consider how they can integrate themselves more consistently into the operational curriculum. They also need to consider how CoP and the formalized elements of Tharp et al.'s (2000) framework can work in tandem to not

disrupt the passionate ecosystem of the teams. For the TSE community, these informal opportunities may be foundational for students' transformative experiences and should be integrated thoughtfully into both formal and informal programs. In the next theme, I focus on the directors' curricular intentions and how they could move from the punk model to the museum model of learning.

Intentions for WHAT But Not HOW

The directors have clear intentions for what they intend for interns to learn but not necessarily how they intend for them to learn, which continues the common problem and refrain within TSE, namely that TSE has a “hyperfocus” on acquiring specific outcomes (Armstrong et al., 2016; Rodriguez-Aboyete & Barth, 2019).

From the standpoint of the instructional arc, there is an intended curriculum at the Center, but the directors do not teach the curriculum, interns are not provided with guidance on how they are intended to deliver the curriculum, and thus the interns end up delivering the operational curriculum. In the end, participants developed many of the directors' curricular intentions. For example, the directors delineated what they hoped interns would learn. Interns are provided with a syllabus containing a host of learning objectives and associated workshops. The directors facilitate the workshops, but this facilitation typically occurs during the 1st week of school. Then, it is up to interns to determine how they are expected to learn the directors' intended outcomes and to operationalize that process.

The directors intend for their interns to learn specific outcomes. The learning outcomes listed in the syllabus are likely intuitive enough for experienced interns to

practice and develop in their work. For example, every participant “demonstrate[d] a depth of knowledge on a broad range of sustainability topics.” Participants hammered home the idea that the work on their teams, and exposure to the work of other teams, taught them about the depth of sustainability, including the three pillars of sustainability, and the interconnectedness of issues like food and waste.

The directors also have intentions they state in the training materials, including concepts such as social sustainability, professionalism, systems thinking, and the fluidity of sustainability work. Experienced interns can tell you how these skills come about in their work. Professionalism is important in the ways Center interns communicate with one another and with stakeholders, and systems thinking is important for how teams collaborate on interconnected issues. Participants frequently referenced the connection of food and waste issues and how this connection led to partnering on events focused on preventing food waste. The directors also intend for interns to develop personally and professionally by taking part in smaller pieces of larger team projects and Center initiatives, sharing their work along the way.

Both the stated intended curricular intentions, and those present across the training materials, sit squarely within the new green learning agenda framework (Kwauk & Casey, 2021). The directors also consider the interns’ social and institutional contexts, aligning learning outcomes with students’ needs and DU career-readiness expectations (Wertsch, 1991). However, although experienced interns may find acquiring the intended outcomes intuitive, very little is spelled out for new interns. Cleo admitted she thought the focus on hands-on learning was something “some people can’t handle.”

Nowhere in the materials, including the intern handbook, is the intended learning process explained, which means new interns likely will have no idea where to start when developing the skills and outcomes the directors highlighted. They may not even understand what they are supposed to do on their teams. I asked participants to reflect on how they thought the directors intended for them to learn. Most participants used phrases like “being thrown into the work,” “hands-on,” and “experiential.” Some interns, such as Cleo, felt the internships were intended to have a great deal of formalized curriculum and even commented that the Center intended to be “classroomish.” However, R said he thought there was no intended curriculum, including intentions for how interns are to learn. Interns pick up on how they are supposed to learn, as evidenced by participants. Most participants said they learned from more experienced peers and even discussed their roles when onboarding new interns. However, there are tensions between what teams do, and what the directors intend to happen, because teams end up developing their own curricular intentions.

This finding is significant for both the Center and the TSE community. The Center exemplifies how CoP and activity setting can be powerful operational vehicles for delivering curriculum to students; however, students are not made aware of this process for learning in the formal training materials. The handbook and syllabus should break down this process of learning for new interns. Interns should be shown whom they report to, the types of activities new interns on the teams engage in, how these activities are connected to the Center’s learning objectives, and an outline of the educational philosophy for the process of learning.

More structure and scaffolding on behalf the directors would help prevent new interns from feeling disorientated, a phenomenon several participants referenced, because they would not feel they are “being thrown into the work.” Preparing these training materials would also help the directors consider how the interns’ activities, and the structure of the internships, support acquiring the stated learning objectives. Formalizing this process may encourage the directors to restructure or evolve elements of the intended curriculum to be in harmony with one another.

The Center is another example of how the actual process of learning is not considered within TSE. Similar to within the Center, it is important for TSE practitioners to consider how their program’s intended pedagogical philosophy supports their intended outcomes. This design is essentially backwards, beginning with the big ideas and intended outcomes and then designing practices and activities around them (Wiggins & McTighe, 2005). The Center’s lack of formalized operational curriculum exemplifies the need for more TSE programs and research that centralize both intended outcomes and a learning process in their curricular intentions. The next theme explores how students learn at the Center in the face of receiving little guidance from the Center’s formal structures.

Students Bearing the Brunt of the Operational Curriculum

The directors are largely behind the scenes at the Center, playing administrative roles rather than delivering the operational curriculum. The mechanism for learning at the Center lies on teams, distinct CoP with their own histories, projects, artifacts, and membership (Lave & Wenger, 1991), which has significant implications for students’

learning, serving as both a powerful learning tool and creating tensions between the intended and operational curricula. Teams are made up of a graduate fellow, team leads, and support interns. Knowledge about practices, team projects, language and tools, and the histories of Center programs naturally pass from more to less experienced interns.

Graduate fellows can be experienced members of their teams, but typically team leads hold the greatest community knowledge because, in most cases, they have been at the Center the longest. For example, the only graduate fellow who participated in this study, Bertha, served at the Center for 1 year while Cleo was with the Center for 4, which is the result of program length, with typical graduate programs at DU lasting 2 years. Support staff typically have the least institutional knowledge and are interns new to the program. Within teams, team leads onboard and teach new interns. New interns are granted legitimate peripheral participation (Lave & Wenger, 1991), which is the ability to take initially smaller but active roles in team practices until they gain enough confidence and knowledge to participate fully. Then, new interns move from the periphery into central team roles.

This peer learning can be powerful and effective for interns. Each participant commented on having strong leaders who guided them through their 1st year and on developing knowledge and skills by participating in the work of their teams. Several participants also found this “hands-off” approach to teaching and learning empowering but warned it could be difficult for new interns. The received curriculum section demonstrates interns learn a host of necessary and important skills by participating on

their teams. These skills are developed because of how teams function as CoP (Lave & Wenger, 1991; Wenger, 2008).

Teams coalesce around one or a few joint enterprises, programs, and projects, and each team member participates in some aspect of the enterprise. As part of this enterprise, team members can take active roles in negotiating meaning with one another, designing and developing the practices associated with each project. These team members bring in their identities, including their perspectives, levels of experience, motivations, and cultural backgrounds, which impacts how interns engage and participate with teams, team practices, and negotiating meaning.

Intern's agency in participating and influencing their teams was evidenced during the observation of Cleo where, during the Sustainability Marketplace meeting, new interns were invited to ask questions about team protocol and help make critical decisions. New interns learned by participating in the team meeting with their more experienced peers. In another observation, during Sustain-a-Ween, new interns took a variety of roles, again participating at various levels, with Erin taking the most "experienced" role by facilitating the waste sorting game. Teams are true communities, where each member is valued and heard and can engage legitimately and actively with the work and their peers.

This emphasis on CoP leads to diverse experiences for interns. For example, a new Marketplace intern will master different practices, tools, and language than a new Waste Team intern. There is overlap, as evidenced by how several participants spoke to the connections between the Waste Team and food pantry, but because teams have their

own histories and associated practices, interns spend the bulk of their internships mastering their teams' practices and associated skills. The diversity of skills is vast, landing across the new green learning agenda framework (Kwuak & Casey, 2021). Activity setting (Tharp et al., 2000) also demonstrates how teams engage in diverse and distinct activities in the community, further developing these skills.

Within the observations, I witnessed teams conduct a team meeting, operate a waste sorting game at a Center event, and clean up a community garden. If I could have observed Bertha, Mabel, and Chelsea during their tenure at the Center, I may have witnessed interns operating the bike shop, a REPS energy audit of a DU student's home, and a Zero Waste Athletics game. These diverse sites and activities allow interns to develop unique skills, refine their programs, and teach and learn from the DU community, negotiating meaning with a variety of perspectives. These activity settings also allow the community to participate in extremely peripheral roles on the teams, even if for only a moment, which raises interesting questions about how teams can pass their historical knowledge to non-Center interns, an impact that could pose an opportunity for interesting research in the future. This historical element of learning at the Center connects to how the DIY punk ethic and spirit are alive in punks and can ripple into a community they are not part of.

The operational focus of teams as drivers of learning could be a burden for interns. Several participants referred to this focus as the more "chaotic" or difficult nature of the internships. R said, "It doesn't feel like there's much direction that's given. . . . I guess I meant disorganized, also speaking from my perspective." R said, in his role as the

pantry manager, “I didn’t have any idea what the pantry was supposed to be like and what it typically would run like during normal times,” which R attributed to how interns are expected to learn: “It’s like experiential learning . . . and that kind of plays into why it’s chaotic.” Mabel made a similar comment but self-corrected from using “chaos,” landing on “fluid” because of negative connotations associated with the word chaos.

For Chelsea, this operational burden became a defining feature for her internship experience. She shared, “In my experience of the Center, it seemed that there [was] sometimes a bit of missing communication between the overall goal of the Center and then the teams.” She found the internship, especially being a lead, challenging, saying, “It was difficult to kind of translate, and encourage and inspire people to jump on board, because I was still learning.” In her sentence summary of her experiences of the Center, she included the word “challenging.” Chelsea said she wished the directors played a more active role in the operational curriculum, something that would have gone a long way for her. This burden made Chelsea feel the directors had abandoned her, left to teach new interns when she did not feel prepared to. Chelsea’s internship experience is a strong example of why placing the operational burden on interns and their teams can be “miseducative” (Dewey, 1938).

The operational burden on teams also creates tensions between the intentional and operational curriculum. Teams, specifically interns, are given free reign over their learning. Teams might develop practices or programs not connected to the directors’ learning objectives. Individual interns may choose to not be engaged members of their teams and focus instead on individual endeavors. Although this was not witnessed in this

study, R participated in another team's project—the Collegiate Recovery Center's garden clean-up. Volunteering across teams was encouraged, but it raised questions about whether R had neglected his team's responsibilities. However, it also could be a strong example of collectivism, a later theme.

Goal setting was the most salient example of this disconnect. Effective goal setting was a clear directive of the directors and a central part of the intended curriculum, but participants found goal setting a “chore,” associating it with “homework” because they did not find the exercise meaningful. In fact, participants made it appear the directors actively pushed interns to set goals, one of the few cases in which the directors participated in the operational curriculum. Interns likely do not feel inspired to set goals because they feel it detracts or takes time away from what they really love—working on team projects they are excited about. Goal setting is connected to the expectations of the Center and not their teams, the sites where real learning takes place.

The freedom and agency these operational tools provide can be meaningful for students, but the directors should be more involved with the work of the teams and shoulder some of the operational burden. It is possible an intern like Chelsea might have stayed with the program if the directors had given more direction and facilitation, which also may help teams and interns align their activities and programs with the Center's learning objectives. I would be curious to return to the Center, long after this study, to see if the directors have taken more operational control and examine how this affects students' experiences and perceptions.

As for the TSE field, when using sociocultural learning, it is important for educators to stay in close contact with their students, highlighting the importance of the formalized elements of Tharp et al.'s (2000) work. In the metaphor for this study, TSE practitioners should lean more on the museum model rather than the punk one. The next theme explores how diverse informal opportunities at the Center lead to a wide array of skill development in students.

“A Place of Endless Opportunities to Develop”

Bertha commented that the Center is “a place of endless opportunities to develop.” This is a fair assessment of the Center internship. Interns are empowered to explore the teams and projects they have a passion for, and, in turn, they have opportunities to develop important skills related to each team’s practices. Within these opportunities, interns also can hone skills across the new green learning agenda framework (Kwuak & Casey, 2021). Although a formalized college course will have a strict adherence to predetermined activities and learning outcomes, the Center and its teams are laboratories in which interns and their communities can explore their passions, push boundaries, have powerful learning experiences, and come away with emergent learning outcomes. Unlike Armstrong et al.’s (2016) depiction of the college sustainability classroom with a scientific adherence to prefigured learning outcomes, the Center’s teams are exciting and emergent hotbeds for idea generation and endless opportunities to develop.

The Center’s “teams as CoP” model is essential for providing these opportunities. Also, critically, teams break up the hegemony and power relationships in typical

classrooms. Team learning objectives are created by the community, and interns work toward them because they find the tasks meaningful. Teams ascribe meaning to their work and pursue projects and knowledge that endow them with green job skills, green life skills, and skills for a green transformation (Kwuak & Casey, 2021).

The new green learning agenda framework is powerful because it is a large spectrum, and one community of students may value certain outcomes over others (Kwuak & Casey, 2021). Both the Waste and Sustainability Marketplace interns develop skills across the spectrum, with the specifics of their programs putting greater emphasis on different skills. For example, Waste interns focus on areas of ecosystem management and systems thinking to address waste diversion issues. However, food pantry interns might hone marketing skills and the ability to analyze unequal systems of power when combating food insecurity and making the pantry more accessible. Then, there is a possibility that a food pantry intern may help the Programming Team and learn facts about gardening as well as local flora and fauna.

Beyond skills acquisition, interns also experience perspective transformations (Mezirow, 1996). They come to view the world, themselves, sustainability issues, and institutions in radically different ways as part of their internships, which likely comes from both exchanging ideas with others and contributing to work that helps others. R's example of a bubble popping is the clearest example: Interns begin their trajectory thinking recycling and DU cutting its carbon emissions is enough to save the world, and some interns finish their trajectories understanding the interconnectedness of ecological issues, or may be critical of wasteful institutions, and are ready to topple the whole thing

down and start anew. These perspective transformations encourage interns to evangelize, so to speak, while operating programs in the DU community.

When a team or intern learns new skills, they can act upon these skills in the community, opening opportunities to share their knowledge with non-Center staff. Suddenly, R learning that house cats are detrimental to the local bird populations may result in him sharing that knowledge with a DU community member who may then start keeping their cat inside. This example is, of course, somewhat trivial, but Cleo exemplified why this exchange of ideas in the public space is powerful and transformative. She and a graduate fellow entered a business classroom to engage the class in sharing ideas about food insecurity.

Cleo began her trajectory on the Food and Gardens Team as a new intern, learning about food insecurity from the leads before her, and now guides other DU students toward transformative capacities. Also, given that guiding others toward transformative capacities is a skill in itself, Cleo likely developed important green life skills related to teaching and communication. This exchange of Center skills might fan out through the interconnected ecological world, contributing to building a more just and sustainable world. Relatedly, the historicity of sociocultural learning is also important for participants' experiences (Lave & Wenger, 1991; Wenger, 2008; Wertsch, 1991).

The learning interns gained impacts the histories of the teams they are a part of. The decisions interns make, the programs they take one, and the meanings they construct leave an imprint on the history of their teams (Lave & Wenger, 1991; Wenger, 2008), which affects the type of practices and understandings future generations of interns will

need to learn and master. For example, R mentioned he was in contact with the previous food pantry lead, picking up where that lead left off. Another example is how interns might radically change their team's programs. Erin envisioned a new path for Zero Waste Athletics, and Cleo built a new team from the ground up. These decisions, and the associated learning experiences, will move forward in time, impacting what it means to be a member of the Waste and Sustainability Marketplace teams for generations to come.

Participants' learning at the Center does not only affect the history of their teams but also alters the interns' history and path forward. I asked each participant to weigh in on how their learning might impact their futures. Bertha said her exposure to the food pantry contributed to her leading a food pantry today. These experiences "gave her the language" to navigate such complex sustainability systems. Chelsea, Mabel, and R all mentioned wanting to take the Center's spirit into their workplaces, all of which are not sustainability related; however, they said they wanted to use their learning around sustainability, social justice, and community to change their institutions from the inside.

Erin, who was moved by the Center's community, wants to bring that commitment to community wherever she goes. Cleo shared her interest in teaching, a job she thought was "not a traditionally sustainability-related job, but it should be." She said her experiences at the Center "ingrained" in her, the ability "to have these dialogues and conversations about sustainability constantly." The lasting impacts of the internships on participants demonstrate the affective nature of a truly transformative sustainability program (Armstrong et al., 2016; Gal & Gan, 2020; Gramatakos & Lavau, 2019; Rodriguez-Aboyete & Barth, 2019; Shephard, 2008; Sipos et al., 2008).

This theme has implications for the TSE community outside the Center. Important research could center on how students of TSE move about the world, potentially influencing transformative ecological change by bringing their knowledge to the communities they are a part of. Also, through teams, the Center allows for a host of emergent outcomes and experiences, I wonder if formal university courses should be coconstructed with students. Should they focus on activity in the community and not on writing papers or taking tests? Even without consistent direction from the directors, interns arrived at diverse transformative outcomes. What might be possible in sociocultural classrooms designed to give students the same agency and empowerment with added structure and thoughtful course design? The final theme looks toward what makes teams such powerful generators of learning: a commitment to the collective.

“You Can’t Have a Sustainable Future With That Individualist Mindset”

In her first interview, Cleo made an important point about how sustainability needs to be a collective effort, a transformation society will need to undergo:

We are in a currently very individualistic society and global paradigm. . . . I think collaboration is an important aspect of collectivism that we should be heading towards because I, at least personally, don’t think you can have a sustainable future with that individualist mindset.

For Cleo, this is not only important “for making better work, but also for making us better people.” Cleo touched on a concept found in TSE literature—that collective effort and transformation are required to heal our planet (Kwuak & Casey, 2021; Lange, 2018). As

Cleo suggested, this is not only important to increasing the effectiveness and impact of ecological work but also makes for a more holistic and caring society.

Collectivism and individualism had an interesting place in this study. Participants outpoured their admiration for the community at the Center, and this connection to others had a large impact on their learning and what they took from the internship. Erin found this sense of community a defining feature of her experiences, something she said she would carry with her as she moved on to other phases of her life. Each participant, however, had a highly individualized experience with their learning not being connected to the betterment of the teams they were on, which created tensions within the Center's program, a program cultivating a deeply connected and caring community as well as centralizing interns' individualized passions, potentially enabling interns to put their own desires before what is perhaps better for their teams or the Center.

Participants discussed how they had peers to lean on and how their community was widely supportive, passionate, and helpful. Participants formed deep interconnections with other interns, growing closer to one another and to the ecological world around them. Bertha said the Center gave her a deep sense of purpose on campus, and she would run into other interns and have wonderful and spontaneous moments of connection. These experiences point to how the Center, within and across teams, fosters a deep sense of interconnectedness and commitment to the collective.

Lange (2018) critiqued TL due to its focus on individual growth and experience, stating a shift to a relational conception of transformation is needed to achieve collective

growth and transformation, which aligns with the interconnection of the ecological world, an important facet of transformative sustainable change (Kwuak & Casey, 2021).

Participants exemplified this relationality in various ways. Within teams, interns may have constructed their team identity around how they participated in practice in relation to other teammates. Interns choose projects, or pieces of projects that are both interesting to them and contribute to the goals of their teams. Teams construct meaning about sustainability, the importance of their work, and their place on campus in collaboration with one another. Teams also situate their programs and projects within the larger ecological system, exercising systems thinking to explore connections between their work and the web of ecological issues. These CoP foster deep connections between team members and contribute to the Center's sense of community and collectivism because CoP can lead to identification and belonging by providing members true and meaningful engagement (Wenger, 2008).

This process for learning resulted in relational perspective transformations. Only one participant, Erin, focused on her perspective transformations as related to her skills and understanding of self. All other participants focused on how their perspective transformations occurred in relation to larger systems or communities. For example, participants focused on how they came to view sustainability as a collective issue, moving away from blaming individuals for "unsustainable" life choices. Related to viewing sustainability as a collective issue, participants discussed learning about issues such as EJ, the interconnection of sustainability topics, and power dynamics.

Along these lines, participants reflected a newfound inclination to be skeptical of large institutions, especially DU and how it projects a commitment to sustainability but engages in unsustainable practices. The focus of participants' perspective transformations on interconnected systems could point to developing relational ontologies of transformation, as Lange (2018) suggested. Here, action as a result of transformational learning experiences is not rooted in the individual but rather on how participants can leverage the collective to challenge wasteful institutions, which is at odds with how individually focused the internship is.

Even though interns participate in CoP, they are afforded flexibility and agency in how they choose to engage with those communities and the Center. CoP members can choose how to participate and negotiate meaning within those communities, creating tensions between the individual and the collective (Lave & Wenger, 1991; Wenger, 2008), which can be felt at the Center and is encouraged by the directors.

In the training materials, intern learning is situated within personal, professional, and leadership advancement. Interns also are told they can push boundaries and develop new projects and initiatives. This agency does lead to innovation but can result in interns' commitment to teams feeling unimportant. For example, only Erin said she tied her learning goals to the Waste Team's needs. Even if interns discuss the betterment of their teams as important to them, they do so in individualistic ways. For example, R was committed to improving the food pantry, but it was never clear how this was a collaborative effort, and he referred to the food pantry as "his little piece" of the Center.

Interns' passions can counter their teams' needs, and new interns are not encouraged within the formal materials to integrate into their teams given this individual focus.

I wonder how interns' learning could connect to the learning of the collective. How could interns be taught about their relation to the history of their teams as well as how their efforts and learning are contributing toward that history? Could the goal of interns' learning not be on personal advancement but rather on collective advancement? Instead of individual innovation, how could the Center foster collective innovation? The Center interns are given ultimate agency over how they interact with teams and even how teams operate. It may be powerful to instead frame interns' agency as getting to legitimately participate in teams and cocreate their histories rather than pushing boundaries based on individual interests and passions. Future research might ask: How does the Center appear when it approaches the intended curriculum in this way?

Implications for the Center are clear: The Center fosters collectivism and community in several ways but could be integrated more meaningfully into the intended curriculum. For the TSE community, transformative experiences appear to result in relational and interconnected ways of viewing the world. Again, TSE practitioners should center and support relational conceptions of transformation in their work intentionally.

This section focused on discussing thematic, large and prevalent qualities across the findings presented in the previous chapters. These themes have implications for both the Center and the TSE community. Although some of these implications were introduced in this section, the next section goes into depth on what could be learned and acted upon by those interested in TSE.

Implications

The work of this study was to improve educational practice (Eisner, 2017), as is the goal of educational curriculum. This study was concerned with improving and developing nonformal TSE as a field. The themes I discussed previously present implications for the practice of both nonformal and formal TSE. These themes also present implications for the Center, a nonformal institution that produces transformative sustainability experiences for its students. This section begins by imagining a “perfect Center,” a visualization intended to help situate the implications discussed. Then, implications for both the Center and the TSE community are presented.

A “Perfect” Center Visualized

As you walk up to the Community Commons, a gleaming copper building with stark, angular features jutting out in odd directions, replete with windowed facades, a group of students flanks each path. They have set up tables, racks of clothes, and even a stage, where, presumably, a band is about to play. On the tables are resources about bike maintenance, food insecurity, thrifting, and even homemade jam. If you approach a table, a student might show you how to repair a bike using a mobile bike repair station, help you pick out a thrifted outfit, tell you about a community gardening event, or even give you some homemade jam while telling you about the food pantry. You might also notice two older people, clearly not students, bouncing around the group, helping them with their needs, and walking newer students through how to do something, like setting the sound system up. When the aforementioned band starts to play, you realize you are witnessing an open mic night and are encouraged by the students to sign up. At some

point in the night, you might see DIVEST DU, another student organization, come on stage, and give an important and moving speech about how the university needs to cut its ties with the fossil fuel industry. You might stay for the whole event, engaging with other students, learning to repair your bike, signing up for a garden workday, and even getting on stage. Then, days later, you might go help those students maintain a community garden. This event might be directed by one of the nonstudents you saw. The nonstudent might be helping guide you and the students, passing important knowledge about gardening and regenerative practices. Or, you might go to the bike shop to have your bike repaired. There, you might find a group of students laughing, working on bikes, and talking about the next big event they want to plan. They might greet you and explain how the shop works, committing to repairing your bike free of charge. Again, you might see one of those nonstudents, working with the team lead, getting their new point-of-sale system up and running, and showing them the ropes. This experience might be so meaningful to you that you choose to find out more about this group of students, and the next year, you join them, but this time, you work in the food pantry. Now, you see that these students are interns. They are presented with a syllabus. In it, they are given a handbook, one explaining what they should do, who they can lean on, and what they should expect. They are sometimes taught by other peers, but sometimes the nonstudents, the internship directors, attend the team meetings, help them in practice, lead workshops, and ask interns to reflect in meaningful ways. These directors are a consistent force, making apparent the connections between everyday practice and learning objectives, and are ready to listen and guide. But you can always lean on your teammates as well. You

are empowered to contribute to your team's history. Your voice matters, and you participate meaningfully, helping to build a stronger community. Once you graduate, you go on to start your own food pantry in a small mountain town where the needs are large, and the resources are scarce. This is challenging, but you carry those experiences with you, you carry these mentors with you, and they guide you through.

This is a part truth, one inspired by what I have witnessed at the Center. It also contains my hopes and aspirations for what the Center could be.

Localized Implications for the Center

This visualization was meant to serve as both a celebration of the Center and as an example of how students could be better supported while relieving tensions between the intended and operational curriculum. Implications in this section attend to aspects of the visualization and respond to the themes already presented. Some of these implications could be of use to other TSE programs, but the implications in this section are situated mostly in the contexts the Center interns find themselves in.

Emphasis on the Intentionality for HOW. The directors do not address how they intend for interns to learn. Operationally, interns learn by participating on teams, which almost happens by accident or is at least not stated as a curricular intention by the directors. If the directors intend for interns to learn in this setting, they should state this intention in the intern training materials. Here, the directors can think critically about how to foster successful CoP and decide if CoP are the most effective teaching method for attending to the Center's stated learning objectives. Assuming this sociocultural model of learning is the best fit for the Center, formalizing this process could help open

opportunities to question whether the learning objectives are the most appropriate for the Center given the team structure.

In the current model, interns learn objectives correlated with their teams' projects and practices. Does the Center's intended curriculum need to evolve to fit this reality? Goal setting is an example of the disconnect between the intended curriculum and what happens operationally. Again, formalizing the intentions for "how" enables the directors to ask and address these types of questions, also providing new interns with much needed scaffolding about what they should expect as part of the internship. Then, if something seems awry or uncomfortable for new interns, they understand better how their issues align or misalign with the Center's curricular intentions.

Consistent and Present Support. The directors should be present in the operational curriculum. If this presence is unsustainable given the current internship model, then the directors have an opportunity to consider the internship design to better facilitate consistent support for the interns, including creating more meaningful learning opportunities both directors and teams participate in, being present and assisting during team activities, and creating meaningful reflection assessments for interns. Director-led workshops should occur throughout the year, not just during the 1st week of school. For participating during team activities, the directors should consider using assisted performance in activity settings (Tharp et al., 2000). Here, directors would allow teams to run the show and jump in when the team is pushed beyond their own mastery level.

There are important considerations related to the Center's nonformal status. The CoP model is successful in creating meaningful and transformative experiences for

students. The directors should be careful about disrupting this ecosystem. The directors need a closer connection to the teams, but they also need to ensure there is a low power distance between their desires and the needs of the community. The directors should play a support role rather than dictating team practices or enterprises. Further, interns' agency needs to be situated within their respective teams' needs and histories. Although this should be stated in the intentions for "how," this also provides important modeling and coaching opportunities for the directors. The directors could lead teams through processes of cocreation, dialogue, feedback, and accountability. Formal reflection strategies are used rarely at the Center, and the directors could develop deeper connections to students' learning by asking them to reflect on their work in meaningful ways.

Keep Fostering Diverse Experiences. Teams are a productive model for learning at the Center. Students gain a wide set of skills through diverse and varied experiences. Over-formalization of the internship could strip the internships of some of their power. It also could rob the internship of one of its core identities—feeling grassroots and DIT. The museum metaphor seems appropriate for the types of experiences the directors hope to foster. Like exhibits students can choose from, the directors should foster practical, hands-on, structured, and diverse learning opportunities for students to gravitate toward. Most importantly, and unlike in a museum, interns need to still feel agency in helping to shape these activities to ensure investment and engagement as well as providing meaning to students' experiences.

Implications for the SE and TSE Communities

Some implications already discussed could apply to the SE and TSE communities, but this may be difficult for educators to recreate such conditions in their own setting. The implications in the last section and this one are meant to serve as a frame of reference to help educators consider and explore their teaching and learning spaces. Like with educational criticism as a whole, these implications are not generalizable and may not be placed easily in settings distinct from the Center (Eisner, 2017). Despite this consideration, these implications can help SE and TSE practitioners ask important questions about their spaces, which might help improve practice and provide a more complete picture of what TSE could look like in nonformal university settings.

Low Power-Distance Classrooms. The Center and its teams demonstrate the educational power in giving students agency over their learning. Students at the Center explore the projects they want to, and those experiences result in meaningful and transformative learning for students. Participants reflected on how this was in direct opposition to their formal studies and empowered them to get into the world and get their hands dirty. Sociocultural models of learning are important for TSE because they provide this empowerment to students (NASEM, 2018; Tharp et al., 2000) and also match the dynamic and fluid reality of the Climate Crisis more closely, one demanding problem solving, collective effort, and adaptability (Tharp et al., 2000; Wenger, 2008). Sociocultural models of learning, when done correctly, centralize student agency and a lower power distance between teachers and students (Tharp et al., 2000). TSE

practitioners could consider how to cocreate curriculum with students and give students more power over the direction of coursework.

Informal Experiences Are Essential. Participants celebrated the hands-on, experiential opportunities provided at the Center. Getting into the DU community and building a garden, working Zero Waste Athletics games, and dialoguing with DU community members provided participants opportunities to “put theory into practice” and locate and develop their learning via practical experiences. Sense of place is important for ecological education (Wright, 2018), and activity settings in informal university spaces allow students to have educational experiences that are not possible in traditional settings.

Activity settings allow students to work on real-world and gain practical green skills, such as tending to a garden, developing deeper connections to the ecological world, and gaining exposure to diverse perspectives. As evidenced in R’s observation, these experiences allow for organic opportunities to learn new things from peers, even if they are unrelated to the task at hand. TSE programs should foster these informal experiences, which inherently lower the teacher–student power distance found in traditional classrooms and provide students meaningful opportunities to put theory into practice.

Allow for Diverse Experience and Outcomes. TL and related deeper learning experiences are hard to plan for, control in the operational curriculum, and assess (Armstrong et al., 2016; Cox, 2017). Participants demonstrated how diverse their experiences were and how their learning outcomes varied based on team placement and activity. The new green learning agenda framework (Kwuak & Casey, 2021) offers an

expansive learning outcome framework that is nimble enough to allow for diverse and unexpected outcomes.

If TSE practitioners shift power dynamics and develop informal opportunities, they also must allow for myriad learning outcomes. Activity settings, sociocultural classrooms, and CoP are dynamic and emergent (Tharp et al., 2000; Wenger, 2008). Instead of trying to control the learning outcomes in such an environment, TSE practitioners should increase agency and trust with students, shifting the focus to developing meaningful reflection exercises to help students locate the meaning of their dynamic hands-on opportunities. Then, when TSE practitioners review these reflections, they can better understand what students have learned and if the outcomes align with a framework such as the new green learning agenda framework (Kwauk & Casey, 2021).

Stay Connected. Participants often felt a deep sense of connection to the community on their teams and at the Center. Interconnectedness is a central concept withing TSE (Kwauk & Casey, 2021; Lange, 2018) because of the interconnected nature of the ecological world (Krebs, 2008). Fostering connected communities in TSE settings is important because they help expose students to diverse perspectives and allow them to see how their learning is connected to the learning of others. Also, if students carry out ecological work and practices in collaborative spaces, they can see how ecological issues are connected and can develop systems approaches.

At the Center, because the Mobility, Waste, and Food Pantry teams were consistently in conversation with one another, participants expanded their understanding of the interconnections between each team, especially in areas like food insecurity and

waste diversion. On the teams, because CoP foster deep connections and belonging, interns can teach one another, work side by side, and situate their efforts within the whole. TSE practitioners should consider how they can foster relationality and interconnectedness in their settings. Sociocultural models of learning are powerful tools for doing this and, in the work of this study, have exemplified strategies to promote interconnected ways of thinking and being.

Impact on the Researcher

I began this journey with a feeling that the Center was punk. This feeling was grounded in the idea that the Center embodies the “do-it-together” spirit. This spirit is something I often feel in informal educational spaces and is certainly present in punk spaces, where I was first taught the phrase, but it also aligns with my experiences as a facilitator at the HCC. This spirit attracts me to learning spaces and keeps me energized as an educator. I am interested in equitable, passionate, collaborative, and meaningful learning. When I started at the Center, I instantly noticed this spirit. I wanted to investigate what produced this spirit in such a space and what the constituent parts of the DIT ethic were, at least in the TSE context.

Interviewing students, and observing them in their work, initially solidified that the DIT spirit is alive at the Center. I witnessed passionate students, emboldened by their agency, working together to try to make the world a better place. But this experience also showed me the pitfalls of DIT teaching and learning when formalized educators are not active participants in the “doing.” I was reminded of another side of punk, which is how difficult it can be to work with inexperienced bands, volunteers, promoters, venues, and

the like. Another significant finding was that the Center embodies the DIT spirit, and unlike nonformal spaces such as museums, students can be on their own when learning in practice; however, students have each other to lean on, an important part of their success.

Since the beginning of this study, I have gone on my own professional journey. I moved from a behind-the-scenes role to a central leadership position at the Center, which gave me the privilege to design much of the Center's curriculum. My newfound leadership position gives the implications of this study more weight and allows me to enact and capitalize on the findings, hopefully making the Center an even better place. I am not alone in this journey. This study will be shared with the two new directors who can offer their perspectives on the data I presented. For me, TSE is about bringing individuals with diverse perspectives together, individuals who can negotiate meaning, lift each other up, teach one another, and do their best to enact real and meaningful change in the ecological world.

Areas for Future Research

The themes that emerged in this study helped to develop a picture of what a nonformal TSE program could look like. These same themes may serve useful for the formal realms within universities. Those interested in TSE, or hoping to integrate it into their practice, can learn from participants' experiences; however, this study was not a complete nor exhaustive picture of nonformal TSE. As mentioned, TSE is an emergent field, and there is more work to be done. Two areas for future research seem most pertinent: (a) addressing the nature of positionality in relation to CoP and TSE and (b) addressing the limitations of this study.

Identity Positionality and Its Place in CoP and TSE

I explored identity in so far as it related to motivating factors within teams as well as how teams led toward identity construction. Identity was explained in the context of how it impacted interns' participation in their teams, how identity is imposed by the Center onto interns based on which teams they join, and how interns develop new identities based on their experiences at the Center. However, I did not explore personal identity and positionality deeply. Participants discussed their identities, but I did not analyze these identities in depth. Also, positionality is important in both CoP and TSE. An example of future research questions might be: How do interns' personal identities affect their positionality in their CoP or in relation or ability to participate in transformative sustainability work? or How does one's personal identity impact how they are given access in their CoP at the Center?

The Center is an inclusive space, one that seems to attract interns who in many ways do not represent the dominant culture, which should be explored in future research. For example, this study did not examine the role of gender in TSE or in participants' experiences. Some participants referenced their gender identity as important to them and their internship; however, gender was not a central component in the research questions or the purpose of this study. Kwuak and Casey's (2021) framework is feminist in nature and focuses on improving gender equity by toppling patriarchic systems that exacerbate the Climate Crisis. Five of six participants in the study identified as women, which is reflective of the demographics of the Center. It would be interesting to examine gender as a theme within TSE and focus on how gender may impact the TL process in TSE spaces.

Also, what about the Center's program attracts or supports interns who do not identify as men? If elements of the Center's programs are important to women, how do we make those elements also important to individuals of all gender identities?

Addressing the Limitations of This Study

Further research could be centered on addressing the limitations of this study. This study involved participants who were on similar legs of their journey at the Center. First, a wider range of interns could be engaged to see how their experiences were shaped and changed during their internships. Second, more time needs to be spent with participants. Ideally, a study about TSE would follow learners throughout their journey, a process that could take multiple years. Also, returning to the Center several years later to explore how the program has shifted would allow for research on the experiences of a new set of interns. Finally, the population of students at DU is not particularly diverse. DU is a small, expensive, private university. Expanding the work of this study to different institutions, with greater diversity, would be useful in exploring how nonformal TSE can be conducted in a wide variety of university settings.

Concluding Thoughts

The purpose of this study was to develop a picture of TSE in nonformal university spaces. As part of this effort, this study elevated the voices and experiences of current and former interns from the Center, an internship program at DU. These students discussed and demonstrated how learning takes place in such a program and the results of that learning. All told, participants had TL experiences by having their passions and social contexts considered and prioritized and by teaching each other within CoP and

activity settings. However, the directors abstaining from the operational curriculum placed a curricular burden on the interns, which affected participants differently. These students came away from their internships with a host of skills necessary for a green transformation.

This study identified some key findings to develop a picture of nonformal TSE:

- Students' social contexts need to be prioritized and supported.
- Students can learn effectively by carrying out relevant, hands-on work in informal and community settings. These informal and nonformal experiences are important for students' learning process.
- Key to this learning is working with more experienced peers in CoP; however, TSE practitioners need to be careful to support learners if their peers cannot do so.
- TSE practitioners should be open to a wide range of potential learning outcomes for students, supporting students in their individualized endeavors.
- Perspective transformations; understandings of interconnectedness; and a wide range of practical, life, and transformative skills all result from the strategies discussed.

TSE is still an emerging field, but hopefully readers will find these lessons useful for their own setting or practice. The planet, AND students, cannot wait.

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APPENDICES

Appendix A: Current Intern Recruitment Form

Interest in Participating in Derek's Educational Study

Derek Brannon is conducting a study at the Center for Sustainability on behalf of the University of Denver, to better understand the educational practices that occur in the context of teams. The study is interested in how you learn as being part of a team, and if this learning has translated to you doing work in the community. Your participation is completely optional, but if you are interested in participating in this study, please fill out this form. Your participation will include: two interviews, an observation of you working during a team activity, and review of one thing you have created during your time at the Center. Your participation as part of the study will not impact your status at the Center in anyway, and the results will not be shared until after the school year.

* Required

* This form will record your name, please fill your name.

1. Name *
2. Team *
 - Energy
 - Food
 - Gear-Garage
 - Mar-Comm
 - Mobility
 - Research and Reporting Waste
3. Are you a team lead? *
 - Yes
 - No
4. How long have you been with the Center? *
 - 1 year (began in Fall, 2020)
 - 2-3 years
 - 4 years
5. Availability per week *
 - 1 hour
 - 2-3 hours
 - 3+ hours
6. Why are you interested in participating? *
7. How do you wish to be contacted if you are selected to participate? *

Appendix M: Former Intern Recruitment Form

Interest in Participating in an Educational Study About Your Experience at the Center

Derek Brannon, a current Graduate Fellow, is conducting a study at the Center for Sustainability on behalf of the University of Denver, to better understand the educational practices that occur in the context of teams. The study is interested in how you learned as being part of a team, and how this learning has translated to you doing work in the community. Your participation is completely optional, but if you are interested in participating in this study, please fill out this form. Your participation will include: two interviews, an observation of you working during a team activity, and review of one thing you have created during your time at the Center.

* Required

* This form will record your name, please fill your name.

1. Name *
2. Team *
 - Energy
 - Food
 - Gear-Garage
 - Mar-Comm
 - Mobility
 - Research and Reporting
 - Waste
3. Were you a team lead? *
 - Yes
 - No
4. How long did you intern at the Center? *
 - 1 year
 - 2–3 years
 - 4 years
5. Availability per week *
 - 1 hour
 - 2–3 hours
 - 3+ hours
6. Why are you interested in participating? *
7. How do you wish to be contacted if you are selected to participate? *

Appendix C: Intern IRB Consent Form

Approval Date:

Valid for Use Through:

Project Title: Center for Sustainability and D.I.T. Learning

Principal Investigator: Derek Brannon

Invitation to Participate in a Research Study

You are being asked to be in a research study. You are invited to participate in the **Center for Sustainability and D.I.T Learning study**. This form provides you with information about the interviews. Please read the information below and ask questions about anything you don't understand before deciding whether to take part.

You are being asked to be in this practice interview because your participation will help the efforts of this study. The goal of this study is to better understand how the Center for Sustainability promotes transformative sustainability education through its student internships. Your participation is completely voluntary, but it is very important.

Description of Subject Involvement

As researcher, I will facilitate and record an interview with you in regard to your experience as a student intern at the Center for Sustainability. Each interview will take about **30–60** minutes. You may choose not to participate in the study and are free to withdraw from the study at any time. Refusal to participate or withdrawal from participation involves no penalty.

Your participation will also provide me with invaluable practice and experience in conducting qualitative research.

The benefits of being involved in this practice study include being able to elucidate the unique learning experiences you have had during your time as a student intern at the Center for Sustainability. If you would like a copy of the results of this practice interview, I will be happy to provide one for you.

Potential risks of being involved include the possibility that discussing certain issues about your experience may be upsetting. If this occurs, I will arrange for supportive care from an appropriate professional in your area.

You will not receive any payment for being in the study nor will be expected to pay any costs related to the study.

Confidentiality, Storage, and Future Use of Data

As the researcher, I will treat all information gathered for this study as confidential. This means only my advisor, Dr. Kimberly Schmidt, and I will have access to the information you provide. The advisor and I are required to keep your identity confidential. The original recordings will be erased after they have been transcribed. In addition, when I report information, it will be reported for the entire group of research participants, never for any one individual.

There are two exceptions to the promise of confidentiality. Any information you reveal concerning suicide, homicide, or child abuse and neglect is required by law to be reported to the

proper authorities. In addition, should any information contained in this study be the subject of a court order, the University of Denver might not be able to avoid compliance with the order or subpoena.

The results from this research will be shared via colleagues at the University of Denver. The results from this practice interview may be in published articles. Your individual identity will be kept private when information is presented or published.

Voluntary Nature of the Study

Participating in this study is completely voluntary. Even if you decide to participate now, you may change your mind and stop at any time. If you decide to withdraw early, the information or data you provided will be destroyed.

Contact Information

The researcher carrying out this study is **Derek Brannon**. You may ask any questions you have now. If you have questions later, you may contact Dr. Kimberly Schmidt via email at xxxxx@du.edu.

Agreement to Be in This Study

I have read this paper about the interview or it was read to me. I understand the possible risks and benefits of this study. I know being in this practice study is voluntary. I choose to be in this practice study. I will get a copy of this consent form.

- _____ I agree to be audiotaped.
- _____ I do not agree to be audiotaped.

Print Name: _____ Date: _____

Signature: _____

Appendix D: Team Lead Interview Protocol

Holistic Transformative Sustainability Education Within Nonformal University Settings

Date:

Interviewer: Derek Brannon

Time:

Interviewee: ‘

Introduction: Hey there! It is good to see you today, and I hope you are doing well. As you likely know since you are participating in this interview, I am pursuing a Doctorate of Curriculum and Instruction at the University of Denver and the work we are doing today will be part of my Dissertation in Practice. Thank you so much for volunteering your time today, and I am quite excited to hear your story about your educational experiences at the Center for Sustainability. Your participation as a student intern is critical in the goals of this study, and I look forward to learning about your unique experiences.

Study Purpose and Applications: The purpose of this study is to examine how transformative sustainability educational experiences can occur within nonformal learning spaces, such as the Center for Sustainability. The purpose of this interview is for you to tell your story as a student intern at the Center and provide some insight into the educational experiences you have had here.

Treatment of Data: All data collected today will be stored and secured on my OneDrive.

Review Consent Forms

Introduction Questions

Question 1: Spend some time introducing yourself; give a little background about your life, how you got here, and what you do at the Center.

Question 2: Do you feel it is important to work in a sustainability field?

2a: If you answered yes, can you illustrate any life experiences that led to this answer.

Question 3: Sum up your experience at the Center in a sentence or two!

Essential Questions for First Session

Question 1: Tell me about when you first applied at the Center. What motivated you to apply and what were you hoping to achieve in your student internship?

1a: Do these motivations interact with your identity? If so, explain.

1b: Once you knew you had been hired, what were you hoping to learn during your time at the Center?

Question 2: What have you learned during your time at the Center so far? Has this changed over the years?

2a.: What sustainability skills and knowledge have you learned at the Center?

Question 3: What do you perceive as the curriculum at the Center? On your team? How do you participate in implementing the curriculum?

Question 4: How would you say you are intended to learn at the Center? How does teaching and learning actually take place at the Center?

4a.: Do you feel like this is the most effective way for you to learn?

4b.: How important is collaboration to working and learning at the Center?

Question 5: How important is goal setting in the context of your internship?

5a: What motivates you to carry out your goals? Internal forces like interest, or external forces like your team or the Center as a whole? Do you feel you have agency in setting and achieving goals?

Question 6: What inspired you to lead a team? Do you see your role as partially to teach newer interns?

Question 7: How has just sustainability / ecological Justice been a part of your learning at the Center, whether that be formal curriculum or the work you are doing on your team?

Question 8: How have your perceptions about yourself, the DU community, the world, or sustainability topics changed during your time at the Center? If so, can you explain how?

8a: How did your experience at the Center inform or interact with your experience of DU as whole? Think classwork, other student organizations, etc. Does this seem intentional?

Question 9: In what ways has your time at the Center inspired you to work in Sustainability fields once you graduate?

Appendix E: Nonteam Lead Interview Protocol

Holistic Transformative Sustainability Education Within Nonformal University Settings

Date:

Interviewer: Derek Brannon

Time:

Interviewee:

Introduction: Hey there! It is good to see you today, and I hope you are doing well. As you likely know since you are participating in this interview, I am pursuing a Doctorate of Curriculum and Instruction at the University of Denver and the work we are doing today will be part of my Dissertation in Practice. Thank you so much for volunteering your time today, and I am quite excited to hear your story about your educational experiences at the Center for Sustainability. Your participation as a student intern is critical in the goals of this study, and I look forward to learning about your unique experiences.

Study Purpose and Applications: The purpose of this study is to examine how transformative sustainability educational experiences can occur within nonformal learning spaces, such as the Center for Sustainability. The purpose of this interview is for you to tell your story as a student intern at the Center and provide some insight into the educational experiences you have had here.

Treatment of Data: All data collected today will be stored and secured on my personal device.

Review Consent Forms

Introduction Questions

Question 1: Spend some time introducing yourself; give a little background about your life, how you got here, and what you do at the Center.

Question 2: Do you feel it is important to work in a sustainability field?

2a: If you answered yes, can you illustrate any life experiences that led to this answer.

Question 3: Sum up your experience at the Center in a sentence or two!

Essential Questions for First Session

Question 1: Tell me about when you first applied at the Center. What motivated you to apply and what were you hoping to achieve in your student internship?

1a: Do these motivations interact with your identity? If so, explain.

1b: Once you knew you had been hired, what were you hoping to learn during your time at the Center?

Question 2: What have you learned during your time at the Center so far? Has this changed over the years?

2a.: What sustainability skills and knowledge have you learned at the Center?

Question 3: What do you perceive as the curriculum at the Center? On your team? How do you participate in implementing the curriculum?

Question 4: How would you say you are intended to learn at the Center? How does teaching and learning actually take place at the Center?

4a.: Do you feel like this is the most effective way for you to learn?

4b.: How important is collaboration to working and learning at the Center?

Question 5: How important is goal setting in the context of your internship?

5a: What motivates you to carry out your goals? Internal forces like interest, or external forces like your team or the Center as a whole? Do you feel you have agency in setting and achieving goals?

Question 6: How has just sustainability / ecological justice been a part of your learning at the Center, whether that be formal curriculum or the work you are doing on your team?

Question 7: How have your perceptions about yourself, the DU community, the world, or sustainability topics changed during your time at the Center? If so, can you explain how?

7a: How did your experience at the Center inform or interact with your experience of DU as whole? Think classwork, other student organizations, etc. Does this seem intentional?

Question 8: In what ways has your time at the Center inspired you to work in Sustainability fields once you graduate?

Appendix F: Former Intern Interview Protocol

Holistic Transformative Sustainability Education Within Nonformal University Settings

Date:

Interviewer: Derek Brannon

Time:

Interviewee:

Introduction: Hey there! It is good to see you today, and I hope you are doing well. As you likely know since you are participating in this interview, I am pursuing a Doctorate of Curriculum and Instruction at the University of Denver and the work we are doing today will be part of my Dissertation in Practice. Thank you so much for volunteering your time today, and I am quite excited to hear your story about your educational experiences at the Center for Sustainability. Your participation as a former student intern is critical in the goals of this study, and I look forward to learning about your unique experiences.

Study Purpose and Applications: The purpose of this study is to examine how transformative sustainability educational experiences can occur within nonformal learning spaces, such as the Center for Sustainability. The purpose of this interview is for you to tell your story as a former student intern at the Center and provide some insight into the educational experiences you have had here.

Treatment of Data: All data collected today will be stored and secured on my personal device.

Review Consent Forms

Introduction Questions

Question 1: Why don't you spend some time introducing yourself; give a little background about your life, what you are doing post-graduation, and what you did at the Center.

Question 2: Do you feel it is important to work in a sustainability field?

2a: If you answered yes, can you illustrate any life experiences that led to this answer.

Question 3: Sum up your experience at the Center in a sentence or two!

Essential Questions for First Session

Question 1: Tell me about when you first applied at the Center. What motivated you to apply and what were you hoping to achieve in your student internship?

1a: Did these motivations interact with your identity? If so, explain.

1b: Once you knew you had been hired, what were you hoping to learn during your time at the Center?

Question 2: What did you learn during your time at the Center? Did this change over the years?

2a.: What sustainability skills and knowledge have you learned at the Center?

Question 3: What did you perceive as the curriculum at the Center? On your team? How did you participate in implementing the curriculum?

Question 4: How would you say you were intended to learn at the Center? How does teaching and learning actually take place at the Center?

4a.: Do you feel like this is the most effective way for you to learn?

4b.: How important was collaboration to working and learning at the Center?

Question 5: How important was goal setting in the context of your internship?

5a: What motivated you to carry out your goals? Internal forces like interest, or external forces like your team or the Center as a whole? Did you feel you had agency in setting and achieving goals?

Question 6: How was just sustainability / ecological justice part of your learning at the Center, whether that be formal curriculum or the work you did on your team?

Question 7: How did your perceptions about yourself, the DU community, the world, or sustainability topics change during your time at the Center?

7a: How did your experience at the Center inform or interact with your experience of DU as whole? Think classwork, other student organizations, etc. Does this seem intentional?

Question 8: How did your time at the Center inspire you to work in the sustainability field?

Question 9: How did your time at the Center prepare you for your work in a sustainability field?

Appendix G: Sample Second Interview Protocol

Holistic Transformative Sustainability Education Within Nonformal University Settings

Date:

Interviewer: Derek Brannon

Time:

Interviewee:

Introduction: Hey there! It is good to see you again today, and I hope you are doing well. Just for the record, I would like to restate my introduction from last time:

As you likely know since you are participating in this interview, I am pursuing a Doctorate of Curriculum and Instruction at the University of Denver and the work we are doing today will be part of my Dissertation in Practice. Thank you so much for volunteering your time today, and I am quite excited to hear your story about your educational experiences at the Center for Sustainability. Your participation as a former student intern is critical in the goals of this study, and I look forward to learning about your unique experiences.

Study Purpose and Applications: The purpose of this study is to examine how transformative sustainability educational experiences can occur within nonformal learning spaces, such as the Center for Sustainability. The purpose of this interview is for you to tell your story as a former student intern at the Center and provide some insight into the educational experiences you have had here.

Treatment of Data: All data collected today will be stored and secured on my personal device.

Review Consent Forms

Emergent Questions

Question 1: Now that you have had time to reflect on our previous interview, were there any things you wanted to say about our discussion last time? These can be comments, reflections, corrections, etc.

Question 2: Spend some time describing your various identities. How do you think they interact?

Question 3: Do you feel your identity is important to the executive director and the assistant director? (In regard to team placement, role, etc. This can also include things like your major, etc.) If so, how?

Question 4: Have you learned both professional and sustainability skills during your internship? Does it seem that both are equally important?

Question 5: How has systems thinking/problem solving been a part of your experience at the Center?

Clarification Questions

Question 1: *Introduce vignette from observations* Can you tell me more about this/explain this?

Question 2: I interpreted what I observed as _____, can you verify that?

Question 3: Is there anything you would like to say or clarify about what occurred during my observation?

Question 4: I have reviewed your _____ artifact and noticed _____. Explain this for me.

Question 5: I wanted to circle back to your answer to question _____ from our last interview. Can you clarify _____ for me?

Appendix H: Introductory Protocol Questions and Alignment With Literature

Question type	Protocol question	Alignment
Introduction questions	<p>Question 1: Spend some time introducing yourself; give a little background about your life, how you got here, and what you do at the Center.</p> <p>Question 2: Do you feel it is important to work in a sustainability field?</p> <p>Question 2a: If you answered yes, can you illustrate any life experiences that led to this answer.</p> <p>Question 3: Sum up your experience at the Center in a sentence or two!</p>	Build familiarity with participant and establish a baseline to measure growth.
Central questions	<p>Question 1a: Do these motivations interact with your identity? If so, explain.</p> <p>Question 1b: Once you knew you had been hired, what were you hoping to learn during your time at the Center?</p> <p>Question 2: What have you learned during your time at the Center so far? Has this changed over the years?</p>	

Appendix I: Central Protocol Questions and Alignment With Research Questions and Frameworks

Research question	Protocol question	Alignment
Research Question 1a: How does the pedagogical and curricular philosophy of the Center for Sustainability represent a sociocultural perspective regarding learning?	Part of Question 3: What do you perceive as the curriculum at the Center? On your team?	This question establishes what the Center's nonformal curriculum is and whether it relates to sociocultural concepts (Tharp et al., 2000; Wertsch, 1991).
	Part of Question 4: How would you say you are intended to learn at the Center?	This question is trying to establish the pedagogical philosophy of the Center and whether sociocultural learning is the intent (Tharp et al., 2000).
	Question 7: How has just sustainability/ecological justice been a part of your learning at the Center, whether that be formal curriculum or the work you are doing on your team?	This question establishes whether the third tier of the new green learning agenda framework is part of the curriculum at the Center (Kwuk & Casey, 2021).
	Question 8a: How did your experience at the Center inform or interact with your experience of DU? Think classwork, other student organizations, etc. Does this seem intentional?	This question is meant to establish whether the institutional context of the internships is a consideration in their design (Armstrong et al., 2016; Wertsch, 1991).
Research Question 1b: How do interns learn?	Part of Question 3: How did you participate in implementing that curriculum?	This tries to establish such things as activity setting, propinquity, mutual understanding (Tharp et al., 2000).
	Part of Question 4: How would you say your teaching and learning takes place at the Center?	This tries to establish what elements of sociocultural learning is taking place (Tharp et al., 2000).
	Question 4a: Do you feel this is the most effective way for you to learn?	This tries to establish whether these elements of sociocultural learning are effective (Tharp et al., 2000).

Research question	Protocol question	Alignment
	Question 4b: How important is collaboration to working and learning at the Center?	This tries to establish how important activity settings are within the student internships at the Center (Tharp et al., 2000).
	Question 5: How important is goal setting in the context of your internship?	This tries to establish how goals shape the learning at the Center (NASEM, 2018).
	Question 5a: What motivates you to carry out your goals? Internal forces like interest or external forces like your team or the Center as a whole? Do you feel you have agency in setting and achieving goals?	This question tries establish what role intrinsic and outside motivation plays in the types of learning activities taken on by interns (NASEM, 2018).
	Question 1a: Do these motivations interact with your identity? If so, explain.	This question tries to connect motivating factors and center them within the social context of the interns (NASEM, 2018).
	Question 6 (Lead only): What inspired you to lead a team? Do you see your role as partially to teach newer interns?	This tries to establish whether there are power roles being established within the sociocultural learning at the Center (Tharp et al., 2000).
Research Question 2: How have student interns experienced transformational sustainability learning?	Question 2: (Varies based on Intern): What have you learned during your time at the Center so far? Has this changed over the years?	This tries to establish a snapshot of the cognitive, practical, and affective learning at the Center (Gramatakos & Lavau, 2019).
	Question 2a: What sustainability skills and knowledge have you learned at the Center?	This tries to establish the cognitive and practical growth at the Center (Gramatakos & Lavau, 2019; Kwak & Casey, 2021).
	Question 8: How have your perceptions about yourself, the DU community, the world, or sustainability topics changed during your time at the Center? If so, can you explain how?	This tries to establish the affective growth at the Center (Gramatakos & Lavau, 2019; Kwak & Casey, 2021).

Appendix J: Former Employee Protocol Questions and Alignment With Research

Questions and Frameworks

Research question	Protocol question	Alignment
Research Question 2: How have student interns experienced transformational sustainability learning?	Question 8: How did your time at the Center inspire you to work in the sustainability field?	This question establishes whether the experiences at the Center for Sustainability resulted in affective outcomes for student interns (Gramatakos & Lavau, 2019; Kwak & Casey, 2021).
	Question 9: How did your time at the Center prepare you for your work in a sustainability field?	This question is driving at the long-term ramifications of the postgraduates' TSE experiences. Did their learning and growth experiences at the Center lead to long-term and lasting work within sustainability fields. Understanding the lasting effects of TSE and how the learning interacts with different experiences are part of developing a holistic picture (Armstrong et al., 2016; Kwak & Casey, 2021).

Appendix K: Second Interview Protocol

Research question	Protocol question	Alignment
Emergent foci	<p>Question 2: Spend some time describing your various identities. How do you think they interact?</p> <p>Question 3: Do you feel your identity is important to the executive director and the assistant director? (In regard to team placement, role, etc. This can also include things like your major, etc.) If so, how?</p> <p>Question 4: Have you a learned both professional and sustainability skills during your internship? Does it seem both are equally important?</p> <p>Question 5: How has systems thinking/problem solving been part of your experience at the Center?</p>	<p>NASEM, 2018; Tharp et al., 2000; Tharp & Gallimore, 2002; Wertsch, 1991</p> <p>Kwuak & Casey, 2021</p> <p>Armstrong et al., 2016; Kwuak & Casey, 2021</p>

Appendix L: Bertha Second Interview Protocol

Holistic Transformative Sustainability Education Within Nonformal University Settings

Date:

Interviewer: Derek Brannon

Time:

Interviewee:

Introduction: Hey there! It is good to see you again today, and I hope you are doing well. Just for the record, I would like to restate my introduction from last time:

As you likely know since you are participating in this interview, I am pursuing a Doctorate of Curriculum and Instruction at the University of Denver and the work we are doing today will be part of my Dissertation in Practice. Thank you so much for volunteering your time today, and I am quite excited to hear your story about your educational experiences at the Center for Sustainability. Your participation as a former student intern is critical in the goals of this study, and I look forward to learning about your unique experiences.

Study Purpose and Applications: The purpose of this study is to examine how transformative sustainability educational experiences can occur within nonformal learning spaces, such as the Center for Sustainability. The purpose of this interview is for you to be able to tell your story as a former student intern at the Center and provide some insight into the educational experiences you have had here.

Treatment of Data: All data collected today will be stored and secured on my personal device.

Review Consent Forms

Emergent Questions

Question 1: Now that you have had time to reflect on our previous interview, were there any things you wanted to say about our discussion last time? These can be comments, reflections, corrections, etc.

Question 2: Spend some time describing your various identities. How do you think they interact?

Question 3: Do you feel your identity is important to the executive director and the assistant director? (In regard to team placement, role, etc. This can also include things like your major, etc.) If so, how?

Question 4: Have you learned both professional and sustainability skills during your internship? Does it seem that both are equally important?

Question 5: How has systems thinking/problem solving been a part of your experience at the Center?

Clarification Questions

Question 1: For the first part of our observation, I met you at the church pantry location. Can you tell me more about the pantry / explain what is and how it works? And then do the same of the mobile aspect of the pantry.

Question 2: Can you clarify how you ended up working at the pantry?

Question 3: During the first part of the observation, I ended up jumping in to help you load the mobile pantry because you didn't have volunteers that night. Can you tell me more about the volunteers at the pantry?

Question 4: During the second part of the observation, I noticed two women, who also seemed to be patrons, helping out. Can you explain this to me as well as clarify whether that is common? Also, I overheard one of them say that they were going to meet you at the Church later that week. Can you explain that to me?

Question 5: While operating the mobile pantry, I noticed you hand out tickets to patrons. Can you explain what they were for?

Question 6: I wanted to circle back to your answer to question a from our last interview. You said, “there were often opportunities to grow and learn and connect beyond DU.” Can you clarify whether you meant this was intentional on behalf of the executive director and the assistant director?

Appendix M: Cleo Second Interview Protocol

Holistic Transformative Sustainability Education Within Nonformal University Settings

Date:

Interviewer: Derek Brannon

Time:

Interviewee:

Introduction: Hey there! It is good to see you again today, and I hope you are doing well. Just for the record, I would like to restate my introduction from last time:

As you likely know since you are participating in this interview, I am pursuing a Doctorate of Curriculum and Instruction at the University of Denver and the work we are doing today will be part of my Dissertation in Practice. Thank you so much for volunteering your time today, and I am quite excited to hear your story about your educational experiences at the Center for Sustainability. Your participation as a former student intern is critical in the goals of this study, and I look forward to learning about your unique experiences.

Study Purpose and Applications: The purpose of this study is to examine how transformative sustainability educational experiences can occur within nonformal learning spaces, such as the Center for Sustainability. The purpose of this interview is for you to tell your story as a former student intern at the Center and provide some insight into the educational experiences you have had here.

Treatment of Data: All data collected today will be stored and secured on my personal device.

Review Consent Forms

Emergent Questions

Question 1: Now that you have had time to reflect on our previous interview, were there any things you wanted to say about our discussion last time? These can be comments, reflections, corrections, etc.

Question 2: Spend some time describing your various identities. How do you think they interact?

Question 3: Do you feel your identity is important to the executive director and the assistant director? (In regard to team placement, role, etc. This can also include things like your major, etc.) If so, how?

Question 4: Have you learned both professional and sustainability skills during your internship? Does it seem that both are equally important?

Question 5: How has systems thinking/problem solving been a part of your experience at the Center?

Clarification Questions

Question 1: During the team meeting that I observed, you spoke a bit about the Center punch cards. Can you tell me more about this/explain this?

Question 2: During my observation, I interpreted the leadership hierarchy as rather flat within the Marketplace. Can you verify that?

Question 3: At some point within the meeting, you were discussing the use of Spanish resources. I have it written down that the intake forms are not in Spanish? Can you verify that for me?

Question 4: At one point during the observation, you alluded to the fact that the Marketplace (or Center) is well-liked within the larger DU institution. Can you explain this?

Question 5: I wanted to circle back to your answer last time. You said it “was a big plus” that DU had programs like the Center when considering universities. I interpreted that as you saying that learning about the program at the Center inspired you to attend school here? Can you confirm that for me?

Appendix N: Erin Second Interview Protocol

Holistic Transformative Sustainability Education Within Nonformal University Settings

Date:

Interviewer: Derek Brannon

Time:

Interviewee:

Introduction: Hey there! It is good to see you again today, and I hope you are doing well. Just for the record, I would like to restate my introduction from last time:

As you likely know since you are participating in this interview, I am pursuing a Doctorate of Curriculum and Instruction at the University of Denver and the work we are doing today will be part of my Dissertation in Practice. Thank you so much for volunteering your time today, and I am quite excited to hear your story about your educational experiences at the Center for Sustainability. Your participation as a former student intern is critical in the goals of this study, and I look forward to learning about your unique experiences.

Study Purpose and Applications: The purpose of this study is to examine how transformative sustainability educational experiences can occur within nonformal learning spaces, such as the Center for Sustainability. The purpose of this interview is for you to be able to tell your story as a former student intern at the Center and provide some insight into the educational experiences you have had here.

Treatment of Data: All data collected today will be stored and secured on OneDrive.

Review Consent Forms

Emergent Questions

Question 1: Now that you have had time to reflect on our previous interview, were there any things you wanted to say about our discussion last time? These can be comments, reflections, corrections, etc.

Question 2: Spend some time describing your various identities. How do you think they interact?

Question 3: Do you feel your identity is important to the executive director and the assistant director? (In regard to team placement, role, etc. This can also include things like your major, etc.) If so, how?

Question 4: Have you learned both professional and sustainability skills during your internship? Does it seem that both are equally important?

Question 5: How has systems thinking/problem solving been a part of your experience at the Center?

Clarification Questions

Question 1: Could you just clarify what the purpose of Sustain-a-Ween.

Question 2: I noticed during the observation that only you were running the waste sorting game. Can you tell me more about this / explain this?

Question 3: During the last interview, you mentioned Zero Waste Athletics quite a bit. Can you tell me what that is?

Question 4: In the interview, you mentioned you chose to move to Colorado to be in a similar environment. I interpreted that as meaning both the physical environment (i.e., outdoorsy) as well as political environment (i.e., usually goes blue). Is this correct?

Question 5: During the observation, I heard your team start to talk about DUPB. The discussion of budget came up, and it seemed like they get a lot of money every year to organize. There seemed to be some tension within this discussion. Can you explain that to me?

Question 6: I noticed that it seemed like your team members chose what to do at Sustain-a-Ween, and you did not delegate a great deal. Can you confirm this for me? Is this typical?

Appendix O: Mabel Second Interview Protocol

Holistic Transformative Sustainability Education Within Nonformal University Settings

Date:

Interviewer: Derek Brannon

Time:

Interviewee:

Introduction: Hey there! It is good to see you again today, and I hope you are doing well. Just for the record, I would like to restate my introduction from last time:

As you likely know since you are participating in this interview, I am pursuing a Doctorate of Curriculum and Instruction at the University of Denver and the work we are doing today will be part of my Dissertation in Practice. Thank you so much for volunteering your time today, and I am quite excited to hear your story about your educational experiences at the Center for Sustainability. Your participation as a former student intern is critical in the goals of this study, and I look forward to learning about your unique experiences.

Study Purpose and Applications: The purpose of this study is to examine how transformative sustainability educational experiences can occur within nonformal learning spaces, such as the Center for Sustainability. The purpose of this interview is for you to be able to tell your story as a former student intern at the Center and provide some insight into the educational experiences you have had here.

Treatment of Data: All data collected today will be stored and secured on my personal device.

Review Consent Forms

Emergent Questions

Question 1: Now that you have had time to reflect on our previous interview, were there any things you wanted to say about our discussion last time? These can be comments, reflections, corrections, etc.

Question 2: Spend some time describing your various identities. How do you think they interact?

Question 3: Do you feel your identity is important to the executive director and the assistant director? (In regard to team placement, role, etc. This can also include things like your major, etc.) If so, how?

Question 4: Have you learned both professional and sustainability skills during your internship? Does it seem both are equally important?

Question 5: How has systems thinking/problem solving been a part of your experience at the Center?

Clarification Questions

Question 1: In the last interview, you mentioned REPS. Can you tell me more about this/explain this?

Question 2: In the last interview, you said you often got thrown into the work. You also mentioned you would learn from peers. I interpreted this to mean your peers helped you learn when you were thrown into the work. Can you confirm this?

Question 3: You sent me a team report as your artifact. Can you tell me more about this / explain this?

Question 4: I have reviewed your artifact and I was curious how large of an impact you personally had on the report? How involved were you with the various events and projects mentioned in the report?

Question 5: I noticed within the report, a great deal of different events. How successful do you think these events ended up being? (Think engagement, impact, etc.)

Appendix P: Chelsea Second Interview Protocol

Holistic Transformative Sustainability Education Within Nonformal University Settings

Date:

Interviewer: Derek Brannon

Time:

Interviewee:

Introduction: Hey there! It is good to see you again today, and I hope you are doing well. Just for the record, I would like to restate my introduction from last time:

As you likely know since you are participating in this interview, I am pursuing a Doctorate of Curriculum and Instruction at the University of Denver and the work we are doing today will be part of my Dissertation in Practice. Thank you so much for volunteering your time today, and I am quite excited to hear your story about your educational experiences at the Center for Sustainability. Your participation as a former student intern is critical in the goals of this study, and I look forward to learning about your unique experiences.

Study Purpose and Applications: The purpose of this study is to examine how transformative sustainability educational experiences can occur within nonformal learning spaces, such as the Center for Sustainability. The purpose of this interview is for you to be able to tell your story as a former student intern at the Center and provide some insight into the educational experiences you have had here.

Treatment of Data: All data collected today will be stored and secured on my personal device.

Review Consent Forms

Emergent Questions:

Question 1: Now that you have had time to reflect on our previous interview, were there any things you wanted to say about our discussion last time? These can be comments, reflections, corrections, etc.

Question 2: Spend some time describing your various identities. How do you think they interact?

Question 3: Do you feel your identity is important to the executive director and the assistant director? (In regard to team placement, role, etc. This can also include things like your major, etc.) If so, how?

Question 4: Have you learned both professional and sustainability skills during your internship? Does it seem both are equally important?

Question 5: How has systems thinking/problem solving been a part of your experience at the Center?

Clarification Questions

Question 1: In the last interview, you mentioned the “three aspects of Sustainable Development.” Can you tell me more about this/explain this?

Question 2: In your summation statement about your experience at the Center, one of the three words you chose was “challenging.” I interpreted the challenging nature of your internship as one of the reasons you did not return. Can you verify this for me?

Question 3: I have reviewed your artifact and have a few clarification questions. Was Crimson Compost a program you came up with or an existing program? Was the application approved? If so, did you carry out the program as described?

Question 4: In the last interview, you discussed that many people at DU have a privileged view of Sustainability. You said learning from others at the Center both made you happy but was also frustrating because of this. Can you clarify whether Center interns held privileged beliefs about sustainability?

Question 5: Can you clarify if these types of discussions about sustainability were common or uncommon?

Appendix Q: R Second Interview Protocol

Holistic Transformative Sustainability Education Within Nonformal University Settings

Date:

Interviewer: Derek Brannon

Time:

Interviewee:

Introduction: Hey there! It is good to see you again today, and I hope you are doing well. Just for the record, I would like to restate my introduction from last time:

As you likely know since you are participating in this interview, I am pursuing a Doctorate of Curriculum and Instruction at the University of Denver and the work we are doing today will be part of my Dissertation in Practice. Thank you so much for volunteering your time today, and I am quite excited to hear your story about your educational experiences at the Center for Sustainability. Your participation as a former student intern is critical in the goals of this study, and I look forward to learning about your unique experiences.

Study Purpose and Applications: The purpose of this study is to examine how transformative sustainability educational experiences can occur within nonformal learning spaces, such as the Center for Sustainability. The purpose of this interview is for you to tell your story as a former student intern at the Center and provide some insight into the educational experiences you have had here.

Treatment of Data: All data collected today will be stored and secured on my personal device.

Review Consent Forms

Emergent Questions

Question 1: Now that you have had time to reflect on our previous interview, were there any things you wanted to say about our discussion last time (e.g., comments, reflections, corrections).

Question 2: Spend some time describing your various identities. How do you think they interact?

Question 3: Do you feel your identity is important to the executive director and the assistant director? (In regard to team placement, role, etc. This can also include things like your major, etc.) If so, how?

Question 4: Have you learned both professional and sustainability skills during your internship? Does it seem that both are equally important?

Question 5: How has systems thinking/problem solving been a part of your experience at the Center?

Clarification Questions

Question 1: In the first interview, you said in regard to the curriculum at the Center: The executive director and the assistant director lay the foundation and keep interns aware of what is going on, on campus. Can you tell me more about this/explain this foundation?

Question 4: In the first interview, you said the Center is disorganized but collectively committed to a cause. Can you expand on this?

Question 2: For my first observation, I observed you help with the CRC garden. Can you tell me more about that project and why it was / is important to you?

Question 3: During the CRC observation, I noticed you would frequently ask the programming grad lead questions about the plants and other environmental knowledge. Would you say this

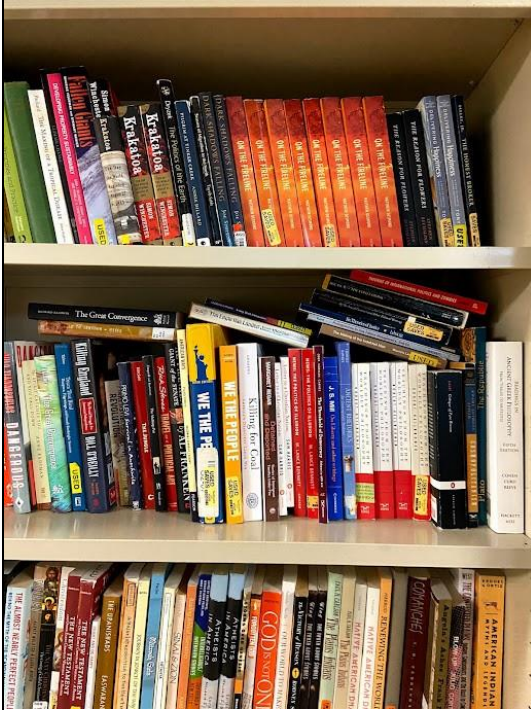
process, of learning from more experienced peers while completing hands on work, is common to the Center?

Question 5: In the first interview, you mentioned that the pantry is mostly “smooth sailing” and that now you are thinking of ways to make it better. Can you go into more detail about what you are doing?

Appendix R: Cleo's Artifact

Cleo Artifact: The Sustainability Marketplace

0164: The Bookstore section of the Marketplace. The Bookstore was my first interaction with leading a project at the Center. We cleared out our storage unit the summer of 2020 and spent hours upon hours in a hot basement sorting through all the books to create a catalog system. The following fall, we launched our first ever used book sale which saw more success than we had even imagined. This was the first moment for me where I knew this was a project I wanted to stay involved with so seeing it come to life with formal shelves and in-person shopping is very exciting.



0169: The shelves of the Thrift Store which hold all our miscellaneous goods from appliances to kitchen goods to bathroom organizers and more. Everything on these shelves is as affordable as possible and really shows the closing of a waste loop as it is all donated from students for their college homes and then reused by future students in theirs.



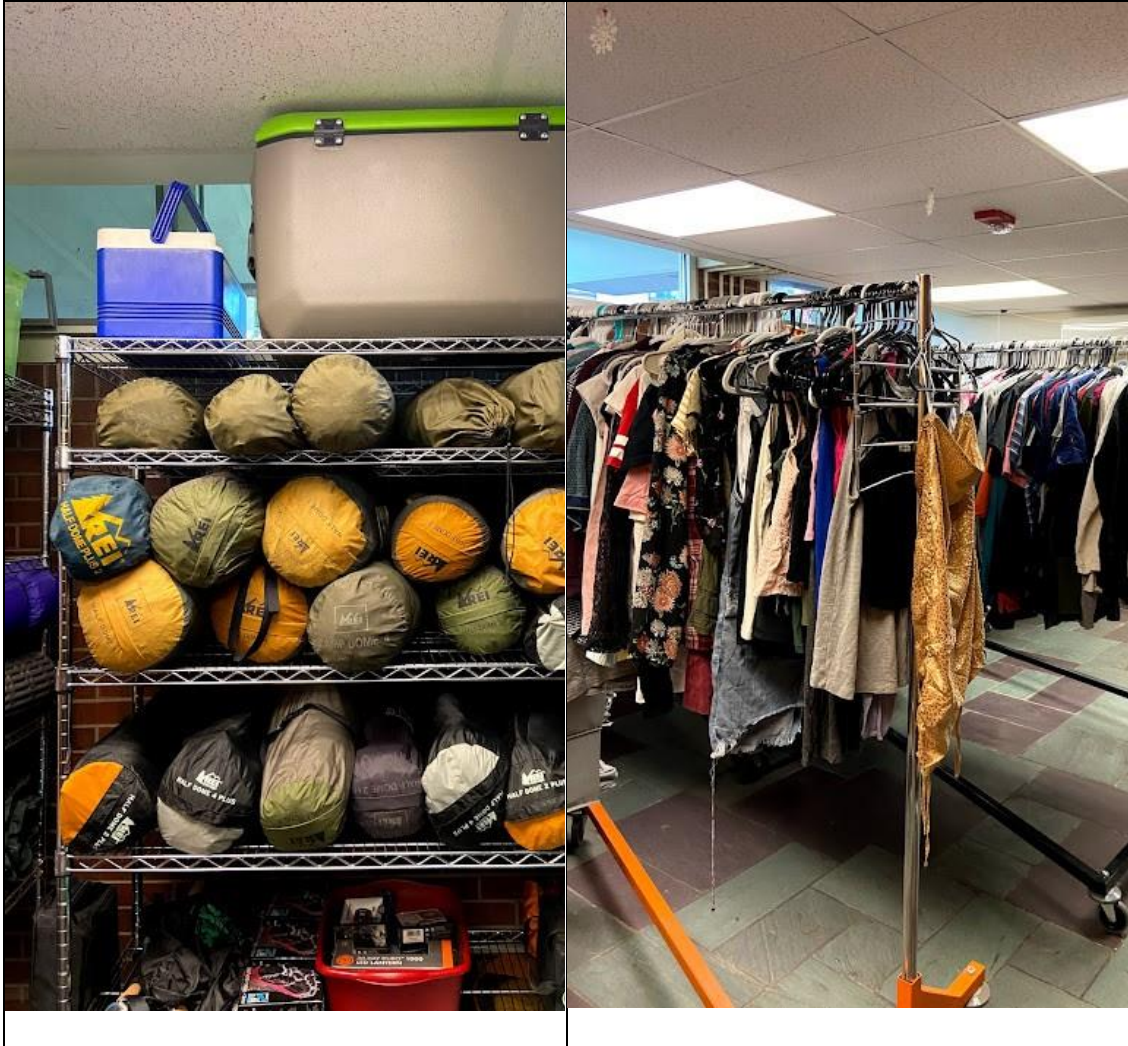
0174 and 0176: The Food Pantry section of the Marketplace which is really the backbone to our team. The pantry is the thing that lived throughout the pandemic and something I've been working with since I started at the Center. In many ways, it was what inspired all the other aspects of the Marketplace since it was like, "What other things do people need more access to?"



0179: The Gear Garage which was an old program that saw a rebirth this year after being halted by COVID-19. The Gear Garage is hugely helpful in letting students access the Colorado environment without having to spend outrageous amounts of money.



0184: The racks of the Thrift Store which are the thing that tends to draw people in the most. Once in, they can learn about and see everything else we have to offer.



0192: The entrance to the Sustainability Marketplace located in Centennial Towers. These photos show my artifact which is the Marketplace as a whole since it has been the most shaping factor of my time at the Center and something I have been a part of every step of the way since it's conception.

Appendix S: Erin's Artifact

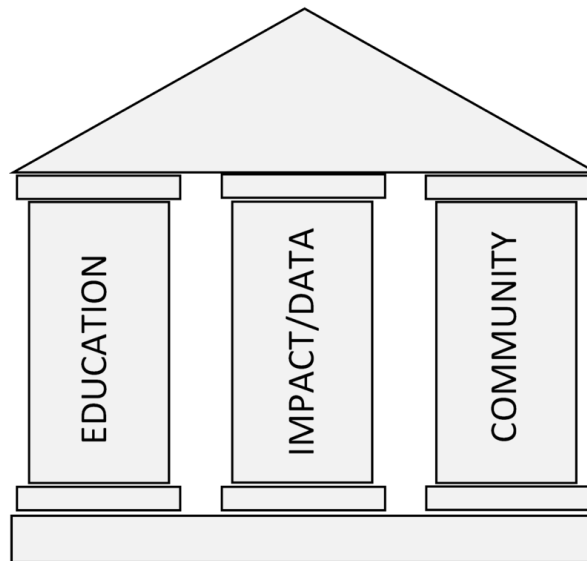
Zero Waste Athletics Re-Imagined

This document is meant to be a guide for the Zero Waste Athletics team and their partners to clarify a path toward a more sustainable future for Zero Waste Athletics program. It is meant to be adaptable to the needs of partners and the context of our community.

The COVID-19 public health crisis has caused all of us to evaluate the priorities and essential components of our programs. As we reintroduce programming like Zero Waste into our campus operations, we want to be intentional about what we ask of our staff and partners, and what purpose these asks serve.

Our program will rest on three pillars: Community, Education, and Data & Impact. These pillars guide the work we want to achieve to best meet the needs of the DU community and reach the University's goals.

- Community emphasizes our conscious efforts to integrate a social justice perspective and community goals and values into our work.
- Education encompasses the specific initiatives we execute with our stakeholders and the broader campus community to inform people about waste reduction, proper sorting, and the impact waste has on the environment and wellbeing.
- Data and Impact refers to the types of data we collect to quantify impact and increase the effectiveness of the program through strategic changes.



Our plan has three phases: Re-education, Foundations, and Integration. Creating sustainable systems that work for the environment and the people within them requires collaboration and a sense of shared values. Our pillars of community, education, and impact reflect not only our values, but the values of University of Denver as a whole.

How do we know when a phase is complete?

This will rely on a variety of factors. It will be a combination of goals completed on the part of our team, the Center for Sustainability Waste Team, and feedback from stakeholders on their own capacities and goals.

Phase 1: Re-Education

Overview: Our Phase 1 goal for stakeholders is to assess their capacity for Zero Waste operations as we all begin recovering from the effects of COVID-19. Considering this, many Phase 1 action items are facilitated by the Zero Waste Team, in that we support stakeholders in enacting Zero Waste operations.

Pillar 1: Community

- One-page reports for each stakeholder on how their operations relate to the 2030 carbon neutrality goal.
- The Zero Waste athletics team will be attuned to the needs and capacity of our partners when we are re-introducing operations and foundational concepts of zero waste. For example, frequency of reporting will be reduced in Phase 1 to account for capacity.

Pillar 2: Education

- Zero Waste Athletics team will collaborate with other teams at the center for sustainability to build a volunteer list of individuals interested in volunteering at games.
- The Zero Waste Athletics team will engage Center for Sustainability staff to familiarize staff with the program.
- The Zero Waste Athletics team will help re-establish necessary infrastructure for zero waste events to run effectively, including things such as improving back of house signage and ensuring that quad bins are placed effectively throughout the concourse.
- The Zero Waste Athletics team will be in conversation with each stakeholder to clarify capacity to for zero waste operations and clarify the purpose of the Zero Waste Athletics team.
- The Zero Waste Athletics team will find new ways to engage with game attendees to educate and engage them in sustainable athletics. Zero Waste Athletics will collaborate with stakeholders for fan outreach.

Pillar 3: Impact/Data

- Data the Zero Waste Athletics team collect will be related meaningfully to our community, our stakeholders, and their goals.
- Data collection is reconceptualized as a step to identify productive changes as opposed to data collection as the purpose of programming.
- Data collection in this phase will be focused on establishing baselines and understanding the effects of more targeted interventions.
- Reports in Phase 1 will not make recommendations or prescribe action but inform stakeholders on baseline metrics from before COVID-19 and current metrics.

Phase 2: Foundations

Overview: Foundations means each stakeholder and the Center for Sustainability team understand each of their contributions to zero waste and begin to fold zero waste practices into their own team operations. Phase 2 involves a more pointed focus on feedback and recommendations for

stakeholders on how to improve their programs. A collaborative perspective on the education and operations established during Phase 1.

Pillar 1: Community

- Reports to stakeholders assessing their impact on the 2030 carbon neutrality goals will be expanded to include specific recommendations on how to improve their impact and summary statistics highlighting the improvements they have made since Phase 1.
- Stakeholders will be encouraged to collaborate with each other to meet the goals of their team while respecting the capacity of the individuals on their team.
- The Zero Waste Athletics team will gauge community knowledge and investment in sustainability goals. In response, events and communication will be adjusted to meet the broader DU community where they are at.

Pillar 2: Education

- Stakeholders will take on more responsibility in ensuring that the basics of zero waste operations are in place. For example, making sure the correct bins and bags are provided to each vendor and concessions stand.
- The Zero Waste Athletics team will continue to do some tasks to fill gaps in capacity to help ensure smooth and effective zero waste events.
- The Zero Waste Athletics team will make themselves available for conversations regarding responsibility for tasks, meeting stakeholder goals, and making changes to zero waste events to meet current stakeholder capacity.
- The Zero Waste Athletics team will run two games staffed with volunteers to engage fans on a personal level and to collect holistic data.

Pillar 3: Data and Impact

- Stakeholders will be encouraged to establish zero waste goals for their own operations.
- Data we collect will continue to be tailored to the goals of stakeholders to best support them in improving upon their goals.
- Data will be collected to identify areas of improvement and growth for each of our stakeholders.
- Data will be used to inform recommendations and to report trends and changes in stakeholder impact.

Phase 3: Integration

Overview: Our end goal for stakeholders is to educate and empower them to make zero waste an integrated part of their own programs. An ingrained habit and value of sustainability and zero waste means these programs will no longer be considered an extra effort or burden, but a valued and ordinary part of operations. Our hope is that our stakeholders become empowered to take responsibility for a sustainable future.

Pillar 1: Community

- Stakeholders will receive longer reports regarding their impact on the 2030 carbon neutrality goal, recommendations of where and how they can make improvements to their metrics, a timeline showing how much closer they are to reaching their goals compared to Phase 1.
- Stakeholders are expected to collaborate with each other with minimal facilitation from the Zero Waste Athletics team.

Pillar 2: Education

- Stakeholders are expected to be able to run effective zero waste events with minimal input from the Zero Waste Athletics team.
- The Zero Waste Athletics team will be available for consultations and to offer additional support during large events as stakeholders can assess their own capacity and identify when further support is needed.
- The Zero Waste Athletics team will help advise stakeholders on how zero waste integration can fit into their individual organizational structure to help them meet their specific needs.
- The Waste Team will continue to support fan & community outreach and engagement through volunteer staffed games and other programming.
- Stakeholders will take responsibility for their zero waste infrastructure, such as updating signage, etc.

Pillar 3: Data and Impact

- Data will be collected by the Zero Waste Athletics team and serve to keep our stakeholders accountable to themselves, their goals, and our community.
- The Zero Waste Athletics team will continue to use data to track trends and improvements in stakeholder waste practices.
- The Zero Waste Athletics team will be available to have conversations surrounding how to implement the team's recommendations and collecting specific metrics to better measure and track stakeholder goals.

Specific program changes and suggestions that better fit into our new framework:

- More direct fan interaction through gauging interest in sustainable athletics, fan knowledge, etc. through survey.
- Use screens and possibly activities on the concourse to engage fans on our program and impact.
- Leads split into a structure where one focuses on routine and operations, and the other focuses more on direct engagement and community.
- Possible donor structure as discussed in the 2013 manual.
- More targeted interventions to better meet goals and improve diversion.
- Sodexo back of house signs vs. board training

Appendix T: Mabel's Artifact

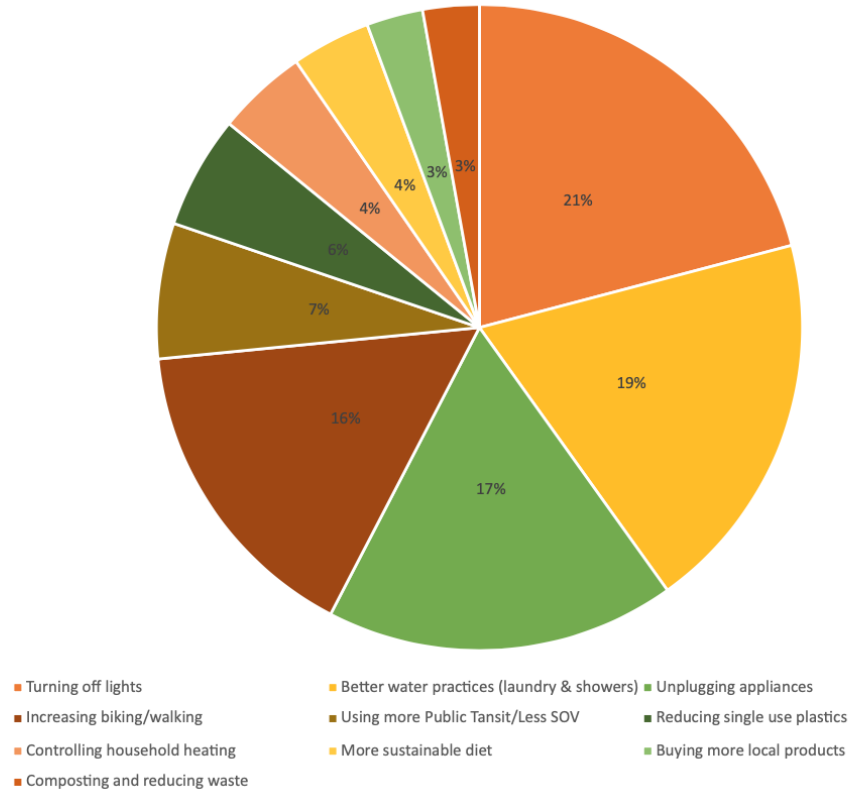
Winter 2021 Energy Challenge Report

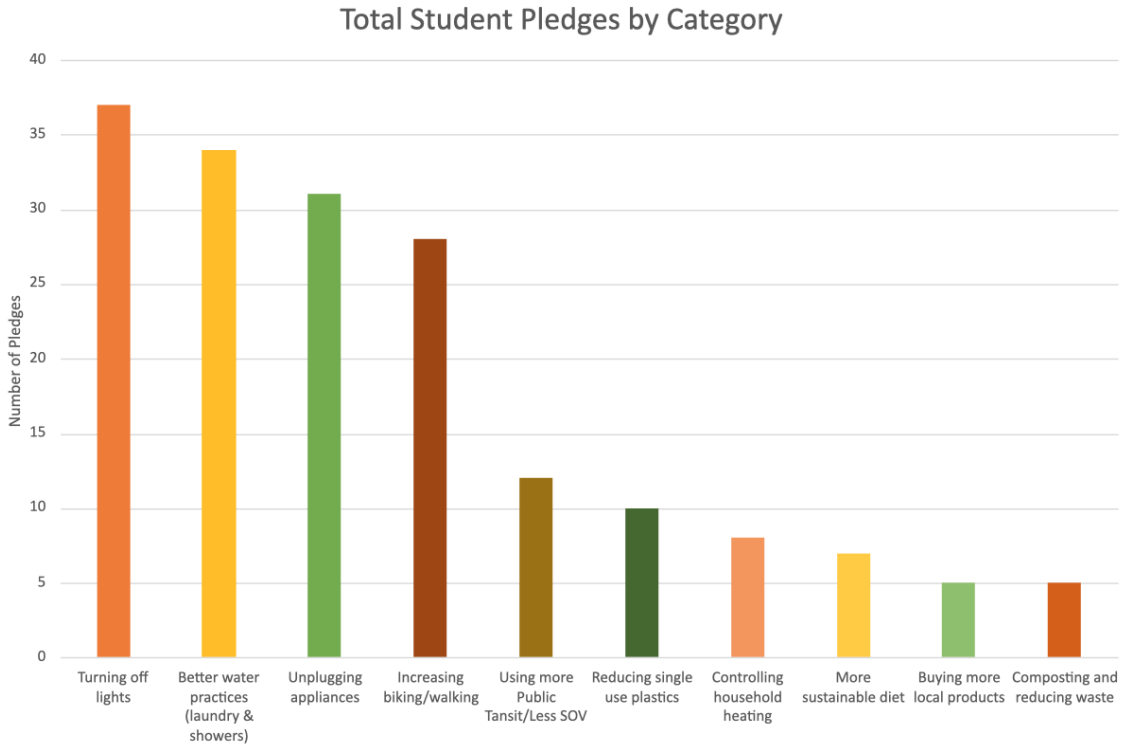
Energy Challenge Participants

Total Participants	82
Total Pledges	177
Average pledges/person	2.24

% of things participants pledged

Energy Challenge Pledges by Type





Number of people that responded to post-survey: 30

Average “On a scale of 1-10 do you feel like you stuck to your original energy pledge?”: 7.57

Average “How likely would you be to participate in Energy Challenge or another Center for Sustainability event?”: 9.37

People at sustain-a-week tabling event: 31

Offset data??

Energy Challenge

Overview: The Energy Challenge 2021 was different from years past due to COVID-19. Our goal this year was to reach as many students as possible despite the change in format for the Energy Challenge. Many of our events were structured so that participants could pick up kits and then do the activity at home. This was a way for us to try and reach a large portion of the student body as well as follow COVID guidelines. To gauge participation, we had students scan a QR code that took them to a survey where they made their pledge. Examples of common pledges were turning lights off when they were not in the room, turn off electronics when they were not in use, and eat less meat as seen in our log of pledges at [this link](#). Since the Energy Challenge occurs throughout the month of February, we sent out weekly emails to remind people of their pledges and the events that were being offered that week. By sending weekly emails, we were able to help hold students accountable for their pledges and maintain a relationship with them through out the month of February. In total, we had 82 participants who made 177 pledges. These pledges could be broken down into 10 categories (as seen above) and allowed us to gauge what students were wanting to prioritize with their pledges. We observed most pledges were to turn off lights, have more conscious water usage, unplug their appliances, and increase their biking and walking.

Events

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 4		Build a Terrarium			
Week 5	Walk-a-Thon	Walk-a-Thon	Walk-a-Thon	Walk-a-Thon Yoga Night	Walk-a-Thon
Week 6		Make a Rice Heating Pad			
Week 7				“I Am Greta” Movie Screening	

Build a Terrarium Event

For our first event of the Energy Challenge, we partnered with Green Lady Gardens to make take-home kits for students. We purchased 40 plants with different variety and used pots and soil from the Center. In each kit, we included a plant, a pot, soil, a sticker, and an energy challenge poster. We tabled outside of the Community Commons and were able to give out all 40 of the kits. Having this event at the start of the challenge was a really great way to initially reach many students because it is always an extremely popular event.

Walk-a-Thon

The second event of the Energy Challenge was a Walk-a-Thon that took place over the course of Week 5. We used social media to encourage Energy Challenge participants to participate in the walk-a-thon. The event started Monday of week 5 and ended on Sunday. Participants sent a screenshot of their average steps from their apple watch, health app, Fitbit, etc. to our social media accounts and the person with the highest average steps per day won a gift card to Runner’s Roost. We had 8 participants for this event.

Yoga Night

The third event of the Energy Challenge also took place during Week 5. We had a yoga night that was led by Brianna Johnson. The event was held on Zoom from 6 to 7 PM and was a very relaxing and enjoyable end to midterms week. We had 8 participants which we were happy with seeing as virtual events tend to draw a smaller crowd.

Make a Rice Heating Pad

The fourth event of the Energy Challenge was Make a Rice Heating Pad. We made kits for participants to take home that included a bag of rice, a sock, a sticker, and a granola bar. The goal of this event was to encourage participants to heat up the rice heating pad instead of turning up their thermostats to save energy. We gave out 15 boxes to students.

“I Am Greta” Movie Screening

The final event of the Energy challenge was the “I Am Greta” movie screening. This event did not actually end up happening due to technical errors. However, it was a good learning experience for us, and we were still able to give out boxes of popcorn and engage with the student body. In the future, we would love to do this event again and figure out the best way to show the movie virtually or in person.

Appendix U: Chelsea's Artifact

Submitted by: Hannah Cooper (Hannah.Cooper@du.edu) on Feb 15, 2021 6:50 PM (last edited on Mar 4, 2021 10:47 AM)

Sustainability Committee Funding Application APPROVED

Sustainability Funding Application

Use this application to submit all funding requests. We ask that these are completed 2 weeks before the funds are needed, please submit all questions to suscomm@du.edu

Name * Hannah Cooper

Email * hannah.cooper@du.edu

Organization Name * DU Center for Sustainability

Type of Organization *

- Registered Student Organization
- Undergraduate Student
- University Department

What are the central goals and objectives of this project? * To enable access and encourage affordable composting for off-campus students and employees living in multiunit or rental buildings – increasing waste diversion rates. Additional revenue will then be used to fund student internships and programs in the Center for Sustainability.

What is the specific plan for this project? Any information regarding community partners and/or a timeline is beneficial to include * The project will focus on increasing the access to composting for students/faculty who live off-campus by enabling access to a close and secure compost toter. The compost toter will be placed at the south end of campus at the English Learning Center, a location that is easily accessible by those in nearby rentals and multiunit buildings such as Vista and UHouse – major off campus student housing options. The toter will be purchased from and contracted with Alpine Waste and serviced by Green for Life. Starting operations and initial sign-ups will be encouraged and advertised in Spring Quarter 2021 and through the summer before operating at full capacity Fall Quarter 2021. A 'Welcome Kit' including program background and information, a compost bucket with a sticker of acceptable compost materials, and toter location and lock-combo will also be provided to those who sign-up for the program. A business website ran by the Center for Sustainability will be created to deal with program operations such as point of

contact, customer signup and payment, questions, program statistics, updates and future plans, and other additional necessities – allowing for smooth contact and operation.

What is your outreach and/or publicity plan for this project? *

Survey outreach for initial interest (Facebook, Google Survey, Instagram) will be implemented to check the interest of the service with off-campus bodies. Additional survey questions will be asked to inquire about price, location, and other issues that may dissuade signup. Once operations have begun, additional outreach will include labeling and online outreach will be conducted to spread awareness of the program and its offerings. This part of the program will be increased during the beginning of each school year and winter – periods when most leases are being signed by either student coming back from summer break or fall study abroad.

Which of the DU sustainability goals does your project support? If you need to educate yourself on these goals read the Board of Trustees' Green Fund Proposal here: <https://goo.gl/7QYGF8> *

- Reduce carbon emissions by 24% by 2020 over a 2007 baseline (as an interim goal to carbon neutrality by 2050)
- MTCO₂E reduction of 2%/yr or 45% by 2025 from the 2007 baseline
- Maximize amounts of low- water plantings and campus food production to reduce irrigation per square foot and total water use for irrigation to 40% of a 2007 baseline.
- Implement a phased approach to Integrated Pest Management and/or organic grounds, beginning with turf maintenance, with a goal of 50% of grounds maintain organically by 2025.
- Reduce SOV commutes to less than 40% of total trips and eliminate the need for cars for students' first two academic years by providing multiple safe transportation alternatives to campus.
- Create a "Green Fleet" of DU vehicles by 2025 consisting of 50% alternatively fueled vehicles (hybrid, CNG and electric)
- Become a gold rated Bicycle Friendly University (League of American Bicyclists) by 2020
- Produce 5% of DU's energy consumption needs on-site through renewable energy generations by 2025 (2MW demand/3,200,000kWh/yr). The first project is to be completed in FY18 and will enhance the campus as a "living lab" through student involvement and incorporation into course curriculum.
- Continue reduction of on- campus electrical consumption by 500,000 kWh/yr through energy efficiency projects.
- Investigate a 20-year Power Purchase Agreement (PPA) in which DU retains the Renewable Energy Credits (RECs) that reduce the carbon footprint in 20% increments. The first agreement will be in place by 2025.
- Reduce storm-water runoff by modeling ultra-urban green infrastructure as part of a campus stormwater policy.
- Reach a high efficiency standard of per-person water use on campus (gallons per day).
- Reduce indoor water use by 30% from a 2007 baseline by 2025.

- Purchase 40% of food from local or sustainably certified sources, using the AASHE STARS definition of "local" and "sustainably certified."
- Use institutional purchasing power to align with the strategic mission to advance DU's role as an anchor institution.
- Implement sustainable purchasing policies.
- Become a zero waste campus by 2035: divert over 90% of waste from the landfill while reducing overall annual waste by weight.
- Engage the whole DU community in of sustainability programming or practice.
- Provide training in sustainability practices for all new students and employees. Frame both objectives through a social justice lens.
- Assess sustainability literacy and learning and implement a campus- wide curricular and co-curricular sustainability learning outcome.
- Identify or create at least one class per degree program that addresses sustainability.
- Increase the total number of students taking more than one sustainability-related course.
- Develop an Interdisciplinary Institute to serve as the backbone organization that supports community-engaged collective impact through curriculum and research projects.
- Become AASHE STARS Gold by 2020
- Become AASHE STARS Platinum by 2025.

In what ways do you plan on helping DU accomplish the above goals? * Enabling the access of composting for student and faculty who do not reside on campus allows for the whole DU community to continue to be engaged with sustainability practice that has been heavily encouraged during their time on campus. Student interest in waste diversion and composting continues to grow each year, but it is more accessible on campus where and facilities are provided to you in every building on campus and at many of the events hosted on its grounds. Having an affordable, DU organization run program will allow for the DU community to continue sustainable practices and learn more about sustainability through their own actions.

How does your project focus on environmental and/or social sustainability? * Waste and recycling are usually included in rental and multiunit buildings, but compost is often not. Access to the crucial third of the three waste management techniques is essential for long-term kept practice by an individual while also helping divert massive amounts of waste from a landfill. Crimson Compost will help others contribute to positive environmental practices while also putting their money towards an organization that works on sustainable programs and practices each year.

Crimson Compost will allow many undergrads living off-campus to have access to compost. While they are the targeted group, Crimson Compost will also be available to others living in the area

How does this project impact DU undergraduates and/or the community? *

of the first toter. Those who opt into the program can then potentially encourage other students to get interested in composting and sustainable practices as their in-home composting allows them to learn about proper waste management.

What are what's you can quantitatively measure success for your project? *

The number of sign-ups recorded revenue, and pounds of diverted waste (stats provided by Green for Life) will be used to measure the success of the project. Being able to fund 1-2 undergraduate interns annually and additional supplies will be used to measure surmounting success.

What is your proposed budget? *

1220

Please upload a copy of a detailed budget. If there are any technical difficulties, send the budget to suscomdu@gmail.com for review. *

 Upload file

[CC_SUSCOM_Proposal.xlsx](#) (Delete)

Do you have any questions or additional comments for the SusCom team?

Please contact me if there are any questions or concerns. Thank you for taking my proposal into consideration.

Appendix V: Bertha's Artifact

