A Figured Worlds Perspective on Middle School Learners' Climate Literacy Development

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Maryland and Delaware Climate Change Education, Assessment, and Research (MADE CLEAR)
www.ClimateEdResearch.org
Presented at the NARST Annual International Conference, San Antonio, TX, April 2017

Purpose

The purpose of our study was to investigate the nature of the relationship between middle school science learners' conditions and their developing understandings of climate change.

Our overarching research question was: *How are middle school science learners' figured worlds of climate change related to the conditions in which they are embedded?*

Theoretical Perspective

We applied the theoretical perspective of figured worlds (Holland, Lachicotte, Skinner, & Cain, 1998) to examine learners' contextually-mediated views of themselves and their capacities to act in relation to climate change. Holland et al. (1998) described figured worlds as "historically contingent, socially enacted, culturally constructed worlds" in which identity and agency are formed.

In light of our theoretical perspective, climate change learning is thought to include learners' developing identity and agency in relation to climate change; or learners figuring a world of climate change in which they themselves are actors. Through empirical examination of middle school learners' climate change identity and agency, we sought to describe the relationship between learners' conditions and their figured worlds of climate change.

The figure below shows how we conceptualized this relationship.
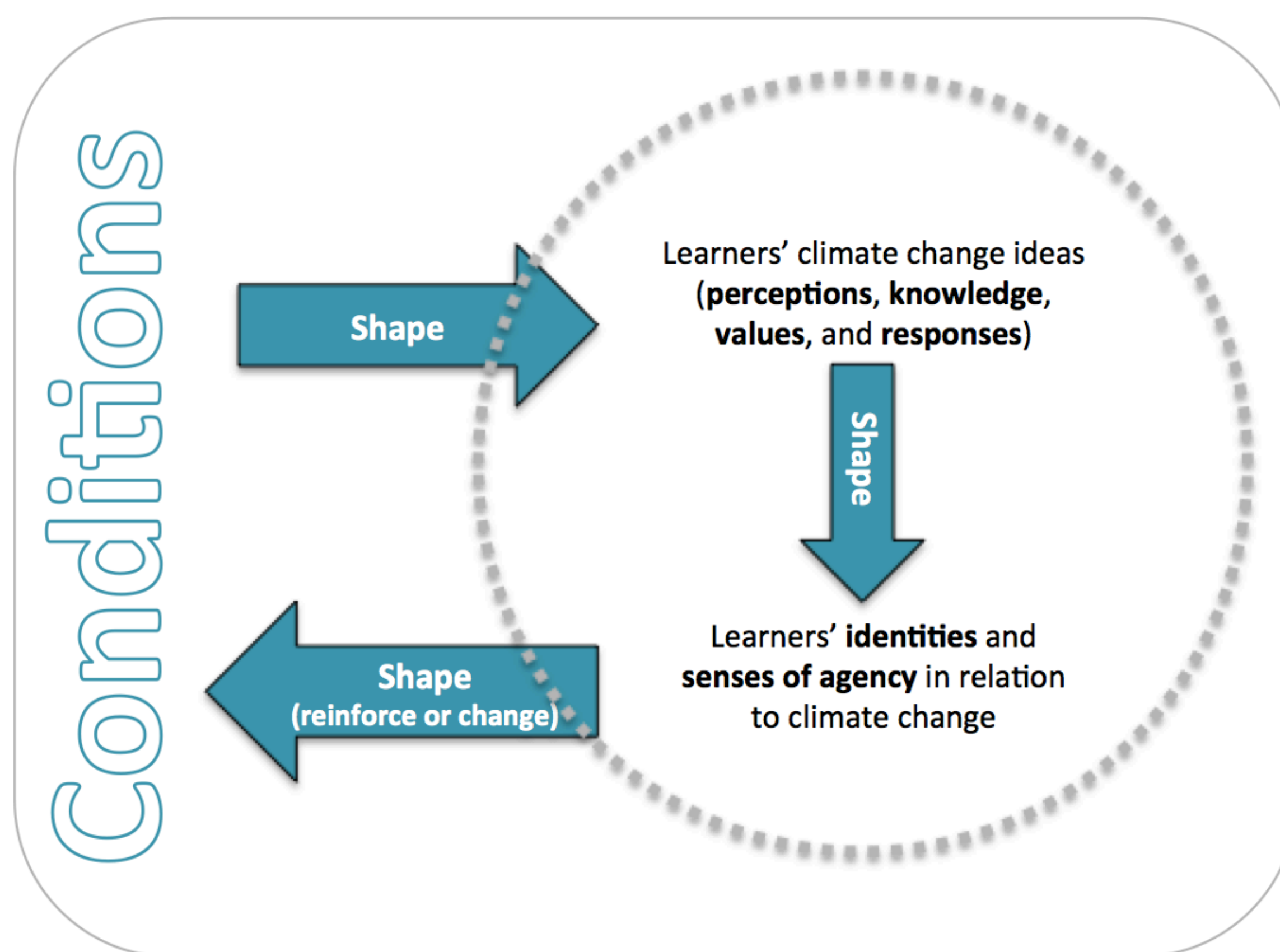
Approach

Method, participants, and context. We used a descriptive single-case study design (Stake 1995) to examine the climate change ideas of eight purposefully selected 6th grade science learners from one middle school on the U.S. East Coast.

Data sources. Our data sources included classroom observations, curriculum documents, interviews, focus groups, and written assessments and artifacts, including learners' self-generated drawings.

Data analysis and interpretation. We identified six analytic lenses with which to explore the data: perceptions, knowledge, values, responses, identity, and agency. Insights from the application of these analytic lenses provided information about the elements of participants' climate change stories. From a figured worlds perspective, we interpreted the roles in which participants cast themselves within their stories of climate change as evidence of their *climate change identities*.

We also described participants' critical responses to their stories of climate change, which we interpreted as providing insight into their *climate change agency* – or, their views of their capacities to act (Holland et al., 1998) - in relation to climate change. In figured worlds terms, these responses represented participants' "spaces of authoring" (Holland et al.), or ways in which participants' enactment of their figured worlds of climate change could serve to reinforce or change their conditions.

Findings

Within their figured world of climate change, learners saw themselves—individually and as members of groups—as inhabiting a variety of *climate change identities*, some of which were in conflict with each other. As the 6th grade participants related their ideas about climate change, we interpreted (through the use of our storytelling lens) a common character web generally shared by participants:

Character types	Character subgroups	Character actions
Those who harm	The Guilty	Knowingly engage in actions that exacerbate climate change; may be concerned about climate change, but do not or cannot change their behaviors
	The Oblivious	Unknowingly engage in actions that contribute to climate change
	The Villains	Knowingly engage in actions that contribute to climate change; are not concerned about climate change; prioritize personal gain; often greedy
Those who suffer	The Victims	Experience negative consequences of climate change
Those who help	The Everyday Heroes	Consciously limit their contribution to climate change through individual action
	The Social Influencers	Actively persuade others to change their personal behaviors
	The Group Shifters	Catalyze group-level action to address climate change—sometimes from the top down, sometimes from the bottom up
Those who cannot help	The Powerless	Would like to change conditions but lack the power to act
Those who interpret	The Witnesses	Notice changes in the world around them associated with climate change
	The Learners	Seek out or interact with evidence-based information about climate change; come to a greater understanding
	The Communicators	Disseminate information about climate change

Findings (continued)

Below we present two drawings as examples of how participants cast themselves and others as characters in the story of climate change.

Self as climate change victim
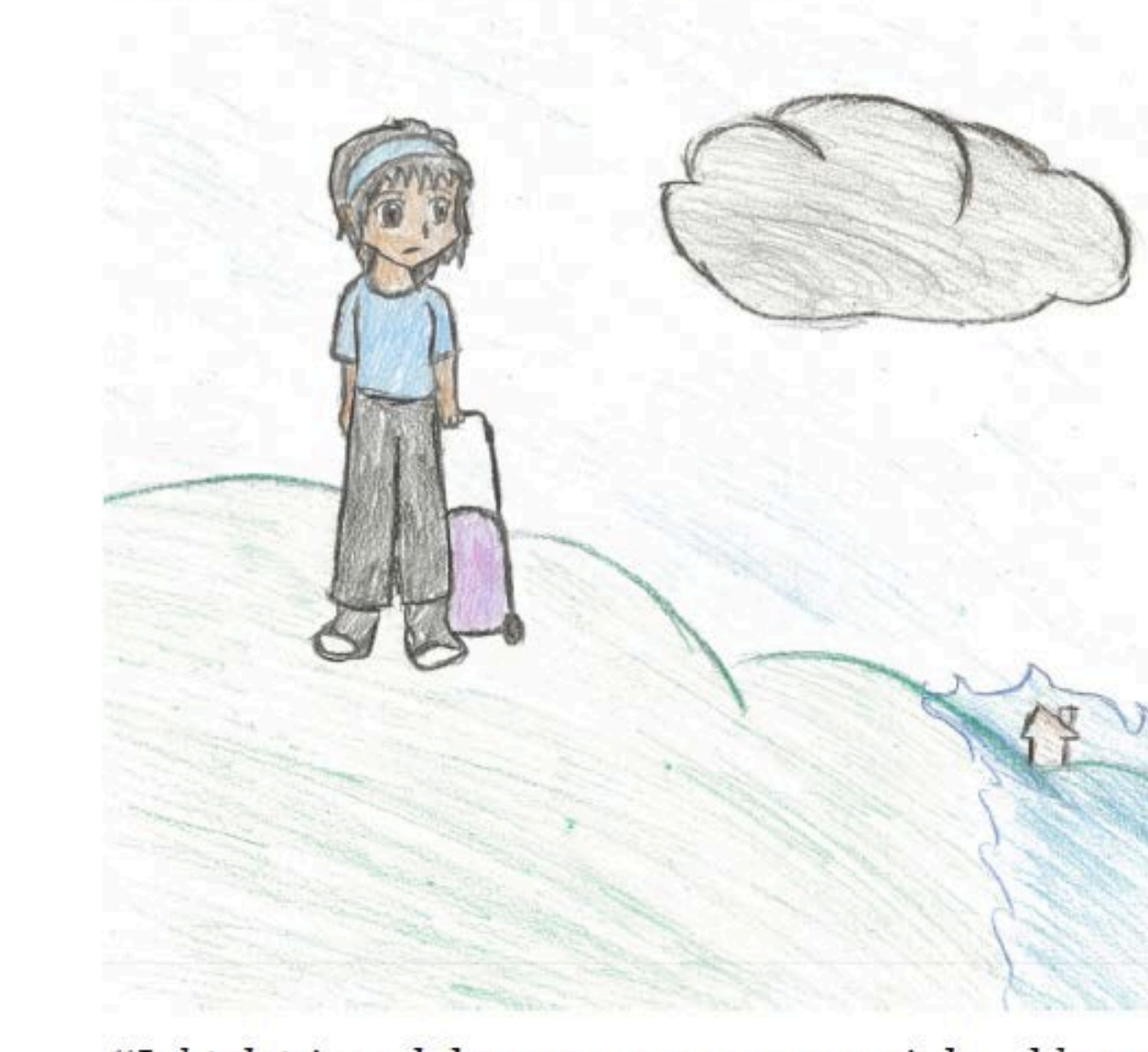
"I think it's sad, because soon you won't be able to live here anymore. But the Earth's been here a long time. Soon, if it's not, if people aren't able to live here then it's just sad" (Aliyah, interview).

Animals (others) as climate change victims

"All the snow melts which means that all the animals living in the Arctic die. After global warming the animals die and all that is left is the remains and fossils" (Sophia, drawing and accompanying narrative)

Summary of insights

- Participants shared a common general storyline regarding climate change, with some variation in the extent to which the details were scientifically supported.
- Participants saw climate change as relevant to their lives as individuals (primarily) and as members of groups (secondarily).
- In considering individual climate change identities, participants held conflicting views of themselves, particularly as: *Powerless, Victims, Witnesses, Learners,* and *Everyday Heroes*.
- When considering their collective climate change identities (e.g., as members of families, the youth generation), participants saw themselves having greater capacity to exacerbate climate change (as collectively *Guilty*), but also to mitigate it (as *Group Shifters*).
- Like their climate change identities, participants' senses of climate change agency, or their own capacities to act in relation to climate change, were varied and sometimes conflicting.
- Participants reported being already engaged (or able to engage) in small-scale personal behaviors to help mitigate climate change (i.e., enacting *Everyday Hero* identities). These behaviors appeared to be motivated by emotions (e.g., fear of consequences of inaction).
- At times, participants expressed that there was nothing they could do to address climate change (i.e., enacting *Powerless* and *Victim* identities). However, they also expressed a view that they could gain power through learning (i.e., enacting *Learner* identities).

Key Implications

The application of an anthropological perspective on climate change learning offered a means of examining learner identity and agency in relation to climate change, which may have important implications for the actions today's young people ultimately take in response to climate change. Understanding the conditions in which learners feel sufficiently empowered to act, and which identities are at play, could provide valuable insights for climate change education research.