Frontline Learning Research
An official journal of EARLI

Frontline **L**earning **R**esearch Vol. 12 No. 3 (2024) 1 - 19
ISSN 2295-3159

Learning to change the world: Dis/continuity in learning across climate activism and life-wide contexts

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Article received 4 October 2024 / Article revised 4 July 2024 / Accepted 21 July/ Available online 3 September 2024

Abstract

Feeling the urgency of the climate crisis and judging current societal (re)action insufficient, young adults increasingly engage in climate activism. While individual learning is not the objective of climate activism, research has documented that young adults learn in *climate activism movements. This study traces young adults' learning* across *climate activism and different life-wide contexts, explicating dis/continuities in learning. Content-analysis of interviews with twelve self-defined climate activists indicates that in and across climate activism and other life-contexts young adults report a) learning about the climate, activism, intersectionality, democracy and system structures, b) learning to organize, socialize and take perspective(s), while c) progressively expressing who and how they want to be(come). Young adults described experiencing discontinuities between the context of their climate activism and other contexts such as education, friends and family, and their efforts to re-establish continuities are an important part of their learning. When young adults experience discontinuity across contexts structurally, they keep their climate activism to themselves and/or disengage from education, among others. Making space in education more explicitly for sharing and shaping what matters to youth seems desirable.*

Keywords: climate activism; dissent; boundary crossing; dis/continuity; learning across contexts

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1. Organizing better futures

Young adults are deeply concerned about their future on a planet that is progressively becoming uninhabitable (Marquardt, 2020; Marks et al., 2021; Rajala, et al., 2023). Young adults increasingly denounce climate injustices by engaging in activism: activity with the deliberate intent to change public awareness and government policies via dissent (O'Brien et al., 2018). As the public opposition to official or commonly shared perspectives with the intent to change them, dissent in activism can take different shapes, including a protest marches, blocking a road or occupying a building and arguably the most well-known example of climate activism, school strikes. This study understands activism as one of the means available for young adults, as well as researchers, to engage in public debate(s) and create better futures (Rajala, et al., 2023).

From a learning perspective, activism entails "organizing possible futures" (Uttamchandani, 2021) and constitutes learning. Existing research indicates that through climate activism, young adults learn a variety of interpersonal and communication skills (Curnow & Jurow, 2021), and develop their identities (Ginwright & James, 2002). As climate activism is still relatively controversial in European societies, young people must shape their activism mostly outside of existing structures (McGimpsey, Rousell, & Howard, 2023). At the same time, climate activism plausibly differs epistemically and normatively from other life-wide contexts young adults participate in (Malafaia, 2022; Neas, et al., 2022). Epistemically, previous research has found that in education climate change can be addressed 'objectively', as an abstract phenomenon damaging ecosystems in a distant future, benefitting from individual actions as suggested by professionals, if actionable solutions are addressed at all (Neas, 2023; Verlie & Flynn, 2022). In contrast, in climate activism movements the climate crisis is understood as an urgent social and political problem affecting humans and more-than-humans, requiring urgent collective action, wherein young adults take the lead (Biswas & Mattheis, 2022). Normatively, climate activism uniquely brings to the fore that all rules are historically negotiated and need to be renegotiated to be more just for all those inhabiting our planet, and considers civil disobedience justified to reach this end (e.g., Mattheis, 2022).

Given these differences between climate activism and other life-wide contexts young adults participate in, young adults have to navigate between their position and participation across contexts daily. Navigating these differences across contexts is challenging, but also carries learning potential (Akkerman & Bakker, 2011; Bronkhorst & Akkerman, 2016). To gain a comprehensive understanding of learning through activism, it is imperative to not isolate learning to the context of activism, but to also consider the learning resulting from dis/connections between activism and young adults' wider lives (Bronkhorst & Akkerman, 2023; Curnow & Jurow, 2021; Neas et al., 2022). This study advances such an understanding, by deliberately tracing learning through activism across all young adults' contexts of participation. The findings concerning dis/connections to education can inform and inspire educational professionals seeking to connect to what matters to young people.

1.1 Ways of learning to change the world

W*hen research attention turns to learning that takes place within social movements, the scope and scale of inquiry expands dramatically. It becomes difficult to see learning, as we usually conceive it.* (Erickson, 2021; 151).

Feeling the urgency of the climate crisis, young adults increasingly oppose existing structures by means of activism (McGimpsey, Rousell & Howard, 2023). School strikes have arguably become the most well-known climate activism young people engage in, with youngsters publicly dissenting to their mandatory presence in education (Belotti et al., 2022; Kowasch et al., 2022). But young people's climate activism is more diverse and can be categorized as dutiful, disruptive and/or dangerous, as well as combinations of these (O'Brien, et al., 2018). When activism is voiced within existing or newly created institutional spaces, young adults resist the status quo, but essentially adhere to its script. Such *dutiful* dissent takes shape via (new) political movements, green community activities, and stakeholder

meetings, for example. Activism that seeks to challenge and change the existing system is referred to as *disruptive* activism, employing protest marches, occupying buildings, and blocking roads, to name a few examples. These examples immediately illustrate that this type of activism can include civil disobedience, or the public, non-violent, conscientious, sincerely motivated acts contrary to, but within limits of fidelity to laws (Rawls, 1971 as cited in Mattheis, 2022). A last type of activism is not easily recognized as such, as it aims to lead by example. So-called *dangerous* activism is meant to show (the viability of) other ways to organize society (O'Brien, et al., 2018). For instance, by creating alternative communities and degrowth initiatives, to name a few examples.

While learning in a strict sense is not the objective of climate activism, that young adults learn when trying to change the world has been documented (e.g., Kirshner, 2007; Hayward, 2012; Verlie & Flynn, 2022). Through activism young adults have been observed to become more informed about social and ecological justice (Mitchell, 2007), reflect on social consciousness (Schlitz et al., 2010), develop social skills (Kirschner, 2007), organizational skills (Belotti et al., 2022) and gain increased understanding of citizenship (Crouzé et al., 2023) and of social and system change (Hayward, 2012).

Learning in climate activism is already visible when adopting a 'conventional' ahistorical and decontextualized lens (Curnow & Jurow, 2021), focussing on the expertise individuals 'acquire' (see Sfard, 1998 for an elaboration of the acquisition learning metaphor). Seeing how learning through activism takes place by collective changing and shaping of what is not yet there (Curnow & Jurow, 2021; Uttamchandani, 2021), studying learning through activism benefits from, if not necessitates, adopting a broader understanding of learning (see also Bronkhorst & Akkerman, 2023). Typically, authors stress the situated, dynamic, collective and/or expansive nature of learning in activism (e.g., Erickson, 2021; Kluttz & Walter, 2018). In the special issue on social movements in the Journal of the Learning Sciences Curnow and Jurow (2021) synthesize diverse views by conceptualizing learning "as possibility, as shaped by relational, spatial, and natural structures and as improvised in and around structures as resources for creative resistance and action" (p. 14-15). Possibility herein refers to not just determining how to go about, but also figuring out what the object of their actions is and ought to be (Merry, 2020; Rajala, et al., 2023), authoring their learning.

Not explicitly present in these advancements in theorizing learning through climate activism is horizontal learning (Engeström & Sannino, 2021) by boundary crossing (Akkerman & Bakker, 2011; Bronkhorst & Akkerman, 2016). While vertical learning concerns deepening of knowledge or intensifying of participation, horizontal learning constitutes developing alternative understandings or alternatives for action, through participation in or collaboration between different contexts. By tracing the young adults' experiences in engaging with climate activism across life-wide contexts, this study acknowledges the unique context activism provides for learning, but positions it within young adults' wider lives, taking a person-centered perspective (Akkerman & Bakker, 2019). The advantage of a horizontal learning perspective is that is documents learning through activism wherever and whenever it takes place (Bronkhorst & Akkerman, 2023).

1.2 Dis/continuities in climate activism

[A] comprehensive understanding of learning in contemporary societies entails researching individuals, who are socially, culturally, and academically unique, participate in their own set of practices both in and outside of education, and face and shape undecided futures (Bronkhorst & Akkerman, 2023;262)

Horizontal perspectives on learning acknowledge that individuals participate in various life-wide contexts on a daily basis (Akkerman & Bakker, 2019). Contexts can be understood as culturally and historically informed, progressively (re)created practices, worlds, or activity systems (Engeström & Sannino, 2021). Contexts differ in their specific, local and routinised ways of organizing, acting, talking, and relating (Bronkhorst & Akkerman, 2016). Climate activism can be seen as a particular context, distinguished from many other contexts in its purpose of (radically) changing existing structures, its distributed, emergent organization, and its acceptance of civil disobedience. The ways of organizing, acting, talking, and relating inherent to climate activist movements likely differ from what is 'common

practice' in other daily life contexts, such as education and work (e.g., Malafaia, 2022) – contexts which in turn also differ from each other.

Young adults can experience such social-cultural differences between contexts as *discontinuities* (Akkerman & Bakker, 2011): temporary or structural disruptions to ongoing learning processes that necessitate shifting in ways of (inter-)acting, positioning, and being. For instance, Neas (2023) described experiences of discontinuity when the climate crisis was portrayed as a problem for the distant future at school, whereas in climate activist movements the urgency of the crisis was foregrounded. Malafaia (2022) documented opposition to climate activism by family members, manifesting in condescending indifference, but also insults that posed significant daily challenges to young climate activist. Next to being experientially tough, discontinuity can lead to disengagement and even drop-out of formal education when discontinuity is structural and/or widespread (Bronkhorst & Akkerman, 2016).

Yet, what boundary crossing theory uniquely explicates, is how even such discontinuity does hold learning potential. The learning potential resides in the alternative understandings and alternative modes of action emerging when *continuity* across contexts is (re-)established (Bronkhorst & Akkerman, 2016). Young adults can (re-)establish continuity by connecting; making sense, translating, integrating and/or introducing elements from one context into another (Akkerman & Bakker, 2011). As a result, an individual's understanding of the climate crisis results from integrating (social) media, books, documentaries, personal experiences as well as education (Spiteri, 2024). Connections across contexts are supported by actors and (boundary) objects (Akkerman & Bakker, 2011; Bronkhorst & Akkerman, 2016), such as teachers who choose to support climate activism, even when this involves skipping school.

A growing body of literature recognizes four dialogical mechanisms triggered in boundary crossing across different practices (Akkerman & Bakker, 2011), persons, positions (Akkerman & Bruining, 2016) and perspectives (Wansink et al., 2023): identification, reflection, coordination, transformation. The identification and reflection mechanism focus on learning as sense-making (i.e., alternative understandings) and the coordination and transformation mechanism focus on learning as acting (i.e., alternatives for action). The *identification* mechanism illustrates the alternative understandings triggered by seeing a practice, person, position and/or perspective in light of another and identifying (poignant) differences. For instance, young adults realize differences in discourse about the climate, in sacrifices different people are willing to make and/or in self-positioning across different (activist) contexts. A step further, the *reflection* mechanism concerns alternative understandings triggered by making and taking the perspective of another practices, person, and/or position. For instance, reconsidering your understanding by taking the perspective of a government 'failing to take action', or reconsidering own ease with police arrests from a parental perspective. The *coordination* mechanism triggers alternatives for action by efficiently connecting and/or smoothly alternating between different practices, persons, positions, and perspectives. For instance, adopting an activism name to come into activist mode (and also to avoid (police) identification), or scheduling protests on a school free day. The final *transformation* mechanism involves crafting new, hybridized practices, persons (i.e. brokers), positions and/or perspectives, providing alternatives for action. For instance, shifting to a 'green' cafeteria, without single use cups and limited meat options, or identifying as activist-student/teacher/researcher. While the coordination, reflection and transformation constitute learning by re-establish continuity across practices, the identification mechanism maintains discontinuity, by its explication of differences.

1.3 The current study

By not only considering what young adults learn *in* climate activist movements but also *across* activism and other life-wide contexts, this study broadens our understanding of learning through climate activism. Such understanding will benefit theorizing learning as of and for worldmaking (Curnow & Jurow, 2021; Power et al., 2023), situated as well as distributed (Melero & Gil-Jaurena, 2018), individual

as well as collective (Kluttz & Walker, 2018), and accumulative as well as expansive in nature (Melero, & Gil-Jaurena, 2019). Practically, the findings of this study offer insight to all those concerned with deliberately connecting to what matters to young people, including the ways young people choose to express themselves. Our research question is: *what and how do young adults learn through experiencing dis/continuities across climate activism and life-wide contexts?* The 'what' and 'how' in this research question are deliberately open-ended (see Bronkhorst & Akkerman, 2023 for an argumentative grammar) to foster new understandings, although sensitized by our theoretical framework.

The admittedly scarce available literature and common sense would lead to an expectation that young adults experience continuity in the cause of activism, as recognition for the necessity of climate action is becoming increasingly widespread. Yet, young adults likely experience discontinuity in the way they try to achieve their cause, especially with more disruptive and dangerous climate actions, as school and other contexts ascribe to different norms (e.g., Neas, 2023; McGimpsey et al., 2023).

2. Methodology

The methodological approach for this study is aligned state of the literature, the object of study and the researchers' positionality, culminating in exploratory approach with a critical stance (Rajala et al., 2023). The research was approved by the ethical committee of the Faculty of Social and Behavioral Sciences at Utrecht University under number 23-0126.

2.1 Participants

Twelve young adults aged 19 to 25 voluntarily participated in this study (see Table 1). Invitations to participate were initially spread via the social media of diverse climate activist movements. Snowballing (i.e., asking participants for potential participants who met the criteria, Naderifar, et al., 2017) was additionally used to recruit a diverse sample in terms of age, gender, and interpretation and expression of climate activism (i.e., dutiful, disruptive and/or dangerous), as we postulated that experiences of dis/continuity are related to choices made within climate activism.

Table 1.

Participants

Self-selected pseudonym	Age	Gender	Occupation (Work / Study program)	Activist since	Part of climate activism organizations	Characterization of dissent
Pepper	19	Cisgender female	Philosophy (S)	2019	XR[a], End Fossil Occupy	Disruptive Dangerous
Boas	23	Cisgender male	Computer Science (S)	2018	XR, Code Red	Dutiful Disruptive
Jeroen	23	Cisgender male	Communication Technology (S)	2021	Fossil free higher education	Dutiful Disruptive
Pieter	20	Cisgender male	[1]	2020	-	Dutiful
Anne	24	Transgender female	Writer for television (W)	2019	XR, FFF, Milieudefensie[b]	Dutiful Disruptive
Paarden-bloem	25	Cisgender female	Data-management for ecological consultancy (W)	2016	-	Dutiful Disruptive
Fiets	25	Cisgender male	Sustainability Sciences (S)	2021	XR, End Fossil Occupy	Dutiful / Disruptive
Madelief	24	Cisgender female	Energy politics at the Dutch Embassy (W)	2020	-	Dutiful
Olaf	24	Cisgender male	Gap year	2019	XR, Young Climate Movement, Greenpeace	Dutiful Disruptive
Jochem	25	Cisgender male	Consultant sustainability (W)	2019	XR, FFF	Dutiful / Disruptive
August	19	Cisgender female	Cultural Anthropology (S)	2022	XR, Milieudefensie[b], Amelisweerd niet geasfalteerd[c]	Dutiful / Disruptive
Lois	22	Cisgender female	Applied biology (S)	2019	-	Dutiful

Note. [1] This young adult opted to keep his study program confidential to avoid identification. XR[a] = Extinction Rebellion; [b] Translates as: Environment defense; [c] Translates as: Parc without tarmac; FFF[d] = Friday for Futures

Table 1 details participant characteristics, including their self-selected pseudonyms, age in years, gender identification, main occupation (in terms of their study program or description of their job), what climate organizations they are affiliated with (if any), and when they started with climate activism. Some of the pseudonyms may be unfamiliar to an international audience, but we decided to maintain them, as they are self-selected activist names that the young adults volunteered as pseudonyms. Last, based on their own descriptions, we typified their climate activism as dutiful (i.e., dissenting by

reforming from within), disruptive (i.e. dissenting by *opposing* the status quo, including civil disobedience), and/or dangerous (i.e. dissenting by *proposing* alternatives). All participants gave active consent for their interviews and received a small pocket with flower seeds as a reward.

2.2 Interviews

An interview protocol was created for the purposes of the study, based on the literature. Although interviews were semi-structured, the questions are deliberately open-ended to allow for a natural flow of conversation, as well as unexpected answers (Bronkhorst & Akkerman, 2023). Table 2 details the interview questions, follow-through questions and probes, in relation to the literature that inspired them. While the focus of this study lies with learning through experiencing dis/continuities, we deliberately also included questions that resonate with different conceptualizations of learning to gain a comprehensive understanding of learning.

The interview scheme was piloted, resulting in adjustments to the wording and order of the questions. All interviews took place during spring of 2023 and were conducted at a place convenient for and selected by the participant, resulting in four interviews being conducted online. Interviews were conducted in Dutch in pairs or triads of interviewers (i.e. the second, third and/or fourth authors) and lasted about 70 minutes.

2.3 Analyses

Interviews were transcribed verbatim and sent back to participants for member-checking; all participants verified their transcripts. After segmentation of all parts that were not relevant for answering the research question (e.g., addressing the logistics of the study; social talk), the within-case analysis (Ayres et al., 2003) started with open coding, sensitized by our theoretical framework (i.e., dis/continuity across contexts, identification, coordination, reflection, transformation). In the process of open coding, the second, third and fourth author collaboratively read and re-read the accounts (Birks et al., 2019), identifying all the fragments in which participants referred to (implicit) learning through activism. For each initial code, the authors developed overarching themes by iteratively regrouping the labelled fragments in meaningful ways (i.e., axial coding), as is reflected our thematic organization of what young adults learn through activism (see Table 3). In the process of selective coding, overarching themes were related to and renamed according to the literature, particularly with respect to relevant life-wide contexts (informed by Engeström et al, 2022; Phelan, et al., 1991) and dialogical boundary crossing learning mechanisms (Akkerman & Bakker, 2011; Akkerman & Bruining, 2016; Wansink et al., 2023).

Subsequently, for the across-case analysis (Ayres et al., 2003) each participant was explored in more detail to unravel intra-individual patterns (c.f. a person-centered perspective, Akkerman & Bakker, 2019). Here, we were particularly interested in identifying possible patterns between (re-)establishing continuity and/or discontinuity across different life-wide contexts. To that end, visualisations of each participant were made, locating dis/continuity to specific transitions between activism and family, education, work, friends and/or (student) home contexts. These visualisations were subsequently compared systematically.

The data-collection and analyses decisions were documented and justified using methodological literature in an audit trail (Akkerman et al., 2008). This audit trail was evaluated by an external auditor with broad expertise in educational research, who was not affiliated with this project. The visibility, comprehensibility and acceptability of all analytical procedures was assessed positively. The auditor did recommend clarifying analytical choices in the method description and results, resulting in presenting all manifestations of dis/continuity in Table 4. Overall, the auditor concluded that all findings are grounded in the data.

Table 2.

Interview protocol

Topic	Central question	Follow-through, in order suitable to the conversation	Based on
Background of young adult	Can you introduce yourself to me?	Probe for age, education, job, hobbies, family and living conditions, gender identification, pseudonym	Akkerman & Bakker, 2019; Bronkhorst & Akkerman, 2023
Climate activism	Can you tell me (more) about that your climate activism?	Manifestation of activism, origin of/trigger for the activism, goals, and motivation	O'Brien et al., 2018
Learning *in* climate activism	(How) have you changed in how you engage with activism?	Probe for examples, perspectives of others	Engeström & Sannino, 2021
Learning *in* climate activism – conscious	Would you say that you learn through your activism?	Probe for examples, perspectives of others, deliberate efforts at learning, regulation of learning by movements	Kirshner, 2007
Climate activism *across* contexts	Do people around you know about your activism?	Probe for anyone else	Phelan et al., 1991 ; Engeström et al., 2022
Dis/continuity *across* contexts	For everyone mentioned previously: How do they perceive your activism?	If not previously mentioned, explicitly discuss education, home, work, friends, and family	Akkerman & Bakker, 2011; Bronkhorst & Akkerman, 2016
Discontinuity	For significant others who don't know about activism: (what) would you like them to know about your activism?	Probe for reasons	Akkerman & Bakker, 2011; Bronkhorst & Akkerman, 2016
Reflection	Is there anything else that is important to know about your activism?	Possibility to revisit earlier answers	

3. Findings

All young adults engage in climate activism because of their belief that without change, a viable future is impossible, which, coupled with their wish to take responsibility, results in their dissent. Young adults define the goal of their activism – in line with the literature – as "to move against the established order and to want to change things" (Jeroen). In describing themselves as activist, their emphasis in activity lies in creating awareness: "The climate activist is someone who chooses to break out of their

normal routine to raise awareness of climate issues among other people" (Jochem). Olaf stresses how becoming and being a climate activist need not involving othering:

> "By becoming an activist yourself and then also immediately taking part in actions…which others don't want to get near to, namely civil disobedience… [this] did open my eyes to that: 'you can do just do this'. It is not some kind of offshoot of homo sapiens, the activist, but it is people like you and me."

Concrete actions that young adults undertake vary, in line with the variety stressed by the typology of dissent mentioned in the literature (see O'Brien et al., 2018): "I naturally think climate activism is just really ridiculously broad. To me it can really include petitions, marches or well such disruptive actions that Extinction Rebellion does, things like eco-sabotage for example, that all falls under climate activism" (Pepper). Multiple young adults emphasize the importance of caring for each other in activism and "having each other's backs", resulting in climate activism "bringing more peace than stress or fear".

Six young adults mention explicitly that they do not engage in activism to 'learn': "I don't exactly do it to develop myself more or learn more. It's more because of the experience. It is a fun and exciting idea that you learn new things from new experiences" (Fiets). In what follows, the what and how of young adults' learning through activism is identified and detailed.

3.1 What is learned through activism

Learning through activism varies across young adults, although there appear to be some commonalities. All young adults describe learning *about* different topics related to climate activism. All young adults except one describe to also learn *to* organize, socialize, and/or formulate perspectives. Nine young adults also describe learning processes typically considered as identity development, in terms of learning to express and reflect on oneself (i.e. being and becoming). Table 3 summarizes the commonalities in learning through activism reported by the participating young adults, including quotes.

Although eight participants reported to have attended mandatory trainings offered by activist movements, the young adults contend that most of their learning through activism was not regulated. Instead, for the young adults involved, learning emerged over time by collaboratively working on instigating change: "It just feels that I only have an influence when I work with people. And as a result we have a good time together, accomplish things together, set up concepts together, move forward with our plans together." (Fiets)

In line with the literature on heterogenous coalitions (Engeström & Sannino, 2023) in their descriptions of the activism the young adults describe a decentralized organization, and in turn an openness for emerging action(s): "if you and a group of others want to organize an activity, you can. The group makes a plan, and a set-up for the activity and often also the theme behind it" (Boas). In young adults' accounts fluid and limitedly bounded arrangements of activism comes to the fore, identifying the overarching object of climate action as providing the glue: "I'm sure I don't agree with all, or some of the people at Christian Climate Action, but we are fighting for the same cause by the same means" (Jochem). Similarly, Jeroen's descriptions of arrests during action echoes this collectivity: "then they [i.e. the police] have an individual, but they can't shut down the movement".

While climate activism might hence not be considered a context in the sense of well-defined space or single community, all young adults do speak of their activism in unified terms: "Then you step outside your bubble again and you notice that there are also people who really don't give a fuck about the climate." (Paardenbloem). Paardenbloem's observation about people outside her 'bubble' invites us to explore *how* learning through activism involves dis/continuity across contexts.

Table 3.

Learning through climate activism

Learning	Example quote	Reported by (N)
about (12)		
Activism	"You also learn a lot about activism then, and that's kind of a conscious choice to some extent. By participating and getting involved, you also learn to understand it." (Pieter)	Pepper, Pieter, Fiets, Olaf, August (5)
Intersectionality	"Where I used to be focused specifically on climate problems, now I do have a much broader view. Say, the asylum crisis and housing crisis and all those kinds of things, that because they're all so related." (Jochem)	Pepper, Boas, Jeroen, Anne, Jochem, August, Lois (7)
Systems	"I think I've just become much more aware at all of how the system works and how it can be harmful." (Pepper)	Pepper, Jeroen, Jochem (3)
Climate	"Certainly, also about the facets that you are less aware of in everyday life, such as climate justice, or how it affects people in the global south. That knowledge will come anyway." (Anne)	Pieter, Anne, Jochem, August, Lois (5)
Democracy and justice system	"I especially learned a lot about the political process and climate politics, I think, through my activism, also about how democracy works." (Madelief)	Pepper, Pieter, Anne, Paardenbloem, Fiets, Madelief, August (7)
to (11)		
Organize	"Through climate activism, I got involved in organizing activities and organizing just taught me a lot. Just really professional experience." (Madelief)	Pepper, Jeroen, Paardenbloem, Fiets, Madelief, Anne (6)
Socialize	"I think in a way you kind of learn social skills. It's always a very nice atmosphere and it's very acceptable to just approach people you don't know and start a conversation with them." (Boas)	Pepper, Boas, Jeroen, Pieter, Anne, Paardenbloem, Madelief, Olaf (8)
Formulate perspective(s)	"In the beginning you could say I was very radical, really straight from hard facts, but that doesn't work at all. So yes, what does work is trying to explain to people how things can be done differently without suggesting that they should do that." (Jeroen)	Pepper, Jeroen, Pieter, Anne, Fiets, Madelief, Olaf, Jochem, August (9)
be (express oneself)	"So in that respect I feel I have learned to stand a bit stronger and to have more of an opinion." (August)	Jeroen, Pieter, Paardenbloem, Madelief, Olaf, Anne, August (7)
become (reflect on oneself)	"In fact, I have come to realize more and more that it is so important to me that [climate activism] is part of my identity." (Madelief)	Anne, Fiets, Madelief, August (4)

3.2 How learning emerges across contexts

All young adults reported (re-establishing) *continuity*, particularly across activism and friends and family (see also Table 4). Young adults mention feeling able to talk about the climate and their concrete activism plans in other contexts (i.e., the learning mechanism *coordination*, Akkerman & Bakker, 2011). Jochem shares: “We really talk about it actively. They really ask questions about it, which gives me the idea that they find it very interesting”. Continuity is also reflected in young adults recognizing interest in and appreciation for their climate activism in significant others around them (i.e. *reflection*, Akkerman & Bakker, 2011): “I also give regular updates in the family [app] group when I am somewhere, and I always get a response to that as well. Often with a lot of positive comments” (Boas). Young adults also identified such shared interest in their upbringing. For instance, Olaf reported: “I've always heard a lot about climate change and sustainability. My parents, especially my father, he kind of instilled that from an early age”. Some parents have also been involved in some kind of (climate) activism themselves.

The young adults also report to have space to pursue activism in other contexts (i.e., *transformation* of practices, Akkerman & Bakker, 2011). For instance, in education they appreciate space in dedicating assignments climate (activism), by writing a paper or blog article about a related topic. They also appreciate (significant) others, such as friends, family and even teachers, joining activist outings. For instance, Pepper mentions how highway roadblocks are becoming a family activity: “My mother, my little brother and my niece and my grandmother have all joined me in protests of XR so far”.

The continuity is reflected in extended learning *about* topics (e.g., the climate and politics) across activism, work and study contexts, and young adults’ understanding of themselves (i.e. *transformation* of perspectives and positions, Akkerman & Bakker, 2011; Wansink et al., 2023). Anne describes knowing herself better: "This is how I react to stress [..] my perception of things, my behavior, changes because of that. That's all a lot of discovery about myself and now I'm trying to apply that in how I engage in activism".

Young adults explicitly mention continuity in learning about particular topics (e.g., relating their study program and social media to their understanding of sustainability), but it can also be recognized in their discourse. For instance, Pieter’s description of activism echoes his predating knowledge of organizational structures:

> The [activist] movements don't legally exist. They don't exist on paper; they don't have registrations as associations. You can also see that in the way those movements approach and organize things: very democratic and flat and not really with functions and hierarchy.

Moreover, some young adults also infer how their activism has impacted others: “I've convinced a lot of people in my immediate environment, to at least be a little more conscious. And I've created awareness around me by talking to friends and saying I'm going to do this” (Boas).

All participants but one also learn trough experiencing *discontinuity* (see also Table 4). A first manifestation of discontinuity is when climate activism or even the climate is ‘absent’ in other contexts: “My studies are very much focused on computer science, focusing on computers, how it works to write a program. That's just a very different field. And that's very hard to deal with then. The climate just doesn't come into play” (Boas).

Young adults also describe not feeling able to share or pursue the topic of climate nor climate activism in other contexts, recognizing no or overtly negative responses to climate activism, or people from other contexts not being open to changing their behavior. For instance, Jeroen shares about his parents: “Although sometimes it does feel limited, because I would like to do much more myself. Ideally, I wouldn't go to a regular supermarket anymore either, but of course I can't force my parents to go to an Ecoplaza[1]”.

[1] Sustainable supermarket

A few young adults express overt appreciation for the learning potential of discontinuity, particularly in discussions: “But also with people with different opinions, there is usually room for that as well, and I also find it interesting to talk about my political views on this as well” (Pieter). However, most young adults’ responses to an experienced lack of space for their activism (i.e. discontinuity) include disengagement and withdrawal from formal and informal contexts (e.g., calling in sick to go to a protest; ending friendships) and keeping their activism to themselves. Lois shares how she avoids or cuts off conversation about activism, and how she has also given up on talking to the farming side of her family: “It’s too far apart to get on the same page. We have too little knowledge of each other's fields to get in a direction”.

Table 4.

Manifestations of dis/continuity across climate activism and family, education, home, friends, and work

Context	**Dis/continuity**	**Manifestation**	Reported by (N)
Family	Continuity	(Possibility for) sharing climate actions	*All* (12)
		Understanding and/or appreciation for climate actions	Pepper, Boas, Jeroen, Pieter, Anne, Fiets, Jochem, August, Lois (9).
		Climate education and/or activism was part of upbringing	Pepper, Anne, Olaf (3).
		Family joins climate actions	Pepper, Paardenbloem, August (3).
	Discontinuity	Family disagrees with or fears for arrests	Boas, Fiets, Jochem, August (4).
		Deliberately not sharing to keep the peace	Pepper, Anne, Paardenbloem, Lois (4).
		(Financial, physical) Limits to climate activism	Jeroen, Jochem, Lois (3).
School / education	Continuity	Climate (activism) is or can be a part of assignments	Pepper, Boas, Jeroen, Pieter, Paardenbloem, Madelief, August, Lois (9).
		Sharing perspective on climate activism	Pepper, Pieter, Lois (3).
		Study peers and teachers join climate actions	Pepper, Jeroen, Olaf (3).
	Discontinuity	Study-peers express disapproval of climate activism	Pepper, Fiets, Olaf, Lois (4).
		Climate (activism) is not a topic	Pepper, Boas, Jeroen (3).
(Student) home	Continuity	Space for climate activism	Anne, Paardenbloem, Fiets (3).
	Discontinuity	Climate activism is not discussed with roommates	Pieter, Anne (2).
Friends	Continuity	Friends join climate actions	Pepper, Boas, Jeroen, Pieter, Anne, Paardenbloem, Fiets, Olaf, Jochem, August (10).
		Friends express support and/or appreciation for climate activism	Pepper, Boas, Jeroen, Pieter, Anne, Fiets, Jochem, August (8).

		Talking about climate activism is an option	Pepper, Boas, Jeroen, Paardenbloem, Olaf, Jochem, August, Lois (8).
	Discontinuity	Friends disagree with ways of climate activism	Boas, Jeroen, Pieter, Olaf, Jochem, August (6).
		Friends are not as engaged in climate activism	Boas, Fiets, Madelief, Lois (4).
Work (incl. internship)	Continuity	Working on a climate issue	Jeroen, Madelief, Olaf, Lois (4).
		Taking to colleagues about climate activism	Anne, Paardenbloem, Olaf, Jochem (4).
	Discontinuity	Deliberate caution with sharing	Jeroen, Paardenbloem, Lois (3).

Such experiences of discontinuity can be incidental and to some extent fleeting, but also structural. August mentions irritation about his mothers' cautions against getting arrested: "In itself, I like the fact that she points this out to me, that I'm not going to think [getting arrested] is normal ..., but when she keeps saying 'don't get arrested,' that's also a little irritating". Attending to these discontinuities actually appears crucial for young adults' learning to take-perspective(s), to socialize, and to progressively express and reflect on who they want to be(come). This learning extending across activism, school, and work, is described as a continuous careful treading by Madelief: "How can I stay critical without shortchanging my colleagues, or myself, [and] missing opportunities?".

We should note that five young adults mention preferring discontinuity or some difference and distance between activism and their wider lives (see also intended discontinuity, Bronkhorst & Akkerman, 2016). For example, they report needing or preferring to keep work and private life separate from their climate activism and/or focus solely on their study. Jeroen, for instance, wants to avoid a possible impact on how he will be seen as co-worker. Maintaining discontinuity also helps young adults to not always be preoccupied with the climate, which supports their mental health, and their ability to maintain a diverse and/or longstanding group of friends, which would otherwise become difficult.

The cross-case analysis brought interesting and at first glance counterintuitive findings to the fore. Namely that the only participant whose activism also takes shape in actions aiming to "completely destroy the system" actually experiences continuity across all daily life contexts. He only reports incidental discontinuity at his educational program, where peers are mainly preoccupied with other things. In turn, young adults merely engaging in what could be seen as dutiful dissent, do not experience continuity across all life-wide contexts. In contrast, they report feeling challenged by the discontinuity experienced with friends and family, and at work. Madelief aptly typifies these encounters: "So I also feel lonely sometimes, because within my circles of friends there are a lot of people who are environmentally conscious, but activist on the level that I am, most are not".

4. Discussion

Feeling the urgency of the climate crisis, young adults increasingly dissent the status quo by means of climate activism. Climate activism has been found to be a context wherein learning emerges. Yet, thus far, research into (climate) activism has documented the expansive, collaborative learning taking place *in* activist movements (e.g., Belotti et al., 2022). This explorative study aimed to advance a more comprehensive understanding of learning through activism. We gained a life-wide picture of young adults' learning to change the world by tracing what and how young adults learn *across* activism and different life-wide contexts, explicating (un)intended dis/continuities in learning.

Content-analysis of twelve interviews with self-defined climate activists echoes activism as a rich context for learning, which Table 3 details with examples. Specifically, first, through climate activism all young adults describe to *learn about* the various topics they relate to their climate activism, including the climate, activism, intersectionality, democracy and justice and system structures. Although the young adults primarily ascribe these topics to engaging in activism, their descriptions indicate an integration across contexts, signalled by comparisons and describing a broadened, or alternative understanding of these topics. Second, all but one young adult also describes *learning how to* organize, socialize and take perspective(s) by engaging in activism and relating those experiences to other life-wide participations. Particularly, the caring or 'regenerative' social conventions in activism contrasts with socializing elsewhere and invites invoking these conventions elsewhere (see also Rowe & Ormond, 2023). Also, the precarious position of activism in mainstream society coupled with young adults' wish to convince others to act (see also Kutlaca et al., 2020), creates a unique opportunity to learn to take and learn from taking perspectives in socializing with others. Last, in engaging with activism in and across contexts, nine young adults also report to learn to progressively express who and how they want to be(come).

We should note that most of these learning outcomes are highly valued and sought after, but not easily realized in 'mainstream' education (Crouzé et al., 2023; Neas, 2023; Rajala, et al., 2023). Even citizenship education, specifically designed to encourage active citizenship early on, has difficulty engaging students in learning about the democratic means of authoring their own futures (Merry, 2020). It could read as ironic that climate activism, typically interpreted as misbehaviour (Mattheis, 2023), does manage to trigger such learning.

While these findings about young adults' learning through climate activism are mostly in line with the existing literature on learning through activism (e.g., Kirshner, 2007; Hayward, 2012; Mitchell, 2007; Schlitz, Vieten & Miller, 2010; Verlie & Flynn, 2022), the added value of this paper lies in tracing that learning across activism and other life-contexts. Across contexts different dis/continuities were reported (see Table 4 for all manifestations of dis/continuity). The different dialogical learning mechanisms (Akkerman & Bakker, 2011; Akkerman & Bruining, 2016; Wansink et al., 2023) can be identified in young adults' reports of discontinuity, via the identification mechanism and (re-)established continuity via coordination, reflection, and/or transformation mechanisms. Complementing existing research that documented adolescents' discontinuities between school and activism (Malafaia, 2022; Neas, et al., 2022), the young adults in this study also reported (re-)establishing continuity between their activism and their education by dedicating assignments (including internships) to their activism. Plausibly, higher education affords more degrees of freedom to (re-)establish continuity across contexts (Bronkhorst & Akkerman, 2016). Temporary discontinuities and efforts to (re-)establish continuity appeared crucial to young adults' learning through activism. Yet, our appreciation for the learning potential of discontinuity should not be mistaken for a lack of recognition of what young adults experience when they feel they cannot share what matters most to them (i.e. their climate activism). When young adults experience overt resistance to or structural denial of the climate crisis at home, at work, at their educational program and/or with friends, they not only recognize a challenge to their world view, but to who they are. Notably, in some cases, the young adults resigned or choose to maintain disconnections between activism and their wider lives. This coping by keeping activism to themselves and/or structurally disengaging from other contexts (i.e., intended discontinuity, Bronkhorst & Akkerman, 2016) likely constrains their learning and their participation in other life-wide contexts, including school (Bronkhorst et al., 2013).

In line with boundary crossing theory (Akkerman & Bakker, 2011; Bronkhorst & Akkerman, 2016; 2023), each young adult's experiences were unique, as their activism and relevant life-wide contexts differed, as did their experiences of dis/continuity. For instance, friends having a different perspective on the climate crisis could be experienced as a struggle, or as a cherished the space for discussion, re-establishing continuity by means of the coordination mechanism. Particularly, the young adult who engaged in disruptive and dangerous dissent – and thus used means of activism and civil disobedience that are likely far from what is considered acceptable in mainstream society - experienced

continuity across every life-wide context. This appears related to the life-worlds sought out and created by this young adult, who has opted to end friendships with non-activists. In contrast, young adults engaging in dutiful dissent within the confinements of the law reported more discontinuity, as they engaged with more 'diverse' peer-groups in terms of their stance towards climate activism and climate change. These findings highlight the importance of more person-centered research (Akkerman & Bakker, 2019; Bronkhorst & Akkerman, 2023), seeking to understand each individual as unique in their life-wide participations and prospects. Yet, at the same time these findings remind us of that learning in progressive activist movements bears resemblance with processes in regressive movements (Erickson, 2021). Information bubbles, echo chambers and retreat from 'mainstream' society are risks we could and perhaps should avoid by continuing to seek open dialogue in education.

4.1 Limitations and further research

The findings should be interpreted considering the following limitations. First, findings are based on a small sample, which may be biased by the snowball method used for sampling (Naderifar et al., 2022). Perhaps partly as a result, only one participant was involved in dissent that can be typified as dangerous and a relatively large portion of young adults were involved in (different branches of) Extinction Rebellion. Although dangerous dissent is also least common and Extinction Rebellion can best be seen as a heterogeneous coalition in itself (Engeström & Sannino, 2021), future research should seek to increase (the diversity in) their sample. Particularly interesting would be to explore younger climate activists, who are not (yet) allowed to vote and thus have limited legal means to change the system from within, to explore the degrees of freedom in their schooling to (re-)establish continuity. Comparing the learning reported by activists seeking climate justice and, for instance, intersectional justice or peace, would also be an interesting avenue for further research.

Second, this study should be understood as uncovering but the tip of the iceberg. Learning through activism across contexts is dispersed, multifaceted, multi-voiced and complex, and therefore challenging to document. Erickson (2021) compared locating learning in activism to finding the character Waldo (or "Wally" in England) in the drawings of different gatherings in the Waldo books. To trace learning across contexts, in this study we relied on young adults' self-reports via interviews, following other articles studying learning across contexts in which this method was informative (see Bronkhorst & Akkerman, 2023; Engeström, et al., 2022), especially when adopting a person-centered lens (Akkerman & Bakker, 2019). However, it is likely that young adults kept part of their activism to themselves, as sharing information about past and/or future civil disobedience can be risky, and activist are trained in keeping parts of their activity secret. A next step could be to include participant observations in different settings and/or interview actors from different life-wide contexts. By including check-ins with the young adults at multiple time points (as also suggested in Bronkhorst & Akkerman, 2023) future research could uncover to what extent and in what ways learning develops over time, along with changes in the individual young adults' lives, their climate activist movements and society at large.

4.2 Implications

The following implications should be read as our position on the role of our research in and for world-making (Power et al., 2023; Rajala, et al., 2023). Our findings call attention to the varied and rich learning taking place through activism. Our findings illustrate how learning in climate activism takes shape by negotiating, dissenting, and recreating – abilities most urgent societal challenges necessitate (Rajala, et al., 2023), but education does not always foreground. As such, while educators and parents may disagree with some of the means of activism, especially civil disobedience, our findings encourage all of us to acknowledge climate activism, in all its forms, as potentially educative. Particularly climate and citizenship education (Merry, 2020; Crouzé et al., 2023) could benefit from capitalizing on these inherent qualities of climate activism.

In this respect, it is worth emphasizing that learning is seen by young adults themselves as a 'side-effect' of activism. We know from previous research that contexts can lose their value for young adults when learning is foregrounded (i.e., when informal contexts become 'educationalized', see Bronkhorst & Akkerman, 2016). As such, our documentation and valuation of this side-effect of activism should not be seen as an invitation to lay out an educational structure over activist movements if that would be possible. Instead, it should be read as an invitation to dialogue with young adults about their engagement in climate activism, as well as other life-wide contexts wherein learning might not be immediately recognizable. Such dialogue likely opens up possibilities for creating meaningful connections, adding to the relevance of education (Bronkhorst & Akkerman, 2016; Verlie & Flynn, 2022). In doing so, language to talk about learning is crucial, as learning and/or teaching in activism may not be immediately recognizable to a traditional lens (Erickson, 2021). Apart from mandatory trainings before disruptive actions, learning in activism is not so much regulated or orchestrated upfront, but instead emerges in and across heterogeneous coactions of activity (Engeström & Sannino, 2021).

Our findings also call for action. We concur that: *[...] there is a need to look beyond these high profile activities to understand youth concerns and responses to environmental concerns. For most young people, striking is an occasional form of high-profile activism, and yet around the world, young people – including those who may not have access to an organised strike – are deeply concerned about environmental hazards and degradation and the inaction of political leaders on these concerns."* (Walker, 2020;11). Our findings suggest that young adults could benefit from our support in navigating discontinuities in their daily lives. Particularly, the paradox in their accounts of desperately wanting to change the world for the better, but not wanting to burden others in their immediate environment, carefully considering what and when they share what matters most to them. Seeing the urgency of the climate crisis, it is vital to take climate activism out of the 'doghouse' and welcome young adults to share everything they do for our planet. This may also prevent young adults from disengaging from life-wide contexts, including education, when they are unable to resolve structural discontinuity. All in all, more explicit space in education and beyond for sharing and shaping what matters to youth seems desirable.

Key points

- A learning across contexts perspective is adopted to advance our understanding of learning through climate activism
- By (re-)establishing continuity across contexts, young adults learn about the climate, activism, politics, intersectionality, democracy, and power structures
- Young adults also learn to organize, socialize, take perspective(s), progressively expressing who and how they want to be(come)
- Incidental discontinuity across contexts can trigger learning
- Structural discontinuity can lead to withdrawal and disengagement

Acknowledgments

We are grateful to all young adults who volunteered to participate in this research for their dedication.

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