

**Deferral, Agency, and Hope:  
Pre-Service Social Studies Teachers Making Sense of the Pedagogical Demands of  
Engaging Climate Crisis**

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**Abstract**

This study works to answer the question: In what ways are pre-service social studies teachers conceptualizing the difficult knowledge of climate crisis? By analyzing a small group discussion following a pedagogical encounter with climate crisis in a teacher education program, and employing the notion of difficult knowledge, the author theorizes moments of hope, agency, and deferral in the sense-making processes. Issues of ecological harm have largely been excluded from social studies education research, including social studies teacher education, and this omission, paired with the urgent need for climate crisis pedagogies, builds the case for research that seeks to understand the ways in which pre-service social studies teachers are making sense of the difficult knowledge of climate crisis and the ways they are conceptualizing this as part of their work as social studies educators. The analysis reveals the multitude of challenges pre-service teachers face as they work to make sense of climate crisis both for themselves and in imagining the pedagogical demands of engaging young adolescents in issues of climate crisis in their future classrooms. Also highlighted are discourses of deep pessimism and deferral, running alongside hopefulness, as these pre-service teachers grapple with the size, urgency, injustice, and totality of the challenges that lay ahead. The ways these pre-service teachers are making sense of climate crisis has important implications for pedagogies of difficult knowledge regarding the complex challenges of climate justice relevant in the social studies classroom.

**Keywords:** *Climate Crisis; Difficult Knowledge; Pre-Service Teachers*

**Introduction**

We live in a time of rapid and accelerating climate crisis. Young people today will bear the brunt of the malignant turning away by those in power during the past decades, of an unending love affair with capitalism in the midst of an already unfolding ecological collapse, and a robust dominant discourse which calls into question the very nature of the scientific truth regarding climate. There is overwhelmingly bad news about the unfolding climate crisis, and headlines delivering word of ecological disaster and the human costs seem constant. These ecological challenges are not easily solved. They are wicked in nature (Rittel & Weber, 1973), involving a web of complicated social,

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economic, and ecological solutions and ramifications. They are inextricably tied to values and it is not always easy to see how a possible solution may result in unintended consequences.

Although climate crisis and other environmental degradations have social and economic issues at their roots and are thus appropriate for inclusion in social studies education and research (Crocco, Marri, & Chandler, 2013; Houser, 2009; Kissling & Bell, 2020; Kissling et al., 2017), issues of ecological harm have largely been excluded from social studies education research, including social studies teacher education. In a wide review of the field, Houser (2009) concluded that social studies research has omitted meaningful engagements with the Earth, except in passing mention of land as commodity or the impact of physical environments on economic development. He wrote that “the vast majority of scholarship precludes serious attention to the reciprocal relationships between humans and the Earth” (p. 205). This omission, paired with the urgent need for climate crisis pedagogies, builds the case for research which seeks to understand the ways that pre-service social studies teachers are making sense of the climate crisis and the ways they are conceptualizing this as part of their work as social studies educators.

Drawing on discourse analysis qualitative methodologies (Fairclough & Wodak, 1997; Wodak & Meyer, 2001), this study works to answer the question: *In what ways are pre-service social studies teachers conceptualizing the difficult knowledge of climate crisis?* Through an analysis of small group discussion following a pedagogical encounter with climate crisis in a methods course, and employing the theoretical notion of difficult knowledge, moments of hope, agency, and deferral as part of this sense-making processes and its pedagogical implications can be theorized. The purpose of this investigation is to contribute to the emerging body of research in social studies education around environmental issues and to add the experiences and conceptualizations of pre-service teachers entering the classroom, particularly as related to their emotional and affective responses to this challenging teaching and learning.

This analysis reveals the multitude of challenges faced by pre-service teachers as they work to make sense of climate crisis, both for themselves and in imagining the pedagogical demands of engaging young adolescents in issues of climate crisis in their future classrooms. Also analyzed are discourses of deep pessimism and deferral, running alongside hopefulness, as these pre-service

teachers grapple with the size, urgency, injustice, and totality of both the global reality of climate crisis and the pedagogical challenges that lay just ahead.

The wickedness of these problems compounds and exacerbates the emotional and affective difficulty of both learning and teaching about the direness of the situation, the impending human-caused harm, the urgency with which we must act, and our own implications in these problems. The notion of difficult knowledge (Britzman, 2000; Garrett, 2017; Pitt & Britzman, 2003; Zembylas, 2013a, 2013b) is employed in this work to provide helpful insights into understanding the pedagogical possibilities and demands around such wicked ecological topics and for theorizing the pedagogical encounter with climate crisis. The ways in which these pre-service teachers are making sense of climate crisis have important pedagogical implications regarding the complex challenges of including environmental and climate justice relevant in the social studies classroom.

### **Objectives and Rationale**

The aim of this research is framed by the need to better understand how pre-service teachers are making sense of climate crisis both in their own experiences and as a part of their work as social studies teachers. This is particularly needed as the bounds of social studies expand to include the pressing issues of our times and conceptualizations of citizenship, which include environmental issues, are necessitated by impending and already unfolding climate disaster. Teachers face confounding challenges as they work to include these topics in their social studies classrooms. Among these are the fact that learning about climate crisis and environmental injustice can take a toll; it can be traumatic to face the ways this crisis will impact us and our communities, and to engage with the trauma and pain of other people (Berry et al., 2010; Cunsolo & Ellis, 2018; Dickinson, 2008). There are significant tensions and anxieties that are part of learning about climate crisis (Marks, 2019). Research is needed to explore these emotional and affective experiences, the pushes and pulls of wanting to know but also wanting not to know, of worry and hope, of struggling to find some path of appropriate action forward, and the associated complex pedagogical and curricular implications.

Catastrophic climate crisis is an urgent issue already impacting the lives of children and their communities. While the seriousness of the crisis is coming into view, educational research,

particularly in the field of social studies, has been slow to engage correspondingly urgent pedagogical questions. Although much of the literature regarding classroom engagements with climate crisis is situated in science education, this study is located within the domain of social studies and citizenship education. In science education, the research literature typically draws on reductionist, fragmented, and outdated curricular frameworks which do not adequately prepare students to understand and act on problems that face them as citizens in a participatory democracy and which avoid the nexus between climate crisis and democratic living (Sharma & Buxton, 2018). The social and political causes and consequences of climate crisis are, however, central to a social studies education preparing students for civic lives in the 21<sup>st</sup> century. These issues are closely tied to economics, governance, civics, geography, human-environment interactions, public policy, international relationships, and trade, making them issues of importance in social studies and civic education. A majority of social studies teachers see these connections but fail to engage with environmental issues in their classrooms because of a range of significant barriers, among them not knowing how to engage the challenging nature of this topic (Kissling & Bell, 2020). The gap in both scholarship and practice of citizenship education to engage climate crisis has profoundly important implications on the way students are prepared for participation in civic life. The ways in which teachers and pre-service teachers are making sense of climate crisis have important implications for the complex challenges of teaching students how to confront the grand issues of our time, making the need for this research urgent.

### **Literature Review: Situating in Social Studies**

Social studies classrooms are places where students might engage the world through “constructive, conceptual, inquiry-driven, deliberative, and action-oriented” thinking (Boyle-Baise & Zevin, 2014, p. xv). The widely used College, Career, and Civic Life (C3) Framework for Social Studies Standards asserts that students need the “intellectual power to recognize societal problems” (NCSS, 2014, p. 4). The issues of climate crisis and environmental injustice fall within these definitions of social studies and the profoundly powerful purpose of educating “thinking, knowledgeable and active citizens” (p. 3). Environmental and climate justice issues are relevant in social studies education as both the causes and solutions to these catastrophic inequities are social in nature. Vulnerable and marginalized communities experience environmental calamity at much greater rates than more privileged communities (Bullard, 2008). The intersections of climate crisis

with other social, economic, and environmental injustice make this conversation timely and vital in civic and democratic social studies education and urgently relevant in teacher education. The very purpose of civic and social studies education demands attention to the most urgent social, political, and environmental challenges of our times. Across the social studies disciplines, there is compelling and purposeful rationale for the inclusion of environmental and climate justice issues (Kumler & Vosburg-Bluem, 2014). Furthermore, among the academic disciplines, “social studies is uniquely situated to provide an educational platform for developing a multifaceted and well-integrated approach to teaching about sustainability” (Crocco, Marri, & Chandler, 2013, p. 170). If social studies education is a place to prepare deliberative citizens for active participation in democracy, then it must include attention to issues of climate crisis.

Even as environmental issues have become more pressing, the discussion of these topics remains problematically sparse in the social studies educational research (Chandler & Marri, 2012; Houser, 2009; Kissling & Bell, 2020). Given the nature of ecological problems as inseparable from issues of society, there is an identifiable though relatively small group of scholars who insist that there is a need for socioecological issues to find places in social studies classrooms and conversations (e.g., Crocco, Marri, & Chandler, 2013; Goodlad, 2001; Houser, 2009; Kissling, 2016; Kissling & Calabrese Barton, 2013). Nearly 50 years ago, Lawrence (1974) called for attention to these topics in social studies classrooms when he wrote in the 1974 National Council for the Social Studies yearbook: “perhaps because of the extent to which we live surrounded by the products of technology: we expect science to rescue us from possible eco-disaster” (p. 202). Despite this call, the field of social studies has largely built disciplinary boundaries that excluded environmental issues. Hepburn (1974) wrote that “social studies curriculum has not kept pace with the growing needs for environmental understanding. The response in the social studies has been spotty, often weak and unsystematic” (p. 1). Although written in 1974, this sentiment remains relevant in contemporary social studies research. Chandler and Marri (2012) argued that “in social studies education, where issues of civic engagement remain paramount, climate change is rarely discussed” (p. 48). Despite the urgency of climate change as an issue for citizens, economies, and communities, social studies educational research is limited. This research project engages an important gap in existing research around the ways that social studies teachers are engaging climate and deepening scholarly understandings of how teachers are making sense of this as a difficult and

emotional topic. In important and significant ways, we do not know enough about how social studies teachers are engaging climate crisis. We do not know anything about the ways they are making sense of climate crisis within the theoretical framework of difficult knowledge as they work to make pedagogical and curricular choices. While it is important to note that it is a myth that everything happening in a classroom depends on the teacher (Britzman, 2003), teachers remain important decision-makers in their classrooms (Thornton, 2005) and thus are uniquely situated to interrupt, resist, complicate, or introduce different discursive availabilities.

Teachers face significant barriers in engaging climate crisis issues in their classrooms. Both pre-service and in-service social studies teachers articulate lacking the content knowledge they need to successfully teach about climate crisis (Kissling et al., 2017). Teachers often lack tools and confidence for engaging students in pedagogies of difficult knowledge, which requires comfort with the uncertainty of student worry, anxiety, hopelessness, deferral, and grief. In addition to the challenge of finding appropriate curricular tools, a lack of content knowledge, worry about student affective responses, and potential conflict, many social studies teachers continue to believe that issues of climate crisis and environmental justice should be left comfortably situated within the disciplinary bounds of the natural sciences (Kissling et al., 2017). This is further complicated by the artificial separations of human/nature and social science/natural science binaries, a theme that many land ethicists have engaged in their writing. Aldo Leopold (1949) famously wrote, “we abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect” (p. ii). The farmer, poet, and scholar Wendell Berry (2015) noted that “we must not speak or think of the land alone or of the people alone, but always and only of both together” (p. 58). Similarly, in the field of social studies research, Houser (2009) wrote that deeply engrained in social studies education “is a basic misunderstanding regarding the relationship that exists between humans and the environment” (p. 192). The complexity of this separation and the associated implication in how teachers operationalize these ideas in their own experiences and pedagogical choices make it all the more urgent to understand how pre-service teachers are making sense of discourses around climate crisis and how they are conceptualizing the topic as part of their work as teachers.

### **Theoretical Framework: Difficult Knowledge**

Conceptualizing and experiencing climate crisis can be deeply affecting. The emotional and affective nature of encountering the truth of climate crisis has been well documented in accounts of climate grief and anxiety. “Eco-Anxiety,” “Climate Grief,” and “Climate Depression” have appeared as terms to describe the phenomena in the field of mental health (Berry et al., 2010; Cunsolo & Ellis, 2018; Dickinson, 2008). The mental health impacts of climate crisis include increasing trauma from the direct impacts of catastrophe like flooding, along with the increased fear and anxiety people experience in anticipation and worry (Marks, 2019). Worry and feelings of helplessness about climate crisis are increasing (Leiserowitz et al., 2019). These trends and challenges in the field of mental health speak to the urgency of pedagogies that work to appropriately engage Britzman’s (1998) call to move beyond exposure to difficult knowledges and engage teaching and learning that is “willing to risk approaching the internal conflicts which the learner brings to the learning” (p. 117).

In the case of climate crisis, this internal conflict is increased in coping with personal culpability. Of the unfolding climate crisis, Wallace-Wells (2019) wrote that “it’s worse, much worse than you think. The slowness of climate change is a fairy tale” (p. 3). In addition to this slowness, we tell ourselves other fairy tales, heightening the internal conflict, emotional response, and difficulty of facing this information: that this will happen to other people, that it will be in other parts of the world, that it will not be as bad as they say, that we will rise to the occasion before the consequences are dire, that the next generation will solve it, or that this simply cannot be true on a human time scale (McKibben, 2018). These lovely but false narratives illustrate the enormous complexity of engaging these issues in classrooms. In education research, scholars have deployed the theoretical construct of difficult knowledge in instances where learning can invite and involve such strong emotional reactions. Difficult knowledge recognizes the affective components of encountering “painful and traumatic curriculum that represents history as the woeful disregard for the fragility of human life while seeking to create new meanings from the ravages of humanly induced suffering” (Britzman, 2013, p. 100). While difficult knowledge has most often been used to interpret pedagogical encounters with historical traumas like genocide, war, slavery, or lynching, climate crisis (Britzman, 1998, 2000; Garrett, 2017; Pitt & Britzman, 2003; Zembylas, 2013a) might also be defined through the theoretical framework of difficult knowledge.

In the ecological trauma of the Anthropocene, Britzman's (1998, 2000) notion of difficult knowledge provides a helpful framework for theorizing pedagogical encounters with such information and imagining the demands of such teaching and learning. Its usefulness for this project is that it can help focus attention on the processes and challenges of learning from the trauma of others, facing our own implications in that trauma, and making sense of how we might be moved through uncertainty toward learning and civic action in the residual wake of that trauma. In applying the concept of difficult knowledge to environmental injustice and climate crisis, this definition might be extended to include both the historical trauma that Britzman theorizes, along with the contemporary and future traumas of unfolding climate crisis. In both historical and contemporary applications, a key feature of difficult knowledge is that encounters with it can unsettle us deeply and "demand that we tell stories about the world differently" (Garrett, 2017, p. 4). The news of climate crisis and injustice can function to disrupt our previous pictures of the world, it can be emotionally upsetting, and it can demand radically different understandings of the world. The theoretical framing of classroom experiences with difficult knowledge allows for an interpretation of this sort of tumultuous encounter.

The anticipation of human-induced suffering becomes an important addition to existing theorizations of difficult knowledge in considering ecological problems. These pedagogical encounters are not only a reckoning with the past but a brace into the already impending, accelerating, and unknowable future storm. Our own implications and personal experiences cannot be disentangled from this in the same ways that we might be able to distance ourselves from the horrors of historical trauma even as they disrupt our existing understandings of the world. This is an important distinction from previous bodies of work on difficult knowledge because the inability to intervene is a central tenet of what makes difficult knowledge traumatic. Britzman (2000) wrote that "what makes trauma traumatic is the incapacity to respond adequately, accompanied by feelings of profound helplessness and loss, and a sense that no other person or group will intervene" (p. 202). The worst impacts of climate crisis is a catastrophe still to come, making available important and significant agitative options toward action and intervention.

In addition to the complexities of encountering the brutality, trauma, and pain of human-inflicted suffering are the complex challenges of curriculum and instruction which engage this work. As



Garrett (2017) wrote, “if learning about the most terrible parts of human history were not difficult already, then the difficulty is reordered and made more complex by the demand to make it the stuff of a lesson plan” (p. 334). In this study, I attend to the difficult knowledge of climate crisis to theorize oscillations of anxiety, hope, worry, avoidance, and engagement that teachers experience and to explore pedagogies that engage these issues.

### **Methods of Inquiry**

This paper is derived from a larger project that collected student work samples from a semester-long project on the inclusion of news and current events as curriculum in social studies classrooms. This student work was gathered in a social studies methods course. Over a 16-week semester, pre-service social studies teachers followed news on a contentious political current event using both print and digital news sources. Students could choose to follow one of four pressing news topics including climate crisis, immigration, gun control, and the investigation into Russian meddling in the 2016 U.S. presidential election. In addition to tracking the news during the duration of the semester, the students were provided common texts to deepen their thinking in preparation for the semester’s summative task of teaching a news-related lesson to sixth-grade students.

Six pre-service teachers elected to follow issues of climate crisis-related news; the assignment required them to follow one print-based source (the *New York Times*, *Wall Street Journal*, or *Washington Post*) and one web-based source (CNN, NPR, or BBC) and keep a daily log of news coverage related to their chosen topic. The course was divided into two separate sections, with four students from the first section tracking climate crisis and two students in the second section selecting climate crisis for investigation. The small group discussions were held separately. The common anchor texts included Josh Fox’s film *How to Let Go of the World and Love the Things Climate Can’t Change* (2016) and *A Very Grim Forecast*, an article penned by Bill McKibben (2018).

The data analyzed for this project draws on the small group discussions regarding these common anchor texts which took place near the end of the semester. The small group discussions were 30 minutes for each of the two groups of students. Rather than an interview focus group, these small group discussions were a pedagogical encounter woven into the fabric of the course to debrief

students and to start the process of imagining how they might teach this topic to middle-grades students. The author was the facilitator of these small group discussions but not the instructor of the course. The facilitation included a three-part open discussion rooted in the common readings and the associated pedagogical implications. The first segment of the facilitated discussion asked students to reflect on the texts by noting and discussing compelling passages, particularly those that evoked an emotional response. The next segment of the discussion prompted students to imagine the solutions that may be available to them and their future students. The final segment of the discussion was aimed toward helping students begin the process of planning and delivering a lesson for sixth-grade students on this topic. The pre-service teachers were asked to anticipate the prior knowledge of students, as well as any emotional responses they could imagine that might be relevant to the instructional planning process. They were also asked to think through the visual resources that might be helpful in engaging climate crisis as a matter of pedagogy in a social studies classroom and articulate any worries they had about teaching such a lesson.

### ***Participants***

The six students who participated in the small group discussions were each enrolled in the first-semester methods course of a social studies program at a large land grant state institution. They each elected to follow the news of climate crisis among a variety of current event topics provided by the course instructor. Demographically, the students participating in the discussions analyzed in this paper closely mirrored those of the larger program, including two female-identifying students and four male-identifying students. Each of the students self-identified as White. Three of the students noted that they would consider themselves “conservative” or “Republican” and the other three self-classified as “liberal” or “Democrat.” These ideological identifications are slightly more “liberal”-identifying than the state at large, but more “conservative” than the immediate community surrounding the institution. The students were all traditionally aged undergraduate university students and did not have prior teaching experience. Each of the students articulated their intention to proceed directly into social studies classrooms following the completion of their undergraduate initial certification program.

### ***Data Analysis***

The small group discussions were audio-recorded. Following transcription, the data coding process was informed by an open coding methodology (Dyson & Genishi, 2005, p. 86) and drew on

conceptual frameworks related to difficult knowledge (Garrett, 2017; Pitt & Britzman, 2003) as well as climate crisis-related themes emergent in social studies and civics education research (Crocco, Marri, & Chandler, 2013; Houser, 2009; Kissling et al., 2017). In drawing on these themes, attention was given to the purpose and power of discourse as it circulated through these conversations and was experienced by the participating pre-service teachers. In focusing on the circulation of discourse, the analysis drew on data analysis methodologies of discourse analysis. Schmeichel (2015) wrote that “[d]iscourse analyses are concerned, in particular, with unraveling taken-for-granted constructions” (p. 4). Discourse is both material and productive, constructs all of our ways of knowing and being, shapes our realities, and gives form to our notions of what seems commonsensical. Schmidt (2010) added that “[d]iscourse analysis pays attention to contexts as a way of understanding particular words and phrases through cultural, political, and historical meanings as it affects consumption of the text” (p. 316). This methodological framework underpins a careful analysis of discourse as manifesting and functioning in the spoken language of the pre-service teachers taking part in the study and as it serves as an indicator of the affective and emotional experiences of the pedagogical encounter explored here. This is the language that makes possible the ways in which they are thinking about and making sense of the phenomena of climate crisis. This language has been produced and reproduced by larger discursive systems related to power and knowledge. Threadgold (2000) noted that when conducting discourse analysis, it is important to avoid a deep “burrowing” into meaning and to instead “look for the external conditions of its existence... we should explore the conditions of its possibility” (p. 49). In a practical sense, this resulted in analysis with close attentiveness to the function of the words used by the participants, the larger discursive themes present, and to the production and reproduction of dominant and resistant discourse as manifested in the spoken language used by the pre-service teachers. These data collection processes and analysis methodologies were employed to answer the research question: *In what ways are pre-service social studies teachers conceptualizing the difficult knowledge of climate crisis?* While these methods allow for interpretations of the ways in which teachers are conceptualizing this urgent contemporary issue, both for themselves and as part of their pedagogical work as teachers, the limits mandate that “any attempt the researcher makes to tell what it is s/he sees/hears/smells/feels/believes/desires, is understood to produce no more than a possible reading” (Davies, 2003, p. 144).

### **Analysis & Discussion**

Discouragement, empowerment, disengagement, deferral, and hope, along with the imagined pedagogical implications, emerged as pre-service teachers engaged in a small group discussion on climate crisis. The participants consistently identified the seriousness of the problem, drawing on discourses that tie together both personal action on climate crisis and a need for more collective action. As pre-service teachers and students in a course on teaching social studies, they were also engaged in thinking about the intersections between the difficult knowledge of climate crisis and the pedagogical tact required when teaching young adolescents about this topic. One participant likened teaching climate crisis to talking to children about “the death of a close friend.” In this study, the difficulty of climate crisis is evidenced repeatedly, as one student remarked that this is a “very dark subject that is looming over us,” and another stated that the climate crisis is “really, really, really overwhelming.” The inseparability and impossibility of isolation of discourses are evident in the excerpts highlighted below. Woven together are discourses of grief, hope, hopelessness, seriousness, silliness, individualism, collectivism, anger, indifference, turning away, deferral, and sadness for ourselves and others; these are often contradictory and always partial.

#### ***Discourses of Hope: “I am hopeful, but...”***

Tensions between hope and hopelessness were woven throughout these discussions and are inseparable from discourses around action. The words “hope” and “hopeful” appeared on seven occasions while the phrase “hopeless” or “hopelessness” appeared 13 times. Hope serves an important function in and beyond these theorized moments. At the most basic level, hope functions to allow us to get out of bed in the morning; it allows us to proceed into a world made only of uncertainty and unknowability. Solnit (2016) theorized that “hope locates itself in the premises that we don’t know what will happen and that in the spaciousness of uncertainty there is room to act” (p. xiv), but she also made an important distinction between hope and both pessimism and optimism, which offer certainty and thus an excuse from action. She noted that “it’s the belief that what we do matters even though how and when it may matter, who and what it may impact, are not things we can know beforehand” (p. xvi). So, while it is “fatally complacent,” “willfully deluded” (Wallace-Wells, 2019), and pedagogically irresponsible to continue to idealize or turn away from climate crisis, discourses of hope and hopefulness function in important ways. These tensions and complexities, alongside the deferrals of total optimism or pessimism, are present in

these conversations as they are in larger discourse. In this exchange between students, the tension in the function of these discourses are evident:

Student 1: I think one reason that I am hopeful is people like [Rep. Alexandria] Ocasio-Cortez. There are not going to be less of them in the future. You know? This latest wave is the start of the next generation of people. People that refuse to accept climate change or ignore climate change aren't going to be around to see all the consequences, so their interest isn't really that heavy in it, but there is always going to be less of them from now on.

Student 2: But the only question is: Will they die, or will the planet die first? Just to be really dark and blunt about it.

Student 1: Well, the planet is going to be fine, it's just everything on it.

Student 2: Okay, so are they going to die or are all of us going to die?

This exchange suggests the pre-service teacher's recognition of a possible impending and unfolding change to the discursive conditions that support the current power structures and allow for inaction on climate crisis. The pre-service teacher is also making connections to these issues as matters of social studies content, constructing this as connected to discourses of democracy. The statements of both pre-service teachers are also woven together with implicit frustration that previous generations have so seriously failed to act toward solution that the survival of our species is in question. The interaction is imbued with seriousness and devastation. These comments function to mirror the larger discursive trends as the gap between worry and hope grows (Ballew et al., 2018). Fewer and fewer people express hopefulness about global warming, while more express serious worry. The language around death and urgency employed by the pre-service teachers here seems to serve to open space for affective responses as they consider the future both for themselves and for their students. Drawing upon the realization that one possible outcome of climate crisis is the extinction of our species illustrates the difficulty of this knowledge for the pre-service teachers and is an important component of how they are making sense of this.

These remarks may draw on discourses of urgency and the need for collective political action, in line with recent youth activists and young people around the world (Ballew et al., 2019), in realizing that those with power are turning away. While the anger of young people is understandable, in some circumstances the discourse around this being the fault of older generations could function as a type of deferral, suggesting that the only thing to be done is wait

for new people to be in power: the waiting surpassing the urgency. Another student noted that regardless of hope, worry is present in their conceptualization of climate crisis: “That’s scary... you can’t imagine what 50 years would be like. But if we start now... I... I am... I am hopeful, but its gonna get worse. It could get a lot worse or it could get a little worse.” Here, the student is recognizing this role of action in the face of uncertainty. As in Solnit’s (2016) theorization of the meaning and function of hope, the student seems to recognize that there are a range of outcomes hinging on human action and intervention. The student’s pause could also indicate a real consideration of the reasonableness of hope, a sense of grappling with this notion, as they pause for a moment before asserting hopefulness. Implicit in each of these conceptualizations of hope are the possibility of action and agency; these represent an important way that preservice teachers are making sense of the difficult knowledge of climate crisis and are interpreted in-depth in the following section.

### ***Metal Straws & Marching: Making Sense of Possible Actions***

In several instances, the pre-service teachers expressed an eagerness toward action and were conceptualizing their agency in relation to this crisis. In some cases, they were startled by the seriousness of the problem. For several students, it was their first thorough experience in a study of climate crisis, and they expressed a new or renewed sense of urgency. After all, the only thing between a worst-case scenario climate catastrophe and “the world we live in now lies only the question of human response” (Wallace-Wells, 2019, p. 14). One student remarked, “I feel like I knew about climate change before, but I wasn’t too updated before this. I can’t read the news or I get, like, super depressed. But just having to do this, I have made a couple of changes in my life.” This functions as a reproduction of discourses of responsibility toward a collective. The student learned new information about climate crisis and felt compelled to make personal changes out of responsibility to a collective whole. In this moment, the pedagogical interaction functioned to remove the ability to comfortably defer both knowledge of and action around climate crisis. The student went on to note that they “work at a coffee shop and now I make sure we are recycling the stuff that we can, and I went vegetarian after this because it’s better for the environment. Like I am buying a reusable straw, it should ship to my apartment pretty soon.” These are individual actions connected to consumer choice and are representative of larger discourses around appropriate solutions to climate crisis. People living in the United States are more likely to engage in forms of consumer activism than political activism as a solution, and these acts of engagement

with climate crisis are most likely to be private and individual choices rather than public pressure exerted toward corporations (Roser-Renouf et al., 2016). This discussion on possible individual choices serves to function as a reification of these discourses. After listing the personal changes, the student went on to say, “I don’t know, it’s just like knowing that a lot of the people with a lot of the power to change aren’t doing anything makes me want to do as much as I can to help.” This recognition of power engages with resistant discourses as the student positions themselves as reclaiming power from those able to make larger, swifter change. It recognizes the difference in power that exists between affected actors in this network. The student is working to make sense of the catastrophe of climate crisis by engaging in some sort of personal change, however partial and insufficient that action may be.

Recognizing the need for collective action was also present in these conversations. One student said that they have worked to convince close friends and family to care about the climate and that it has not been a pedagogically easy task:

I’ve noticed that I have just been becoming a hassle. Like my roommate will go to throw something out the window, and I say no, don’t do that. Then he just gets really aggravated. Like he’ll leave the water running and I will say, no don’t do that. He gets really aggravated.

In this instance, the participant speaking has engaged others in pedagogies of difficult knowledge and is recalling the resistance often present when we encounter ideas that challenge our deeply held and fundamental understandings about the way the world works. This noticing of a roommate’s wasteful behavior is a helpful reflection. At the same time, it also functions as a way to distance the speaker’s own culpability. In speaking of an aggravated roommate in need of constant reminding, the speaker in some ways removes their own implication in the unfolding harms of climate change. The student’s words here are an example of the complicated balance of working to see and name our own continuous implication in discourses and systems of harm, and the pedagogical tact which might lead to possibilities of more participation in resistance to the current dominant discursive conditions and the systems they enable. It is easiest to construct an understanding of ourselves as critically aware do-gooders working to undo these harms in the face of fossil fuel interests and annoyed roommates rather than equally implicated in the collapse of the earth’s biosphere, and yet a yearning to do something remains. The student’s earnest attempt to

encourage a littering roommate to change behavior is important and also perhaps an example of what Bendell (2018) identifies as one of the many ways we do something without actually doing anything about the urgent emergency of climate crisis. Several students spoke about marching and protesting and working collectively to push for systemic change. In thinking about more direct action, this exchange unfolded regarding the outcomes they have observed in watching fellow young people take to the streets:

Student 1: Yeah, but not to get dark again, I feel like sort of with the Parkland shooting, if they followed that in the news; they can see that even though they marched and got together, we haven't really had much policy change. That can be really discouraging because that was a reaction where tons of young people across this country, not over in Europe, then that is discouraging. Not to get dark again...

Student 2: Yeah, that is discouraging. A couple of times recently we have seen huge numbers of young people participating in something and the results still don't go the way they want. That happens too many times in a row and we might be back at square one.

These students are noticing the ways discourses around guns and gun violence have not been moved drastically by large-scale student mobilizations. This does not represent an entirely accurate characterization of the resulting changes: Just three weeks after Parkland, as students marched in the streets, the Republican governor of Florida signed into law the Marjory Stoneman Douglas High School Public Safety Act, against the wishes of the NRA. The law raised the age to purchase a gun and imposed a waiting period. Although there is progress still to be made on this issue, this legislative action represents progress nonetheless.

In this moment, the comment functioned to create space for students to engage with ideas of protest and tactics of resistance. The student's unfamiliarity with possibilities for resistance perhaps speaks to the need for pedagogical encounters with climate crisis to explicitly create space for this discursive introduction by exploring the historical and contemporary successes of many social movements. We have to teach people what resistance looks like (Ayers, 2010). Solnit (2016) reminded us that "popular power has continuously been a powerful force for change" (p. 1). In this moment, the pre-service teachers seem to be missing information or failing to make connections between themselves and the successful social movements history has to offer as examples. Despite this, the students do not seem to be constructing collective social actions, including marching in



the streets, as a successful way to achieve the change and action they articulate a desire for. While they are conceptualizing some responsibility to act and agency toward creating meaningful change, language regarding individual choices remains dominant. In this exchange, it functions to limit the ways that these students are able to understand and conceptualize action regarding climate change.

Another student saw and named inaction rooted in pessimism as they recalled one of the articles they read during the semester in response to the proposed Green New Deal (Ocasio-Cortez et al., 2019). They summarized the author's argument to the group saying that "the basic gist of it was that we shouldn't try to change... it pointed to other countries. I think it pointed to India and China and was like if they don't do anything then it doesn't matter... it was just like pointing fingers to other people. But it's like change is change. You know?" In this instance, the student is making sense of the difficult knowledge of climate change by constructing that "all change counts" and recognizing our own implication in these discursive conditions and resulting systems. The student's reminder that "change is change" is reminiscent of Wendell Berry's (2015) idea that "we cannot immunize the continents and the oceans against our contempt for small places and small streams. Small destructions add up, and finally, they are understood collectively as large destructions" (p. 17). The student's statement functions as a rejection of either collective or individual change, recognizing that both will be important in challenging climate crisis. This statement functions to reveal another possible path toward action. Despite these evidenced moments of hope, agency, and the possibility of action, discourse functioning as a deferral or turning away was also present; the ways in which this competing discourse manifested are explored in the subsequent section.

### ***Cat Memes & Turning Away***

There were many moments during the discussions when the students drew on widely circulating and dominant discourses around the faraway places impacted by climate crisis and the future consequences. One student noted that they had "never really processed what a threat rising sea levels would be since I have never really lived on the coast and I haven't really seen it for myself." This statement is the product of discursive conditions which allow us to imagine that the most ravaging impacts of climate crisis will be for others rather than for ourselves. While the student spoke with great empathy for those who were already experiencing these losses, there is comfort

in this otherness; it seemed to cushion the difficulty of this knowledge. These discourses of otherness, through distance, time, space, race, or class, can function as a way to turn away, as one student pointed out: “It’s right there, we just have to look at it, but we would rather look at cat memes.” This observation is one that recognizes the function of these discourses in a collective avoidance; in using the word “we,” the student recognized their own implication in this turning away. Another student spoke about the “longness” of the consequences, again drawing on a widely circulating discourse that there is time remaining to save our species and planet as we know it. Despite Wallace-Wells’s (2019) reminder that the situation is “worse, much worse than you think” (p. 3), the student spoke of a collective deferral, saying:

It’s like you hear about it and then you’re like, wow, that’s going to be awful and we need to do something right now, and then the next day goes by and you’re still going to do life the same. You know what I mean? It’s kinda hard. It’s hard to worry about problems when the consequences are long, not immediate. It’s hard to convince people to change their whole life because that’s what’s going to have to happen if we want to actually stop some of this.

The imagining that this is a problem with impacts long into the future is no surprise. In the entire calendar year of 2018, ABC’s evening news program *World News Tonight* spent just six minutes and three seconds on stories related to climate crisis (Yoder, 2019); it spent more time on the birth of the royal baby in a single evening (Yoder, 2019). This turning away is part of the discursive condition that makes possible the dominant social paradigm (as in Sharma & Buxton, 2018, p. 4). This student might be drawing on larger discourses of resistance including frustration with this continued and collective avoidance, evidenced by repeated use of the word “hard.” The student suggests that we will all need to make changes, in line with the notion that “the burden of responsibility is too great to be shouldered by a few, however comforting it is to think all that is needed is a few villains to fall” (Wallace-Wells, 2019, p. 30). However, during the conversations, students also demonstrated grappling with the ideas of collective responses as related to civic life. As Wallace-Wells (2019) reminded us, we are all implicated in these systems and the discursive conditions that make them possible. This sort of discourse often becomes entangled with notions of green consumerism and can function to support the continued dominant axiological assumptions that maximizing wealth is a priority worth the risks and costs (Field, 1997), that it can be ethical, and that the current structures of government, economics, and society are sufficient (Harper & Snowden, 2017). In these examples, the students are making sense of climate crisis by reflecting,

refining, producing, and reproducing larger discursive trends toward varying levels of deferral and avoidance.

### ***Climate Citizenship & the Role of Social Studies***

Despite the dominance of avoidance and deferral both in this conversation and in social discourse more generally, these students are conceptualizing the inclusion of climate crisis as part of their work as social studies teachers. This does seem to reproduce emerging discourses available among social studies practitioners (Kissling & Bell, 2020), although much of teacher education and research has not yet followed. Although climate crisis and environmental justice issues are often thought of as content most comfortably situated within the boundaries of science education, the urgency and social nature of these problems requires that we include them within the expanding contours of social studies education and educational research. These pre-service teachers indicated that this is already part of how they are making sense of both social studies and their possible actions in response to climate crisis. During these small group discussions, students mentioned the words *vote*, *voting*, *civics*, and *democracy* a total of 21 times, making them among the most dominant themes. Although the students in these small group discussions had not been given explicit instruction on the intersections between social studies education, climate crisis, and ecological harm, they made robust connections between the content of social studies and issues of climate crisis; these included connections to economics, trade, population, democracy, civic participation, community building, governance, issues of domestic and international policy, and civil disobedience. One student noted that there is “a lot resting on the next presidential election,” and another noted that “I am not very hopeful unless we change our mindset and change who is in various offices in Washington.” While the field of social studies education has not yet robustly picked up these networks of connection, these pre-service teachers were deeply engaged in thinking about climate change as an issue for social studies education. The teachers drew on and produced discourses around what it means to be a citizen and active participant in democracy. In response to a question about why climate crisis should be taught in social studies classrooms, one student said:

Our main thing as social studies educators is to teach people how to get along in civic life... so this is about as good as you can get for teaching about how to be a decent and how to be a good person and how to participate in a democracy. This is about as good as you can get

for teaching them about how to make change and how to bring about change through democracy.

Another student added:

It's also a place to teach about voting and citizenship. I mean, we vote people into power and then those people have a big influence on policy. Including environmental policy and also trade and economic policies; all of those contribute to climate change. You know, we buy things from countries using their factories and means of production and those things influence climate change; even though we don't directly impact climate change we contribute indirectly, and those are ways we can teach and learn about climate change. Thinking about the ways that trade relationships and the economy work together provide a broader context.

These responses contain important insights into how the students are making sense of discursive availabilities around climate crisis as a personal and pedagogical challenge and how they are making connections between ecological harm and social studies content. As environmental issues have become more evident and pressing, as we encounter information about the seriousness of the threat of climate change, these issues have found their way into more theorizations of citizenship education. Crocco, Marri, and Chandler (2013) argued that civics education provides a space for “applying disciplinary tools and pedagogical approaches to the economic, ecological, and social questions associated with sustainability” (p. 171). Similar spaces have been recognized by Houser and Kuzmic (2001), who advocated for connected, interdisciplinary recognitions of the ways anthropogenic harms are social in nature and thus a necessary topic for ethical consideration in a postmodern world.

These pre-service social studies teachers also seem to take up the mantle of this reconceptualization of social studies education in the face of the difficult knowledge of climate crisis. These answers also seem to indicate a sense of the responsibility of teachers in responding to climate crisis. The preservice teachers articulate ways that their work can contribute to this larger project of responding to global catastrophe and thus enrich the possibilities of action. These are manifestations of the ways that they are making sense of the difficult knowledge of climate change; despite the darkness and hopelessness these students drew upon and articulated throughout these conversations, they also see a place for themselves as teachers. It is important to note the ways that these responses continue to support many dominant discourses, power structures, and worldviews,

“which permeate or ignore environmental problems and the social inequalities that are so often found in relation to them” (Chandler & Marri, 2012, p. 48). One example of this function can be found in a student’s assertion that we “don’t directly impact climate change.” Although the student is constructing connections between citizenship education and climate, they are still working to distance themselves from implication in these discursive systems and the power structures they support. Another instance of this support of dominant discourse is when the student noted that “we buy things from countries using their factories”; this oversimplification of global trade systems could serve as a distancing move, as if other people in other parts of the world are committing the most harm. This represents a commonly available discourse around the need for change in other places, made by other governments, or far-away bureaucrats in our own government who will solve the problem, allowing us to continue blissfully unaffected.

The issues that gave rise to climate crisis are social in nature; they are economic, political, and discursive, and the web of solutions that might rise to meet the greatest challenge faced in the history of our species will also be social in nature. Despite rich and deep ties to social phenomena, climate crisis and issues of ecological harm have largely been left within the disciplinary bounds of science classrooms. The urgency of these issues and the expanding bounds of social studies education has allowed an opportunity for this to change. Contemporary social studies teachers are uniquely situated to prepare students to address the collective ecological challenges we face (Crocco, Marri, & Chandler, 2013; Kissling et al., 2017). Lawrence (1974) wrote that teaching students to engage with these issues “is a classic example of how the social studies can really matter” (p. 192). He goes on to argue: “Scientific tinker is no long-range answer... social studies do not have the answers either. They do offer students an opportunity to approach a critical problem...and face the urgent problems of our times.” (p. 192). As evidenced in part by the student’s assertion that “this is about as good as you can get for teaching about how to be a decent and how to be a good person and how to participate in a democracy,” these pre-service teachers are already conceptualizing climate crisis as an important part of civics and social studies education. Despite the readiness of these pre-service teachers to engage pedagogies of climate crisis and construct incisory bounds for social studies content, they articulated continued grappling with the pedagogical implications of such a commitment; this is explored further in the following section.

***“Get ‘em a little depressed about it”: Pedagogical Implications***

As these students grapple with their own affective experiences of hope and grief, they are also beginning to imagine what it might be like to teach issues of climate crisis in their future classrooms. In imagining the challenges of teaching such difficult knowledge to others, they struggled to make sense of the already unfolding nature of this disaster and expressed worry about balancing urgency, darkness, and hopefulness:

Student 1: And I think it’s important to not be too dark and leave them without hope. I mean, it’s going to impact them even more than it’s going to impact us. I feel like we can go a certain amount of darkness and deepness, but we have to emphasize that there is something to be done about it. So, I think that it needs to be counteracted with messages of hope.

Student 2: I agree. If we go too dark and leave them totally hopeless, it’s like why do anything. Get ‘em a little depressed about it, but then tell them there is still time to get a solution to this, but it’s only if we start right away, doing something now...Definitely provide hope, or else it will be a pointless lesson.

Student 3: It’s almost like trying to explain to a 6th grader the death of a friend or something. It’s that serious of a thing. It’s like, how do you not overwhelm them with hopelessness and still instill a sense of duty in them to do something?...

In this exchange, the students seem to recognize the purpose of hope as more than just an abstract concept; they see that discourses of hopefulness can serve to promote and prompt action. It is hope rather than optimism these pre-service teachers are talking about as they imagine their own pedagogical actions allowing for change and empowering action. In this interaction, they recognize that action will be required and express a responsibility to share those possibilities with young people as they engage in pedagogies of climate crisis. Likening this pedagogical challenge to the death of a friend implies seriousness, both a seriousness in learning and in teaching. These comments represent the ways in which pre-service teachers are working to make sense of climate crisis as a pedagogical encounter. Wallace-Wells (2019) wrote that the rhetorical tools, the language, “often fails us on climate because the only factually appropriate language is of a kind we’ve been trained by a buoyant culture of sunny-side-up optimism to dismiss categorically as hyperbole” (p. 29). Like all of us, failed by our social training, these students have little idea how to engage in this sort of teaching. Like all of us, the language they have to describe it is too gentle, their ability to comprehend it is muddled by its incomprehensibility, and their understanding of

appropriate political action is underdeveloped by dominant social paradigms which nudge us into order. Teaching in these conditions is a “troubled knowledge” (Kumashero, 2015) in itself, and “there is no promised land in teaching just the aching and persistent tension between reality and possibility. We teach toward democracy; we reach toward freedom; we crawl toward love” (Ayers, 2010, p. 15). It is a bold and important commitment to guide students to difficult knowledge and then guide them to the other side, and it is perhaps the most important challenge they might undertake as teachers. Ayers (2010) argued that “there are no easy answers and we must make our wobbly ways into teaching as best we can, with ambiguity, uncertainty, incompleteness and flawed reality our constant companions” (p. 30). In this exchange, the students seem to sense the challenge ahead and this realization is an important part of how they are conceptualizing the difficult knowledge of climate crisis as pre-service social studies teachers.

### **Conclusion**

Learning of wicked issues of environmental catastrophe can be difficult. It can disrupt our previously held understandings of the world and provoke us to think and be in the world differently. While encounters with such difficult knowledge are deeply and profoundly personal, they are also connected to larger discursive availabilities. Both teachers and students experience encounters with wicked ecological problems as difficult and thus our pedagogies must attend to this as a central component of designing instructional engagements with these issues. Pedagogies of difficult knowledge might serve to provoke unsettling feelings, and ultimately they may lead through uncertainty to hope, reparation, and new possibility. Tarc (2011) wrote that, together with our students, we are “learning to face what is most undesirable about feeling and being human in a world teeming with unspoken atrocity” (p. 369). The task of creating curriculum, instruction, and pedagogical encounters that honor both the wickedness and the difficulty of climate crisis remains a tall order. However, pedagogies that attempt to undertake such a task are absolutely necessitated by the urgency of the impending, accelerating, and unfolding climate crisis. Climate crisis is perhaps among the most difficult of difficult knowledges. As Wallace-Wells (2019) reminded us, “our best-case outcome is death and suffering at the scale of 25 Holocausts and the worst-case outcome puts us on the brink of extinction” (p. 29).

These pre-service teachers were conceptualizing climate crisis in a variety of ways, drawing on both dominant and resistant webs of discourse and the power and knowledge they allow. They

experienced hope, sadness, grief, and uncertainty regarding appropriate action. Producing and reproducing larger discourses, the pre-service teachers spoke of turning away from climate crisis, sometimes implicating themselves and sometimes deferring to others. Their conceptualizations of this difficult knowledge offer important implications for climate crisis education, including a need to attend to the ways teachers and researchers might attend to the increased inclusion of more complete and complex histories of political and social change. The pedagogical implication of these discussions is the demonstration of need to attend to the grief of this difficult knowledge and imagine how we might teach through such difficulty. These pre-service teachers largely already construct this issue as appropriate and necessary in the social studies classroom, something that is not reflected robustly in the scholarship and which represents an important avenue of possibility for social studies classrooms and researchers into the future.

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