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Becoming Shuri: CTE, Racializing Affect, and the Becoming-Technologist

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ABSTRACT

Racializing affect draws on Black feminist theories to extend affect theory and related poststructuralist approaches within literacy studies. The authors examined literacies via a study of affect and youth of color in career and technical education (CTE) and the reconfiguration of CTE to enable radical change in the racializing experiences of/with technologies. An information technology classroom and its spatial arrangements, plus the larger CTE school, offered a lens into how material spatial movement (mobility and dislocation) affects bodily movements (rhythm, relationality, intensity, and energy) in a rhizomatic becoming process of reconstituted racializing affect with technology. Interested in the emergent rhythms and living intensities within affect theory, the authors also drew on the movie *Black Panther* to further theorize affect in relation to the discussion on becoming-technologist through the character of Shuri. This creative rendering provided a different methodological approach to reflect the authors' own intensities as researchers and consumers of popular culture in the analysis. Together, the authors hope to shed light on CTE as an understudied educational context and to reimagine race, gender, and difference in relation to technology and literacy learning.

Prelude | *Black Panther* (Feige & Coogler, 2018)

Shuri: [greet T'Challa] I've developed an update.

T'Challa: Update. But it works?

Shuri: How many times do I have to teach you? Just because something works doesn't mean it cannot be improved.

T'Challa: You are teaching me? What do you know?

Shuri: More than you.

Since the Enlightenment, Black and Brown bodies have long been positioned as the objects of technologies for political violence, surveillance, and racial capture. Understood as unable to possess the capacity to make or use such technologies, these same bodies have also been positioned as technologies in and of themselves. Whether via enslavement, war, or hierarchical differentiating violence, race has long been a technology for power and colonialism (Chun, 2009). What if we were to reimagine the relationship of Black and Brown bodies with technology in career and technical education (CTE), and how might this inform the reconfiguring of CTE to enable radical change in the racializing experiences of/with technologies? In asking these questions, we were particularly interested in racializing affect as a sociopolitical process of hierarchizing and differentiating bodies, a process that is situated in a sociohistorical and

material history of colonialism that becomes flesh shaping bodily movement and intensities. The reconfiguring of CTE would necessitate a shift in the activities and practices of technicity (techne) and the purposes and meaning produced (episteme).

Scholarship in literacy studies has explored the role of technology in literacy development and the ways in which digital literacies, digital storytelling, and media arts, for example, enable Black and Brown youth with modes of expression and representation beyond conventional composition methods (Charmaraman, 2008; Hill & Vasudevan, 2008; Hull & Nelson, 2005; Lewis Ellison & Kirkland, 2014; Price-Dennis, Holmes, & Smith, 2015; Vasudevan & DeJaynes, 2013). Literacies are treated not as a neutral skill but as a set of situated social practices that take into account students' funds of knowledge in negotiating different forms of text and meaning making. Jocson (2008, 2010, 2013) has examined literacies, writing, and media production that reflect similar perspectives on digital media and technology, drawing on sociocultural theory of literacy to emphasize identity, agency, and power (Lewis, Enciso, & Moje, 2007). More recent studies by Jocson (2016, 2018b) focusing on literacies and youth media making have extended such perspectives to also include new materialisms to emphasize matter mattering in technology-rich learning environments.

Additionally, although emotion as shaping bodies has been argued (Ahmed, 2004), recent studies on literacy and emotion as an action have extended such perspectives. Emotion is treated as "involv[ing] social actors... mediated by bodies and signs, occur[ing] in and around bodies...and mov[ing] in ways that are integrally tied to meaning-making and the transformation of signs" (Lewis & Crampton, 2016, pp. 105–106). In this article, however, we depart from sociocultural approaches and examine literacies via a study of affect and youth of color in a CTE classroom that redefined their expressed interests in information technology (IT). This departure aligns with affect theory in literacy learning interested in new questions derived from the constantly unfolding present. As Ehret and Leander (2019) pointed out, the coming together of an assemblage, the emergence of a moment moving into the next moment, and thus, processes of becoming are dimensions of affect theory that can help us think through the potential for radical change or what inhibits change in present moments. We see these dimensions as central in our engagement of racializing affect.

"Becoming Shuri" in the title of this article draws on the fictional world of Wakanda in the Marvel Cinematic Universe, *Black Panther* (Feige & Coogler, 2018). Shuri is T'Challa/Black Panther's younger sister, and in her role, she breaks down historical and cultural representations of a princess as the Wakanda nation's technological genius. Shuri's futuristic designs powered by Wakanda's particular meteorite-derived metal, vibranium, are like no other (we invite readers to view the film to more directly follow

its value in our discussion). For example, the prelude derives from the first interaction between the siblings, with a light and fun tone. The scene suggests technological developments that Shuri has in store for T'Challa, who dons an energy-absorbing suit in a subsequent car chase scene and later balances atop an autopilot car driven by Shuri in another enfolded time-place.

As researchers and consumers of popular culture and as people of color, we, the authors, are implicated in processes of racializing affect. Shuri's character drew us to pay closer attention to how we were moved (and continue to be moved) by emergent rhythms in reading/viewing the film. We were eagerly discussing the film in early 2018, marking a range of energies that millions of viewers were probably gripped with as *Black Panther* shattered box office records worldwide following its theatrical release. Now, those energies, those rhythms as living intensities, seep through nonrepresentational elements embedded in this writing. That said, we borrow from *Black Panther* to further theorize affect in relation to our discussion and also to offer a different methodological approach to reflect our own intensities as researchers and consumers of popular culture in the analysis. To some degree, *Black Panther*, with its historically unseen characters in a feature film, brought about intensities that created an opening for us to engage in collaborative analysis. The narrative arc in the film includes Shuri's technology lab, designs, and textiles, which at times are subtle but central to T'Challa's reign of Wakanda. The ways in which Shuri's technological genius creates flows or vectors of possibilities within and beyond the world of Wakanda parallel several points we make in this article about becoming-technologist for a group of Black and Brown students. Drawing on *Black Panther* is less about glorifying the movie and more about the afrofuturism that is at play with Shuri's character that we were going after. The film offered a provocative push that we wanted to think through, in relationality.

As we took up this popular cultural character in our thinking, we were interested in the relationship of Black and Brown bodies with technology and, specifically, how Black and Brown students in a CTE IT program become technologists. These students join the program in ninth grade and, over time, become knowledgeable experts in computer science, engineering, game design, networking, and forensics by the time they complete 12th grade. Students then choose to attend a two- or four-year college or enter the workplace as technologists. Within this CTE context, there is also an increasing number of girls who participate in the program and often outperform their boy counterparts. In short, as we thought through racializing affect, we also considered the enfoldings of gender in the process of becoming-technologist. To further illuminate such instances in this article, we aimed to highlight the rhythmic bodily movement and intensities of 11th-grade students as they engaged in a specific app-making project that purposefully served children at a

nearby early education center. The classroom and its spatial arrangements, plus the larger school, offered a lens into how material spatial movement (mobility and dislocation) affected bodily movements (rhythm, relationality, intensity, and energy) in a rhizomatic becoming process of reconstituted racializing affect with technology. First, we shift for a moment to CTE and the theoretical underpinnings of affect.

Thinking Through CTE and Racializing Affect

CTE

Policies matter in becoming-technologist. Apart from the human, it is important to consider the policy forces of CTE (formerly called vocational education) as they have, over time, shaped who, what, and how historically marginalized students are seen, treated, and served by educational institutions. The idea that hands-on learning works best for particular groups of students, and not for others, remains a part of the policy discourse. Although this idea has been challenged, the vocational-academic divide continues to shape CTE practices and policies to adjust to, align with, and fill the needs of labor markets (Jocson, 2018a; Rose, 2004, 2012). In particular, the material and discursive concepts of work and readiness dominate CTE.

The Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV Act) was a \$1.4 billion U.S. investment with the purpose of preparing youth and adults to be more “skilled, adaptable, creative, and equipped for success in the global marketplace” (U.S. Department of Education, 2012, p. i; see also U.S. Department of Education, 2016). According to the Perkins IV Act, transforming CTE involves four core principles: alignment between CTE programs and the labor market; collaboration among secondary and postsecondary institutions, employers, and industry partners; accountability for academic outcomes and employability skills for all students; and innovation to support CTE implementation with effective practices. As a federal policy, CTE programs utilized incentives and increased autonomy for states that yield high-quality programming and high performance from local recipients. In July 2018, the president signed into law a bill called the Strengthening Career and Technical Education for the 21st Century Act. This act reauthorized the Perkins IV Act of 2006 and is referred to as Perkins V. It took effect beginning in July 2019, with \$1.2–1.3 billion in spending allocated over the next five years. As a policy discourse, CTE enacts what and who possibly can become technologist. In brief,

Perkins V affords states and local communities the opportunity to implement a vision for CTE that uniquely supports the

range of educational needs of students—exploration through career preparation—and balances those student needs with the current and emerging needs of the economy. (Advance CTE, n.d., para. 2)

The Becoming-Technologist (of Black and Brown Students)

CTE is a policy assemblage that is rhizomatic both in the multiplicities that form its becoming and in the multiplicity of becomings that emerge from its implementation. To be clear, as a regulatory set of guidelines specific to mechanisms of the law, we conceptualize CTE as a policy assemblage that emerges from a multiplicity of related and connected material and discursive forces. These forces include the history of vocational education, socioeconomic shifts and interests in the labor market, technological advancements, and the needs in infrastructure and embodied skill sets, among others. The rhizomatic becoming of CTE is in a particular social and political context that is also enmeshed in its multiplicity of becomings in school districts, schools, classrooms, and students. As Deleuze and Guattari (1987) argued, rhizomes have horizontal roots and a multiplicity of lines that materialize from their becoming. One of the classic examples that Deleuze and Guattari drew from is that of the orchid and the wasp. In this example, the orchid deterritorializes its image by tracing the form of the wasp. Attracted to its image, the wasp reterritorializes itself onto the orchid, and in this contact, an exchange occurs: The wasp is encoded from the orchid’s pollen, and the orchid captures a code of the wasp. This mutual constitution of coding becomes “a becoming-wasp of the orchid and a becoming-orchid of the wasp” (p. 10). This is not a reproduction or a mimicry but rather a rhizomatic becoming, a deterritorializing and reterritorializing, forming new assemblages. In this article, we attend to the rhizomatic becomings of students in a CTE classroom and the ways in which they were becoming-technologist as Black and Brown students, with Black and Brown bodies that have historically been positioned in opposition to technology.

What we argue as occurring in the CTE classroom are material and embodied acts. Echoing theorizations of literacies but going beyond the limits of “A Pedagogy of Multiliteracies: Designing Social Futures” (New London Group, 1996), Leander and Boldt (2013) drew on Deleuze and Guattari (1987) and Massumi (2002) to foreground the ways that literacy practices are embodied and emergent. That is, literacy is not just a matter of individuals decoding words on a page or screen but a contingent unfolding (or enfolding) where the text is not understood as a description of the text but rather an artifact in relation with the body of the reader. The body of the reader is also an assemblage of affective intensities that is in contingent relation to its environment, including the text,

forming and shaping bodily capacities. Capacity, not ability, is a concept that Massumi (2002) borrowed from Spinoza to refer to the bodily “power (or potential) to affect or be affected” (p. 15), where the body is conceptualized to be a relation between movement and rest, a relation of transition. As preconscious bodily responses, affect is not presocial but rather formed and shaped from the iterability of prior social events, acts, and situations. This moves us beyond the traditional conception of literacy from a cognitive perspective and theorization of literacies from a sociocultural perspective toward an embodied and emergent process of relational ontologies. This embodied process does not assume the body to be inherently fixed, passive, and determinate, but rather constantly in varying degrees of movement and rest and in topological relation with other assemblages reconfiguring indeterminate, porous boundaries of the body. Thus, the learning, teaching, and treatment of literacies have to be understood in relation to the affective movement and intensities of bodily capacities. It is partly for these reasons that the learning, teaching, and treatment of literacies within the CTE classroom must be studied as a sociomaterial process in relation to the affective intensities of bodily capacities.

To illustrate this process, Leander and Boldt (2013) described a case of a student reading two Japanese manga series and suggested a shift in analytical focus from the practices of literacy to the movement, process, and intensities of the body. By focusing on the affect of the body, Leander and Boldt demonstrated how the student’s reading of manga entered into the other flows of the environment, including the moment-to-moment bodily movement and intensities of the student, which the authors characterized as the student “becoming-manga” (p. 29). This rhizomatic analysis of becoming-X is especially relevant for the historicity of racializing affect of and with technologies (discussed next) that, as we argue, constitutes what are possible and impossible cultural practices and ways of knowing of technicity. The becoming-X in this rhizomatic process is circumscribed based on the forces (e.g., colonial historicity, policy, curriculum, teacher, pedagogy) that become the structure and practices of a CTE classroom.

Racializing Affect

One of the potential circumscriptions of the becoming-X is a racializing affect of and with technologies. As Weheliye (2014) noted, the sociopolitical relations of racialization are perpetuated via technologies and sciences (among other things) and require “the barring of nonwhite subjects from the category of the human” (p. 3). Similarly, Chakrabarty (2000) posited the racial hierarchies of the Enlightenment became part of the provincializing of European culture via discourses and objects of technologies. Heidegger (1977) also reminded us of

the etymology of technology: “*technē* is the name not only for the activities and skills of the craftsman, but also for the arts of the mind and the fine arts”; along with its associated term, *episteme*, “both words are names for knowing in the widest sense” (p. 13).

Technology is not simply an instrument, tool, or prosthetic to the human but also a cultural practice and a way of knowing. Thus, as technologies are developed and enhanced, we must pay close attention to the associated shifting cultural practices of reasoning, thinking, and ways of knowing. Yet, the historicity of colonialism did not just work via the *technē* and *episteme* of the technologies; it also works via the bodies of human subjects. We must consider Chun’s (2009) question: could race be “a technique that one uses, even as one is used by it” (p. 7)? With this provocative view, we leaned on Wynter’s (2001, 2007) sociogenic principle to rethink how the process of sociopolitical relations becomes ontogenic via the body/flesh, shaping the neurobiological structure of the body and, as such, the racializing affect of the body. The racializing affect of the body is a process that is inseparable from technology and the historicity of colonialism.

Far be it objective or neutral, technology inherits Western histories of Man becoming a sociotechnical assemblage in a process of sociopolitical relations. First coined by Fanon (1967), sociogeny was his conceptualization of the social, political, and psychic processes of colonialism that ontogeny did not account for. Building on Fanon, Wynter (2001, 2007) further developed what she called the sociogenic principle as a way to account for how the sociopolitical becomes flesh. Although Massumi (2002) argued that affect is not presocial, he provided less theoretical development of the social, especially in relation to the historicity of colonialism. Thus, in this article, we turn to Wynter’s sociogenic principle to provide an account of the sociopolitical process that materially shapes bodies, not as in identity but rather as in a process of becoming.

For Wynter (2001, 2007), the sociogenic principle is an ontological account of how the sociopolitical assemblages of Man and symbolic difference become programmed in the body via the ontogenic marking and formations of the flesh. This sociopolitical assemblage of Man, what Wynter also called the Western Man in exploring the hierarchy of humanness, has gone through a process of constitutions based on cosmogonies of human origin. Wynter argued that the current iteration of cosmogony is biohumanist *homo economicus*, as informed by the economic theories of Adam Smith. Here, the correlation between biological and economic survival determines who is and who is not successful as a species. It is this correlation that forms the sociogenic code, reproducing racializing forces. This also corresponds with the sociopolitical constitution of Man, as a fictive (and yet dominant) genealogy of being human.

For Wynter (2001, 2007), it is important to understand the reproduction of racializations in terms of autopoietic and self-regulatory practices that are imprinted within the flesh and, as such, enable the ontogenic self-replication of the originary myth of Man. By drawing from neurobiology, Wynter explained how symbolic difference materializes in the always already bodily ontologies of the body via neurochemical processes that produce a racializing affect, making the materiality of difference seem natural and taken for granted. The autopoietic institution of the sociogenic code permeates not only human ontologies but also more-than-human ontologies, including sociotechnical assemblages (Dixon-Román, 2016, 2017). In other words, we uniquely consider in this article how the sociogenic code reverberates in the CTE policy assemblage as activating or generative energies that materialized in the classroom. More importantly, we take up what ways a particular class was reconfigured to reshape the relationality of the class and technology with Black and Brown students. We paid attention to what enabled a reconstituting of the sociogenic code and its ontogenic materializing in the body.

If the sociogenic principle is an autopoietically instituted coding of the flesh that is based on the sociopolitical constitution of a fictive genre of being human, then the racializing affect with technology can and needs to be recoded. Additionally, building on Césaire (1990), Wynter (2007) argued that what is needed is a science of the word that thinks, reads, and studies the human species rhythmically and relationally. For Wynter, the human species is an assemblage of bios and mythois, nature and culture, science and the word. As McKittrick, O'Shaughnessy, and Witaszek (2018) articulated,

science of the word...illuminates a genre of being human that rethinks the racial underpinnings of who and what we are by overturning a knowledge system—evolution and its economic-colonial ally, accumulation-by-dispossession—that justifies racism and other practices of violence. (p. 867)

The repeated patterns of sounds, beats, flows, tempos, practices, and movements are an intimate part of being human that enacts the assemblage of bios–mythois. Simply put, we borrowed from Wynter's bios–mythois to pay attention to the rhythmic flow, movements, and practices of the CTE classroom and the reconstituting of racializing affect of and with technology. This offered us a lens to see how CTE produced both a potential becoming-technologist of Black and Brown students and a becoming-Brownness and Blackness of technology.

Overview of the Larger Study

For this study, we interviewed six students who started in the CTE IT program as ninth graders and chose to remain in it through all four years of high school. These six

students were selected based on teacher recommendation and parental consent (along with minor assent) to ensure each student's willingness to participate in the study. The teacher helped identify students who were consistently present and self-initiated in class since joining IT in ninth grade. Although all students seemed content about being in the IT class, the six focal students offered particular ways of understanding processes of the becoming-technologist. In addition to the students, the IT teacher and IT department head, Mr. Smith (all names are pseudonyms), was also interviewed by the first author. The interview was conducted on three occasions, 30 minutes each time, in the spring of 2016. Similarly, three interviews were conducted with students, each lasting 15–20 minutes: one at the start of an app-making project, one during the project, and one after the app showcase. It was important to check in with both the teacher and students throughout the app-making project. A graduate student researcher assisted with the student interviews. The second author joined in the analytic stage of the study. All three researchers are people of color.

Overall, the first author had been collaborating with CTE teachers at Poly High School for several years. I (Korina) was initially invited to the school by a school administrator. Upon further invitation into a specific classroom, collaboration began with a CTE multimedia teacher interested in a youth-driven multimedia project; this earlier involvement enabled other connections with other CTE teachers in the school. Mr. Smith was among them, and from there, ideas for new collaborations emerged between the multimedia and IT classes for the following school year. Both classes and the physical spaces of the classrooms were located in the same wing of the school, on the second floor, and the short distance between the classrooms made it conducive for exchange during school. My involvement in both classes was not by mere accident; instead, the negotiated entries into the school and eventually the classrooms lent a particular way of being invited into collaborative projects and creating dynamics to reimagine learning differently and toward equity (Calabrese Barton & Tan, 2018; Nasir & Hand, 2006; Vakil, 2018). In short, I first met Mr. Smith in 2015, who then extended an invitation to the IT class to also think through possibilities for invigorating the IT curriculum. In 2016, a collaborative mapping project was completed and a showcase event held, with 10th-grade IT students presenting their work at a public venue outside of school. That same year, IT students took the Advanced Placement (AP) Computer Science exam. From there, more plans were unfolding for another project the following year with the same IT teacher and students.

It is important to mention the initial stages of the research and relationship building to signal the assemblages that were already shaping the emergence of this article. What we share here is based on an ethnographic

study to examine literacies and maker/making approaches to learning. In 2016–2017, seventeen 11th-grade students were members of the IT class and created apps as part of the IT curriculum. The spring of 2017 was key because it included the Big 5 in the IT curriculum: advanced programming, networking, computer forensics, cybersecurity, and game theory. Students chose one of the Big 5 as a focus, and Mr. Smith integrated supplemental information to extend the computer science curriculum.

Data collection methods for the app-making project entailed participant observations, interviews, photography, and the collection of school data and classroom-related artifacts over the course of five months. The first author spent three to four hours a day, two or three times per week, in the IT class. Data analysis was iterative and required constant rethinking of assemblages in the classroom and human–nonhuman relations unfolding bodily movements. Informal check-ins with students provided a clearer understanding of how they were engaging the Big 5 and the computer science curriculum, while at the same time working, coding, and creating new apps. The IT classroom was physically arranged such that different learning activities could happen with flexibility in time, space, technology, and people. What became apparent over time were the ways in which the physical space of the classroom (and the larger school) enabled rhythms and relations between human and nonhuman agencies that were, part and parcel, also being influenced by discourses of/in CTE. On the one hand, the students and their teacher (and it is worthy to note the other teachers who flowed in and out of the classroom to make requests or drop off broken equipment for repair) were active in the formation of intensities in particular moments. On the other hand, the CTE classroom and larger school, the technologies themselves, the computer science curriculum, assignments, and activities, plus the material and discursive influences of CTE as policy, were significant in shaping the rhizomatic processes and lines of flight of becoming-technologist.

In this article, we focus on two aspects of this process of becoming-technologist: the classroom space and the app-making project. In accordance with affect theory, we were less interested in representational readings and more attentive to nonrepresentational or unpredictable emergence in processes of becoming-technologist (Deleuze & Guattari, 1987). We feature girls of color in the analysis (Ashcraft, Eger, & Scott, 2017; Scott & White, 2013), along with their teacher, to more precisely illustrate the connections between bodies and difference within CTE, all the while taking cues from Shuri in the *Black Panther*. The interlude that follows marks the first ever White body in Shuri's lab (or even in Wakanda, for that matter). The interaction suggests the bodily movement and intensity in that moment, which points to the racializing affect that we also saw playing out in our observational, interview, and visual data.

Interlude | Black Panther

Agent Ross awakens from a spine procedure conducted by Shuri. He appears confused about his whereabouts. He pans Shuri's lab, gets up from the surgical table, walks over to her workstation, and confronts Shuri, who seems focused on testing new designs and gadgets.

Agent Ross: All right, where am I?

Shuri: [startled, turns around] Don't scare me like that, colonizer!

CTE, IT, and Classroom Context

The IT class (or shop, as it is more commonly known to students and teachers) is situated within a CTE high school ranked top in the region. The enrollment size of the school is approximately 1,500 students, with a 10:1 student–teacher ratio. The student population at Poly High School is approximately 66% Hispanic, 20% Black, 12% White, and 2% Asian, multirace, or other. Approximately 85% of the students were reported as coming from low-income families, and approximately 30% were identified as having a language other than English as their first language. According to school data, the graduation rate during the time of the study was approximately 60%. It is important to note that in 2012, Poly High School was remodeled to promote academic excellence under the auspices of CTE and the Perkins IV Act in preparing students for college and work. Poly High School began operating in what is called an A and B week schedule, in which two grades are on the same week for their shops. For example, grades 9 and 11 would be in their odd week of the A week schedule while grades 10 and 12 would be in their even week of the B week schedule. These groups would then have traditional academic classes in the alternate weeks. This schedule ran throughout the entire school year.

The 11th-grade IT class consisted of 17 students: 13 boys and four girls. All are Black and Brown students (namely, African American and Latinx) with the exception of twin girls who identified as White. The Latinx students self-identified as Puerto Rican, Dominican, Ecuadorian, Honduran, Salvadoran, or a mixed category between these groups. In this article, we feature Melanie, who is African American, and Gamina, who is Latina. Also featured is the IT teacher, Mr. Smith, who is African American, has BS and MS degrees in computer science, and is interested in pursuing a doctorate in line with his experiences in education.

Before turning the lens to the students and Mr. Smith, it is important to offer a description of the classroom space. Hybrid, open, and networked, it is hardware-heavy and has overhead fluorescent lights that make everything in the room seem visible from a distance. The following extract from field notes gives a sense of its physical dimension based on the first author's observation upon entering the IT classroom:

Wow! I have never seen anything like this. What a workspace, much bigger than most high school classrooms I have ever taught in or visited. It actually reminds me of a time walking through the Pixar Studios in Emeryville, CA, and the many workspaces that line front offices of buildings in downtown San Francisco. It reminds me of community-oriented open workspaces where people come to exchange ideas. The technology alone is impressive.

Figure 1 reveals a large size classroom divided into two sections. Figure 1a shows a set of tables with personal computers, along with a dry-erase board and a portable 80-inch smartboard. Along the side wall are storage units; one of them all the way on the left contains a broom, mop, and other cleaning materials. The doors to the left of the storage units lead out into the hallway. This space is deemed as the classroom section primarily for modules in the curriculum, or related projects that require consistent time on the computer.

FIGURE 1
The Information Technology Classroom: The Left Side (a) and Right Side (b) of the Divider

Note. The color figure can be viewed in the online version of this article at <http://ila.onlinelibrary.wiley.com>.

Figure 1b shows the other side of the classroom. There is no door. A glass divider separates the classroom. One immediately notices that there are worktables with broken computer equipment from other classrooms that need fixing, computer parts used for programming, a 3-D printer with accessories, a cart with laptops, and a server unit for networking located against the back wall. This part of the space is deemed as the workstation. Not pictured but immediately visible upon walking into the classroom is the teacher's desk, holding a personal computer, two side-by-side monitors, two high-yield color printers, stacks of papers and files, and other related materials. Just beyond are two additional portable 80-inch smartboards. Surrounding the desk are worktables holding more broken-down equipment, laptops and tablets, and newly arrived equipment still in the original box, along with bookshelves, file cabinets, a 37-inch television screen mounted on the wall, a microwave, a small refrigerator, a water dispenser, and several trash bins. Far to the right are wall-to-wall windows overlooking other parts of the school grounds (not pictured).

It was striking to see the organization of the classroom space to enable pedagogical and pragmatic elements of IT. Notwithstanding, Mr. Smith was already preparing for other cohorts in the future, and the two classroom sections mentioned earlier were already lending themselves to groups of students in two different grade levels at once to accommodate growing interests in IT. In this instance, 11th-grade students were in IT at the same time as ninth-grade students, each group occupying their respective classroom space and engaging grade-level curriculum. In an interview, Mr. Smith noted the following:

The setup is more functional, the tables, the workbenches with shelving, which are equal in space. This gives me a great bird's-eye view of what students are doing. I can walk around the different tables and benches to assist in various pieces. This is much easier and can make things more visible for me. I can see with just an eye's glance what students need to be doing or if they want to do something they want to do. You know, and that's a downside. Sometimes is you put a computer in front of a student, and sometimes they're doing your work, sometimes they're doing other people's work, or sometimes they're doing whatever they feel like doing. So, that gives me that kind of open concept, the ways that many organizations are doing it... the cubeless, um, cubelessness, or whatever the hell they've pronounced it [laughs]...where now you've got offices, where then you've got a space, where you got your desk and everything...an IT open concept.

The spatial arrangement is worth noting particularly because students get a sense of the open working space concept that has become standard in the technology industry. It materially shapes bodily movement in how the students are positioned in relation to both the technologies and one another. The spatial arrangement, as Mr. Smith

pointed out, also shapes a norm for an adult technologist (teacher) to enable future technologists (students) to already begin to be encoded and recoded by the technology (Deleuze & Guattari, 1987; Wynter, 2001, 2007).

More than that, pedagogically, Mr. Smith understands that students working independently may also need assistance or guided instruction in the learning process. He added,

I've got some other stuff [equipment], you know, screens on the other side, for when I'm doing instructional pieces. I can actually just pull the screens out or work from the front or back. It doesn't really matter. It's good to have some configurations, to have module areas, areas that I can then take what they're doing in the textbook and what they're doing virtually on the computer. I'm creating modules where they can take those things and do them there so it's more hands-on or goes to the next level of hands-on principles.

Consistent with classroom space is the movement through that space. In analyzing Mr. Smith's approach to spatial arrangement, and through participant observations, it became evident that the IT class is a laboratory to experiment, use, and tinker with technologies. In other words, this IT space is a makerspace, a maker learning environment (Halverson & Sheridan, 2014; Peppler, Halverson, & Kafai, 2016). Along with the material dimensions, the IT classroom is also shaped by what students bring with them in claiming the space as their own as part of becoming-technologist. The IT classroom in this particular CTE school is mutually constituted by both human and nonhuman agencies. For example, students treat the classroom like it is their own work space in the real world, keeping it organized and ready for use (by anyone) the following day. One might understand this implicitness among the teacher, the students, and the material space of the IT classroom as a human–nonhuman social-technological contract in which classroom organization relationally enables vibrancy. Such energy is as vital for the machine's affect as it is for the affected students.

Becoming-Technologist in the IT Classroom

The two-week winter break came and went, and in the second half of the school year, IT students appeared anxious about several things that Mr. Smith and the IT curriculum had lined up for them. Students were anticipating the app-making project, the modules and assignment to be completed for the computer science curriculum, test preparation for the AP exam, and a culminating event to showcase their apps at the end of the school year. These assemblages in the IT class and the virtuality of the curriculum presented a multiplicity of becomings enfolded into the materiality of students' bodily intensities.

It may be that becoming-technologist is shaped by the material and discursive concepts of work and readiness in CTE. However, becoming-technologist is also shaped by a reassembling of the material and the discursive, particularly as it relates to the history of vocational education and the sociogenic constitution of technologies. One of the students, Melanie, pointed to the ways that IT had been a supportive learning environment in shaping emerging plans after high school. The following excerpt is drawn from an interview conducted by Laurie, a graduate student researcher whom students adored. It was purposeful to have Laurie sit down with Melanie.

Melanie: This is my third year. I'm a junior, and since the beginning, I've loved this class. We've learned a lot. It's very fun. It's very interactive. We're like a big family....My professor, he's taught me a lot about not only just IT but skills you need in the world. It's a good shop.

Laurie: If you don't mind me asking, how are your grades or GPA overall?

Melanie: Not to toot my own horn, but I have really good grades. My GPA right now is currently a 4.48. I have two AP classes, so that ties in. It's heavily weighted. Yeah, I have all A's in my classes.

Laurie: That's awesome. Good for you. Do you plan on continuing a career in IT?

Melanie: I do. I want to graduate, and then I want to either pick a major in information technology or some other type of engineering that has to do with IT.

Melanie, in a process of becoming, was signaling her relationality with people, the IT curriculum, AP courses, and an emerging postgraduation college major. She spoke to a social arrangement of the classroom ("We're like a big family") that implied a relationality, rhythm, and intensity of becoming in this IT classroom that may not be present in other classrooms, much less found in science, technology, engineering, or mathematics (STEM). Such are disciplinary fields that Wynter and others have argued were undergirded by and the instrumentality for the sociopolitical constitution of Western Man (Chakrabarty, 2000; da Silva, 2007; Weheliye, 2014; Wynter, 2007). Family is an assemblage that emerges from energies, desires, connections, arrangements, relationality, and bodily intensities (Deleuze & Guattari, 1987).

Although Melanie coded it as "family" in the interview, this assemblage began three years prior when each student elected to be in IT as ninth graders in a CTE school with various other shops from which to choose. The teacher and the students each came into the classroom with their own bodily energies in relation to the

energies of the IT classroom and the CTE policy assemblage. These material forces forged a connection among the teacher, students, and material arrangement in the classroom. It is a connection that, through the teacher's energies in creating workspaces of technology (as noted in an interview appearing in a later section), the becoming assemblage of the classroom shaped particular forms of relationality, rhythm, and bodily intensities that Melanie coded as family. Her coding of family for this assemblage (rather than team, *per se*, which is common in the IT world) is notable. Family is an assemblage that is about a particular affect/affection. Families can enable or limit transitions, actions, reactions, and potentials (Massumi, 2002). More importantly, family assemblages also evoke particular rhythms, relationalities, and bodily intensities that may be familiar and welcoming for some and (un)welcoming and unfamiliar for others (Wynter, 2007). Here, we see an instantiation of how this particular IT classroom employed a way of being human otherwise in relation to STEM, within the CTE policy assemblage, to reconstitute the students racializing affect with technology. This reconstitution was especially expressed in Melanie's desire to "major in information technology or some other type of engineering that has to do with IT."

Within this rhizomatic process of becoming-technologist was the app-making project, for which students partnered up and collaborated with another student. Melanie revealed what the app-making process entailed and the assemblages shaping the process, in the following excerpt, which reveals the beginnings of the app and who was doing what:

My app is with [name of student]. We created an app that teaches children how to learn basic math skills such as addition and subtraction. It's very visual. We broke it up, so it's six levels in total, but I have three and [my partner] has three. My three levels, the first one was an adding one, and it was—what was it? Oh, it was a basketball bouncing, and you have to try to click on the basketball. It's very simple, but it's also fun because it's like—it moves all over the place. It's called Mathventures.

In a follow-up interview, Melanie shared various improvements to the app and the influences in the design moving forward:

Melanie: We actually took away levels. Instead of having six, there's only four now. It's a lot more simple, and it makes more sense because we noticed that there was a theme. For each of the four levels, the theme is promoting living a healthy lifestyle. Two levels are related to healthy eating, and two levels are related to exercise....We're going to keep four levels, but we have to enhance it whatever way

we can....When we're creating it, before we actually designed it or figured the intent, we interviewed the preschool teacher downstairs. For me, I was thinking about the preschoolers and the things they're learning, or anyone at that age...ages 3 to 5.

Laurie: From previous apps that you have created, how is this one different than those?

Melanie: This one is different because we had to—all the apps are appropriate, but this one, we really had to keep in mind the content. It had to be really filtered and simple. The other apps are very complex, and they have different things going on. This one, we wanted to keep it nice and simple.

Laurie: Would you consider it a game? Is there an end goal to it or a prize, like you lose or you win type of thing?

Melanie: We didn't really want to have that. The last level, though, at the very end, when you complete it, it says "Winner" or it says "Goal."

Laurie: There are no losers.

Melanie: No. [chuckles]

Laurie: Would you use the app if you were that age?

Melanie: I would use it. Yeah, it's fun.

This app-making project was in conjunction with the computer science curriculum and AP exam. As pointed out by Melanie in the following excerpt, part of the app-making process is repeated application toward precision in becoming-technologist. Mr. Smith incorporated app making as an example that could be added to students' portfolios.

[What we did this time around] was pretty much the same stuff... We haven't really learned any new concepts. It's kind of just the same things, just improving on them. This year, we actually—we're more qualified, and we have the knowledge. We actually learned the material, so we should do a lot better on the exam. This year, we started a new program [called] Mobile CSP. That was the whole app-building thing. It's less on programming and more so on creating apps. We would have to make sure everything is clean-cut and how we envisioned it. We have to touch up more so on the audio and the graphics, all that detail, so it's exactly how we envisioned it.

Here, Melanie spoke to an iterative and relational process of app making. Through this process was a mutual constitution and collaborative encoding among Melanie, her partner, and the becoming-app, whereby as Melanie and her partner were coding the app, the app was coding

them (Deleuze & Guattari, 1987). This relational process of rhizomatic becoming with the app, a movement and flow of imbrication, the app becoming Melanie and Melanie becoming the app, enabled a transformative process for Melanie as a becoming-technologist.

CTE Apps Showcase and Racializing Affect

The day of the showcase arrived, and it was held downstairs, away from the IT classroom. The school's atrium on the ground floor level across from the main entrance was transformed into an IT exhibit. Figure 2 provides a sense of the atrium's expansive space, with a 60-step amphitheater lit up for the event. Approximately 40 feet above is the vaulted ceiling; on the second level are rails holding posters from art classes and television monitors displaying relevant school activities. On a regular day, the atrium is clear and open for traffic, but on the day of the apps showcase event, one of the 80-inch smartboards from the IT classroom was brought down via the elevator. Eight portable tables were set up as a way to showcase apps created by students and to allow for some interaction with audience members. Each table had an ASUS tablet displaying a particular app for demonstration purposes. In panning the atrium, the first author, who arrived before the official start of the event, noticed the following:

The IT students were busy setting up tables and technological equipment. Mr. Smith was walking around, giving several

students a hand, and eventually was addressing parents, teachers, and community members as they filled in the space. "Hello. Welcome. Thank you for coming!" The atrium felt different. Many were roaming from one table to another, touching the tablets, and interacting with the apps. There were overlapping conversations and laughter, too. Parents and their children and community members were introducing themselves to one another. There was a hum in the atrium that is different from the hum of the IT classroom. I came over to one of the teams and asked about their app. In one instance, a 7-year-old girl was interacting with one of the apps [see Figure 3]. She looked up from the tablet with a big smile and gave me a two-thumbs-up. I smiled back. The exhibit was underway.

In addition to the apps exhibit in the atrium, students also had an opportunity to do an oral presentation inside the conference room. From the tables and apps exhibit, everyone in the atrium moved to the conference room just a few feet away. There were over 50 people in the audience, a racially diverse group composed of teachers, students, parents, friends, school and city administrators, and other community members. Students shared not only the ideas and objectives behind their apps but also specific aspects of their app-making process using MIT App Inventor as a tool. Unfortunately, Melanie could not make it to school that day due to illness.

Figures 4 and 5 show Gamina in presentation mode sharing aspects of her partnership's app, Maze Conquest, which draws from classic video games such as Pac-Man and LeapFrog. The objective is to go through the maze while learning numbers and shapes. Within the maze are three levels, six minigames, and various characters. Gamina and her partner were the only girls who presented an app; three other presenting partnerships were all boys. With the exception of her introduction, Gamina had her back to the audience as she talked through the PowerPoint slides. One can imagine the bodily movement and intensity in this moment, presenting in public and being in front of parents, teachers, and community

FIGURE 2
The Student Apps Exhibit in the School Atrium

Note. The color figure can be viewed in the online version of this article at <http://ila.onlinelibrary.wiley.com>.

FIGURE 3
A 7-Year-Old Girl Interacting With a Student-Created App

Note. The color figure can be viewed in the online version of this article at <http://ila.onlinelibrary.wiley.com>.

FIGURE 4
Gamina Presenting Her Partnership's App,
Maze Conquest

Note. The color figure can be viewed in the online version of this article at <http://ila.onlinelibrary.wiley.com>.

members, but her presentation was exemplary. These kinds of uncomfortable but generative rhythms are, in part, necessary relational processes that, as Wynter (2007) argued, disrupt the false division between bios (objective science) and mythos (narrative storytelling) of the West. Gamina noted the following after the event:

I was so nervous. The showcase gave us an opportunity to share the apps we've been working on. I practiced my part of the presentation, but, yeah, I was really nervous and didn't want to disappoint my partner and [Mr. Smith]. I was proud of what we did.

The oral presentations lasted a little over an hour total. The community discussion that ensued was as exciting as it was engaging. The first author was among the audience members in the conference room and found each presentation to be informative, as she had only seen bits and pieces of the apps in progress in the IT classroom. Here, we focus less on the emotions expressed in Gamina's statement about her experience and more on her perception of the event, how the energies and intensities of the event generated particular predisposed bodily responses, as well as a shift in Gamina's relationship with the normative practice of showcasing and presenting with/through technologies.

In a follow-up interview, Mr. Smith noted the following about the showcase and the importance of extending learning opportunities into new spaces of the school:

The building lends itself to a variety of things that you're capable of doing, and one of those things is the space that we have. It's more than, you know, a traditional kind of classroom environment. So, we've got everything from large conference rooms to major entrance ways that can be transformed in a variety of things, along with our culinary and hospitality

FIGURE 5
Gamina Explaining Her Partnership's
App-Making Process

Note. The color figure can be viewed in the online version of this article at <http://ila.onlinelibrary.wiley.com>.

[shops]....So, in the evening, we can kind of ramp it up and put tables out there and really give an amazing kind of transformation of the space. I say that's important for the students because when the students come into *that* space, you know, it's no different than having to do a presentation at your job or a lecture in front of hundreds of people, or it could just be a class of 10. So, *that* was a great opportunity. But then when they went from kind of demoing...talking about the highlights of the product they have created, and how that product and how those things that they did connect to educational pieces and who they impacted, they were able to then turn the hallway/entrance [atrium] area into an exhibit area.

By indicating the arrangement and rhythm of a new space, Mr. Smith continued to share the ways that becoming-technologist involves both the making and

the articulation of that making to a range of people. Doing so engages in a process of becoming with different intensities and bodily movements that come, for example, with meeting new people or speaking in public. Mr. Smith also expressed an understanding of how his particular students related differently to space, people, and events and his efforts to arrange space differently. As he stated, it was when the students shifted toward talking about their products with others that “the hallway/entrance [atrium] area [transformed] into an exhibit area.” Mr. Smith’s attention to material spatial arrangement, student bodily intensities and relationality, and storytelling of creations was an instantiation of reconfiguring of the sociogenic via the enmeshment of student bios–mythois with/in this event:

It’s important because now it goes from that many to that singular. So now, versus talking to many people about the products, now people get to come by, they get to interact. People are going to ask them questions, you know, maybe why did you do this, or can you do something like this, or how can I get access to it? So, they are going to ask them questions. And I’m a *big* fan of making sure that our students as not the typical kind of IT students, the ones that are highly effective in their *own* environment, but when it comes to speaking with other people, they have no clue. I want the kids to be able to take those complex ideas and be able to articulate them to those that don’t know...interested but don’t know.

In his reference to the “typical kind of IT student” and his interest in not producing this kind of student, Mr. Smith was both disrupting the bios–mythois divide in dominant technology community cultural participation and reconstituting the sociogenic code of technology as associated with Western Man. This was an act toward reconfiguring the racializing affect with technology in relation with the students. Mr. Smith also emphasized going back to the IT classroom space not simply as a material spatial arrangement but as a bodily movement to revisit insights gained from the showcase. This reflected social spaces in learning that go beyond classrooms as containers (Leander, Phillips, & Watson, 2010) and consider them instead as an emergent product of relations (Massey, 2005). Such mobilities offer different learning opportunities, as noted in this excerpt from the follow-up interview with Mr. Smith:

There’s an oral version. There’s a showcase. They have to be able to show how it works and articulate their ideas. Even from those moments, even after the showcase, the kids came back and actually made some modifications to their product because they got some feedback from the sessions, the interactions, and it really helped them. So, in the end...as I told them when they were in the ninth grade, you’ll be in this field of IT always doing presentations. You’re always going to kind of be explaining something to someone.

In laying out various aspects of the showcase, it is now important to return to what undergirds this article. It is

important to draw on Mr. Smith’s own analysis of the field of IT in relation to his IT class, which every year since its first year of implementation had predominantly consisted of Black and Brown students, mostly boys and a small number of girls, in a school that serves predominantly Black and Brown students. To the point, Mr. Smith is central to becoming-technologist. That is to say, Mr. Smith sees himself as a model for his students. As an African American male teacher, he was exposed to a predominantly White IT field and was trained by White male computer scientists. Yet, what if technology was never sociogenically coded with Whiteness? Although this speculative question would necessitate a different conceptualization of the human prior to the transcendental subject that was shaped by colonialist reason (da Silva, 2007; Mbembe, 2017; Wynter, 2007), we recognize this to be an impossibility, yet take seriously that we continue to be heirs to the historicity of colonialist logic. Thus, we were interested in how this IT class was reconfigured to reconstitute the sociogenic code toward an expansive project of the human. We saw some possibilities in this IT class.

The work in the classroom, we argue, was equity oriented in that Mr. Smith juxtaposed what he had experienced in his own process of becoming-technologist to what he was doing differently with his students via rhythm, relationality, movement, and intensities otherwise (recall Shuri’s statement toward Agent Ross in *Black Panther*: “Don’t scare me like that, colonizer!”). Mr. Smith offered the following:

Yes, I’d like to believe they see me as role model. I am in it for the long haul. I would say that I’m trying to model it for them. I would hope that they do it bigger. I would hope that they take what we’re doing and do it even bigger and better than what we’re doing.

Pointing to the importance of an equity-oriented approach in his classroom, Mr. Smith revealed an example at length:

There are conceptual pieces that need to be given a different lens. Now the students get it. They have access to the technology...Again, the work is the work....The expectation is the same, but I will say that for students of color, I think the biggest piece for me is giving them examples of people that look like them that are in those fields. And that is where we are lacking significantly....The field is not the same as my classroom. It doesn’t look like this demographic, and unfortunately, because there are pieces in the technology that don’t affect them. For example, Xbox came out with a gaming device which allowed users the ability to play a video game based on the device they were holding. The camera would pay attention to your movement and move according to your movement if you’re playing tennis. Xbox came out with the device but actually had to recall it because what they found out was the camera didn’t pick up people of color...and that was primarily due to the fact there were no folk of color on the team...So, you got a pool of talent and more specifically with skills that we might need: pattern recognition, for example, all these skills. So, I

think that it just shows from a race standpoint, when you have people in the room from all walks of life and unpack it, we realize maybe we can take the product and make it much better based on the people in the room. These students can be those students in the room, in those workspaces of technology and creativity.

Indeed, as Mr. Smith noted, algorithms of machine vision are trained on libraries that primarily comprise White subjects (Amaro, 2019). Thus, the algorithms become sociogenically coded (Wynter, 2001, 2007) and less able to recognize phenotypes that vary from the characteristics of White subjects. Yet, at the same time, Mr. Smith's argument reduced Black and Brown life to logics of identity and representation. Amaro (2019) argued that "the lived and multivalent specificities of black lives are represented 'as if' the visual matrix maintains no connections to historical category, stereotype, or a moral imaginary" (Towards the Black Technical Object section, para. 6). What Mr. Smith seemed to overlook was that he had pedagogically structured the IT classroom with a different assemblage—of beat, pattern, intensity, relationality, and movement—one that enabled the students to think (mythos and episteme) and become (bios and techne) otherwise. The assemblage reconstituted the flesh and the racializing affect with technology. For us, this was a becoming-technologist that was much more than identity and representation; it was an ontoepistemological shift with profound potentialities that enabled radical change in the racializing experiences of/with technologies. The CTE students in this particular IT classroom had been enabled lines of flight and, since the time of the study, have graduated from high school and gone on to college. Melanie graduated at the top of her class with the honor of being a coaledictorian; now she attends a competitive historically women's college where she is focusing on technology. Gamina also attends a four-year college where she continues to pursue her interests in technology. Like Shuri said in *Black Panther*, "just because something works doesn't mean it cannot be improved."

Implications for Literacy Studies and Research in Education

In line with this special issue on affect theory in literacy research, we focused this article on CTE to push for rethinking literacy studies and its entanglement with racializing affect. Our view began with a shift from socio-cultural theory to affect theory, in which the former had been limited by representational logics and a barring of the real, and the latter had brought about a sharper lens of materialist analysis and reontologizing of the real. The reontologizing of the real includes an opening toward how to conceptualize and analyze more complex relations between human and nonhuman agencies, as we demonstrated in

our discussion. That said, affect studies have expanded how we approach the study of youth's literacies, teaching and learning, assessment, and other educational processes. This work especially challenges us as researchers to reimagine studies of race, gender, and difference within and beyond classroom contexts.

To set apart our work, we drew from the writings of Black radical feminist Wynter (2001, 2007) to conceptualize racializing affect and to consider an afrofuturist turn as to how to examine the potential reconstitution of racializing affect. With Césaire and others, Wynter pushed us to take up an alternative praxis of science, the science of the word, that might overturn the self-regulatory, autopoietic institution of Western Man. This overturn needs to be of the correlative bios-mythos, by studying the rhythm and relationality of Black and Brown lives, especially toward reconstituting the sociogenic principle, even if for a moment.

Methodologically, the ontoepistemological shift of affect theory also necessitates being more attentive to how researchers are entangled in the phenomenon and process of inquiry, the becoming that is unfolding, the "knowing in being" (Barad, 2007, p. 185). This also includes a shift in the focus of inquiry from representational logics to non-representational emergence, asking different questions and distilling empirical material in an a rhizomatic analytic process. With this comes a constant questioning of the limits of determinacy in the research-pedagogy axis that often lead to prescriptions, strategies, and interventions for use in practice. Here, as Leander and Boldt (2013) contemplated rereadings of the pedagogical moment, we too placed focus away from texts and textual relations and, instead, considered rhythms, movements, and assemblages in the IT classroom that were in the constantly unfolding present.

One other important aspect that we considered was the material and discursive formations of/within CTE, and CTE as a regulatory policy assemblage. With this are also larger discourses that continue to shape, for example, racial politics of STEM education that may limit possibilities for radical change (Vakil & Ayers, 2019). The ontoepistemological shift of affect theory requires a different approach for researchers as they find themselves in schools, in classrooms, with students, with teachers, with curriculum, with new media technologies, with emergent discourses, and with changing assemblages. Researchers, ourselves included, bring with them living intensities in reimagining literacy studies and research in education.

What Will Emerge?

In this article, we discussed processes of rhizomatic becoming-technologist and various material and discursive elements of CTE, including CTE as policy assemblage, the IT classroom, the teacher, and the students. We

referenced Shuri from *Black Panther* to further illustrate, in relationality, the multiplicities of our doing, our reading, and our writing. We close with a postlude from a scene in which Shuri is out of the world of Wakanda and introduced to a new setting with a potentially new role in leading an initiative. Becoming-technologist in this new time-place presents new possibilities in the moment, similar to Melanie and Gamina in their new-found college contexts and their life as aspiring technologists. What becomings will emerge? Central to this emergence are unknown potentialities in new relations, assemblages, and unfoldings—unpredictable and unqualified. What's next, and who knows where life will go? The same questions are pertinent to many more students in CTE or related learning environments, the teachers who work with them, and various assemblages shaping what can happen next.

Postlude | *Black Panther*

Shuri: [sees a "KEEP OUT" sign on the adjacent high-rise building] They're tearing it down. [takes a deep breath] Good.

T'Challa: They are not tearing it down. I bought this building [turns to his right] and that building [turns to his left] and that building over there. This will be the first Wakandan International Outreach Center. Nakia will oversee the social outreach, and you will spearhead the science and information exchange.

REFERENCES

- Advance CTE. (n.d.). *Strengthening Career and Technical Education for the 21st Century Act*. Retrieved from <https://careertech.org/perkins>
- Ahmed, S. (2004). *The cultural politics of emotion*. New York, NY: Routledge.
- Amaro, R. (2019). As if. *Becoming Digital*. Retrieved from <https://www.e-flux.com/architecture/becoming-digital/248073/as-if/>
- Ashcraft, C., Eger, E., & Scott, K.A. (2017). Becoming technosocial change agents: Intersectionality and culturally responsive pedagogies as vital resources for increasing girls' participation in computing. *Anthropology & Education Quarterly*, 48(3), 233–251. <https://doi.org/10.1111/aeq.12197>
- Barad, K. (2007). *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*. Durham, NC: Duke University Press.
- Calabrese Barton, A., & Tan, E. (2018). *STEM-rich maker learning: Designing for equity with youth of color*. New York, NY: Teachers College Press.
- Césaire, A. (1990). Poetry and knowledge. In *Lyric and dramatic poetry, 1946–82* (pp. xlii–lvi; C. Eshleman, Trans.). Charlottesville: University Press of Virginia. (Reprinted from *Sulfur*, 1982, 5, 17–32)
- Chakrabarty, D. (2000). *Provincializing Europe: Postcolonial thought and historical difference*. Princeton, NJ: Princeton University Press.
- Charmaraman, L. (2008). Media gangs of social resistance: Urban adolescents take back their images and their streets through media production. *After School Matters*, 7, 23–33.
- Chun, W.H.K. (2009). Introduction: Race and/as technology; or, how to do things to race. *Camera Obscura*, 24(1), 7–35. <https://doi.org/10.1215/02705346-2008-013>
- da Silva, D.F. (2007). *Toward a global idea of race*. Minneapolis: University of Minnesota Press.
- Deleuze, G., & Guattari, F. (1987). *A thousand plateaus: Capitalism and schizophrenia*. Minneapolis: University of Minnesota Press.
- Dixon-Román, E. (2016). Algo-ritmo: More-than-human performative acts and the racializing assemblages of algorithmic architectures. *Cultural Studies & Critical Methodologies*, 16(5), 482–490.
- Dixon-Román, E. (2017). *Inheriting possibility: Social reproduction and quantification in education*. Minneapolis: University of Minnesota Press.
- Ehret, C., & Leander, K.M. (2019). Introduction. In K.M. Leander & C. Ehret (Eds.), *Affect in literacy learning and teaching: Pedagogies, politics and coming to know* (pp. 1–19). New York, NY: Routledge.
- Fanon, F. (1967). *Black skin, white masks* (R. Philcox, Trans.). New York, NY: Grove.
- Halverson, E., & Sheridan, K.M. (2014). The maker movement in education. *Harvard Educational Review*, 84(4), 495–504. <https://doi.org/10.17763/haer.84.4.34jlg68140382063>
- Heidegger, M. (1977). *The question concerning technology and other essays* (W. Lovitt, Trans.). New York, NY: Garland.
- Hill, M.L., & Vasudevan, L. (Eds.). (2008). *Media, learning, and sites of possibility*. New York, NY: Peter Lang.
- Hull, G., & Nelson, M. (2005). Locating the semiotic power of multimodality. *Written Communication*, 22(2), 224–261. <https://doi.org/10.1177/0741088304274170>
- Jocson, K.M. (2008). *Youth poets: Empowering literacies in and out of schools*. New York, NY: Peter Lang.
- Jocson, K.M. (2010). Unpacking symbolic creativities: Writing in school and across contexts. *Review of Education, Pedagogy & Cultural Studies*, 32(2), 206–236. <https://doi.org/10.1080/10714411003799108>
- Jocson, K.M. (2013). Remix revisited: Critical solidarity in youth media arts. *E-Learning and Digital Media*, 10(1), 68–82. <https://doi.org/10.2304/elea.2013.10.1.68>
- Jocson, K.M. (2016). "Put us on the map": Place-based media production and critical inquiry in CTE. *International Journal of Qualitative Studies in Education*, 29(10), 1269–1286. <https://doi.org/10.1080/09518398.2016.1192698>
- Jocson, K.M. (2018a). "I want to do more and change things": Reframing CTE toward possibilities in urban education. *Urban Education*, 53(5), 640–667. <https://doi.org/10.1177/0042085915618714>
- Jocson, K.M. (2018b). *Youth media matters: Participatory cultures and literacies in education*. Minneapolis: University of Minnesota Press.
- Leander, K., & Boldt, G. (2013). Rereading "A pedagogy of multiliteracies": Bodies, texts, and emergence. *Journal of Literacy Research*, 45(1), 22–46. <https://doi.org/10.1177/1086296X12468587>
- Leander, K.M., Phillips, N.C., & Taylor, K.H. (2010). The changing social spaces of learning: Mapping new mobilities. *Review of Research in Education*, 34(1), 329–394. <https://doi.org/10.3102/0091732X09358129>
- Lewis, C., & Crampton, A. (2016). Literacy, emotion, and the teaching/learning body. In G. Enriquez, E. Johnson, S. Kontovourki, & C.A. Mallozzi (Eds.), *Literacies, learning, and the body: Putting theory and research into pedagogical practice* (pp. 105–121). New York, NY: Routledge.
- Lewis, C., Enciso, P., & Moje, E.B. (Eds.). (2007). *Reframing sociocultural research on literacy: Identity, agency, and power*. Mahwah, NJ: Erlbaum.
- Lewis Ellison, T., & Kirkland, D.E. (2014). Motherboards, microphones and metaphors: Re-examining new literacies and Black feminist thought through technologies of self. *E-Learning and Digital Media*, 11(4), 390–405. <https://doi.org/10.2304/elea.2014.11.4.390>
- Massey, D. (2005). *For space*. London, UK: Sage.
- Massumi, B. (2002). *Parables for the virtual: Movement, affect, sensation*. Durham, NC: Duke University Press.
- Mbembe, A. (2017). *Critique of Black reason* (L. Dubois, Trans.). Durham, NC: Duke University Press.

- McKittrick, K., O'Shaughnessy, F.H., & Witaszek, K. (2018). Rhythm, or on Sylvia Wynter's science of the word. *American Quarterly*, 70(4), 867–874. <https://doi.org/10.1353/aq.2018.0069>
- Nasir, N.S., & Hand, V.M. (2006). Exploring sociocultural perspectives on race, culture, and learning. *Review of Educational Research*, 76(4), 449–475. <https://doi.org/10.3102/00346543076004449>
- New London Group. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review*, 66(1), 60–93. <https://doi.org/10.17763/haer.66.1.17370n67v22j160u>
- Peppler, K., Halverson, E.R., & Kafai, Y.B. (Eds.). (2016). *Makeology: Vol. 1: Makerspaces as learning environments*. New York, NY: Routledge.
- Price-Dennis, D., Holmes, K., & Smith, E. (2015). Exploring digital literacy practices in an inclusive classroom. *The Reading Teacher*, 69(2), 195–205. <https://doi.org/10.1002/trtr.1398>
- Rose, M. (2004). *Mind at work: Valuing the intelligence of the American worker*. New York, NY: Penguin.
- Rose, M. (2012). Rethinking remedial education and the academic-vocational divide. *Mind, Culture, and Activity*, 19(1), 1–16. <https://doi.org/10.1080/10749039.2011.632053>
- Scott, K.A., & White, M. (2013). COMPUGIRLS' standpoint: Culturally responsive computing and its effect on girls of color. *Urban Education*, 48(5), 657–681. <https://doi.org/10.1177/0042085913491219>
- U.S. Department of Education. (2012). *Investing in America's future: A blueprint for transforming career and technical education*. Washington, DC: Office of Vocational and Adult Education, U.S. Department of Education.
- U.S. Department of Education. (2016). *Office of Career, Technical, and Adult Education* (Rev. ed.). Retrieved from <https://www2.ed.gov/about/offices/list/ovae/pi/cte/index.html>
- Vakil, S. (2018). Ethics, identity, and political vision: Toward a justice-centered approach to equity in computer science education. *Harvard Educational Review*, 88(1), 26–52. <https://doi.org/10.17763/1943-5045-88.1.26>
- Vakil, S., & Ayers, R. (2019). The racial politics of STEM education in the USA: Interrogations and explorations. *Race, Ethnicity and Education*, 22(4), 449–458. <https://doi.org/10.1080/13613324.2019.1592831>
- Vasudevan, L., & DeJaynes, T. (Eds.). (2013). *Arts, media, and justice: Multimodal explorations with youth*. New York, NY: Peter Lang.
- Weheliye, A.G. (2014). *Habeas viscus: Racializing assemblages, biopolitics, and Black feminist theories of the human*. Durham, NC: Duke University Press.
- Wynter, S. (2001). Towards the sociogenic principle: Fanon, identity, the puzzle of conscious experience, and what it is like to be "Black". In M.F. Durán-Cogan & A. Gómez-Moriana (Eds.), *National identities and sociopolitical changes in Latin America* (pp. 30–66). New York, NY: Routledge.
- Wynter, S. (2007). *Human being as noun? Or being human as praxis? Towards the autopoietic turn/overturn: A manifesto*. Retrieved from https://www.scribd.com/document/329082323/Human-Being-as-Noun-Or-Being-Human-as-Praxis-Towards-the-Autopoietic-Turn-Overturn-A-Manifesto#from_embed

FILM CITED

- Feige, K. (Producer), & Coogler, R. (Director). (2018). *Black Panther* [Motion picture]. USA: Marvel Studios.

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