Critical Education

Volume 9 Number 16 October 15, 2018 ISSN 1920-4175

# *Segregation of Technology*
## *Disrupting Racist Frameworks in Early Childhood Education*

Miriam B. Tager
*Westfield State University*

Citation: Tager, M. B. (2018). Segregation of technology: Disrupting racist frameworks in early childhood education. *Critical Education, 9*(16), 5-16. Retrieved from http://ices.library.ubc.ca/index.php/criticaled/article/view/ 186256

**Abstract**

*Technology Segregation is ongoing practice within early childhood programs in the United States. This research, which is a part of a larger study, reveals that school segregation and technology segregation are one in the same. Utilizing Critical Race Theory, as the theoretical framework, this research finds that young Black children are denied technological access directly affecting their learning trajectories. PTO fundraising and other monetary donations to public schools vary by district and neighborhood and are based on segregation. Therefore, structural racism flourishes within these early childhood programs as Black students are excluded from another important content area and practice.*

*Keywords: Early Childhood, Critical Race Theory, and Technology*

## Introduction

Technology is proclaimed to be the future in Early Childhood classrooms. Children need to learn the latest technology in order to succeed in their later schooling states the premier early childhood organization, National Association of Education for Young Children (NAEYC) (Hartle & Benson, 2012). Yet, access to technology is still a segregated practice. Black young children have less access to modern technology than their White counterparts (Tager, 2017, Anyon, 2005). This is part of a larger structural problem within the public school system and stems from the dominant ideology of racism. Access to technology in the early childhood classroom continues to be limited for low-income Black children in pre-K through first grade. My contention is that these technological inequities are rooted in structurally racist practices. Thus, inequities in school funding are just a symptom of this racist framework that must be confronted and disrupted.

The following article is part of a larger empirical project where I analyzed data to document structural racism in early childhood education. This is an auxiliary project using the same data from the larger study but with a focus on whether the push for increased technology in early childhood education reinforces structural inequality along racial lines.

## The Larger Empirical Study

In 2014, I conducted a qualitative study on School Readiness in early childhood education, utilizing a Grounded Theory approach. I observed five different low-income Black children in kindergarten and 1st grade and interviewed their teachers. I surveyed the district K/1 teachers (New York Tri-State Area) and received twenty-four responses. I also held two different focus groups for teachers in the district to discuss school readiness and issues related to race. My findings revealed that: A) White middle class teachers predominately do not recognize a variety of Black populations, but instead lump them together, B) Teachers are more apt to classify low-income Black children (especially boys) as being non-school ready, C) Low income Black children have less access to materials and resources, and D) There are different expectations between differing Black families and White teachers. The conclusion to these findings, in my book, *Challenging the School Readiness Agenda in Early Childhood Education*, explicitly state that school readiness and the identification process perpetuates a deficit discourse that is racist in practice (Tager, 2017).

## Theoretical Framework

Critical Race Theory is a visible framework in which to study the phenomenon of technology and race. This specific theoretical framework has been applied to this qualitative research study, and goes hand in hand in the uncovering of ongoing racist practices in early childhood education. With true understanding of this specific topic, the hope is that, we, as critical educators, can disrupt normative paradigms that marginalize and exclude non-White populations.

According to Leonardo, Critical Race Theory is an avenue that promotes critical thinking (Leonardo, 2009). It builds on the assumption that American schools (and thus early childhood programs) are systematically reproducing a dominant oppressive paradigm. It is designed to deconstruct taken-for-granted practices within mainstream institutions, and as such present

transformative alternatives that are emancipatory to marginalized populations. In understanding the nature of the oppressive dominant practices, critical race theorists can reconstruct and revision these practices (Ladson-Billings/Tate, 1995).

According to Ladson-Billings, this theoretical framework purports that race is a social construction that is and will continue to be a significant factor of determining one's value in our society (Ladson-Billings/Tate, 1995). The US economy and history is based on the hierarchy of race and therefore all institutions (i.e.; schools) reproduce this deficit paradigm. Both race and socio-economic class, together, create disempowerment. Blacks, historically denied property rights, the right to vote and other exclusionary forms of institutional injustice are always going to be viewed as less than. CRT is designed to disrupt these deficit paradigms by bringing awareness to all related subjects, including technology.

## The School and the District

The school involved in this study is Grayson. It is located in the only low-income Black area in the township, and has a large (over 85%) population of low-income non-White children. Many of these children are from immigrant families where English is not the first language of the household. In order to keep up the appearance of a school that is desegregated the district has to bus in White middle class children from the other side of town. This is the only school in the district that a family can opt into; otherwise families are zoned to attend their neighborhood school. This means that a nearby school in the district has only 6% reduced or free lunch families in their school as opposed to a much higher 43% at Grayson (Tager, 2017). This leads to inherent inequities in school funding, as the main support for funds in a local school is the PTO (Parent teacher organization). Schools with families that earn higher incomes can raise more funds on a regular basis. Therefore, even though the school district gives similar amount of funds to each school, all schools do not have the same amount of funds at the end of the day.

PTO's utilize a large portion of their funds on buying technology programs/equipment for their schools. In this district, the technological gap is huge between schools with less PTO funds (Grayson) and other schools less than two miles away that have a plethora of technological tools. One school nearby has iPads for each child inside the classrooms (k-2), whereas Grayson has one iPad cart for the whole school to share (grades k-5). This same school has auto-document cameras, smart-boards and other larger technological devices within each classroom, and Grayson has smart-boards in only 2 out of the 15 classrooms k-2. There is only one auto-document camera in Grayson and it is in a 3$^{rd}$ grade classroom. The following table reveals the disparities in access to technology throughout this school district. School numbers 1, 2, and 3 are schools with high populations of White middle class children. Number 4 is the other border school with less White middle class children, but is located in an integrated neighborhood.

**Table 1: Grayson vs. the other elementary schools in the district**

| | Grayson | #1 | #2 | #3 | #4 |
|---|---|---|---|---|---|
| Auto-document camera in each classroom | No | Yes | Yes | Yes | Yes |
| iPads for each student | No | Yes | Yes | Yes | Yes |
| Technology in library | No | Yes | Yes | Yes | Yes |
| Smartboards in every classroom | No | Yes | Yes | Yes | Yes |
| Computers in every classroom | No | Yes | Yes | Yes | No |
| Television monitors from 2010 or later | No | Yes | Yes | Yes | Yes |
| Listening centers in rooms | No | Yes | Yes | Yes | Yes |
| Google chrome books 1 per each student | No | Yes | Yes | Yes | No |

Lacking technological access affects how children learn. Across the district teachers are required to utilize a computer based math program (ST Math), in which children spend a certain number of hours inside and outside the classroom playing math games in order to raise their math test scores. The Math supervisor for the district purchased this program and implemented it in all of the schools without reviewing or acknowledging the gap in technology access from school to school. Children at the nearby school were able to utilize the program daily on their iPads whereas the low-income Black children at Grayson only had access to this program once a week when they signed up for the iPad cart. Ironically these same children at the nearby school (with only 6% free and reduced lunch) have access to this program on multiple devices at home as well, so that they can practice their math skills for many hours per week, and thus continue to have higher math test scores. A technological survey was handed out to Grayson families, and it revealed that most families have access to possibly one device at the most and that many complained of spotty Internet service.

## Money, Money, Money

Inequities between school districts and even within school districts are of paramount concern. Anyon states, "money matters" (Anyon, 2005, p. 47) and it is the key to the inequities in technology in the public school system. Where you live specifically accounts for the quality of your neighborhood school. Residing in a poor economic area, with lower property taxes, directly affects the quality of the schools (Ladson-Billings & Tate, 1995). Districts that spend less per student, due to taxes, offer less services and resources. Thus, gaps in technological funding are an ever-present problem. For example, in New York, the schools with the highest minority school districts receive over $2,000 less per student than the districts with high percentages of White children (Anyon, 2005).

Schools with high-powered PTO's, such as in the other four district elementary schools, are able to raise funds at a quicker rate. They host galas, dinners, auctions, bake sales, selling

coupon books and etc. in order to raise funds from the families in their school. Schools, like Grayson, however struggle with fundraisers, as the majority of their families are working several jobs to make ends meet and do not have any funds left over for donations.

## How does this Inequity directly affect Black children?

Jay, an African American boy in a Grayson kindergarten, loves playing ST Math, but only has access to it at school. Once a week his teacher brings her class to the computer lab at Grayson, and he doubles up with a partner and plays math games for 30 minutes. Some of the computers don't always work and the wireless is touch and go. Jay has trouble advancing to the next level because he does not have enough practice.

Today, Jay is on the rug with an iPad. The lights are off
and all the children are spread out around the room
working on ST Math. Jay is tapping lightly on the screen,
he is looking down and seems to know what he is doing.
Every once in awhile he jerks his head and counts aloud.
"Hey Ms. S. I am doing a tally" he calls out to his teacher.
She immediately starts to sing a song and everyone stops
and sings along.

Mark down a tally
Put it in a row
Mark down a tally
Put it in a row
Fifth one goes across

She walks over to Jay. "Jay let me see that," she says to him. He shows
her his iPad. "Oh you did it. Good job" she says. He smiles brightly.
His cheeks are big and fleshy for his small head. Jay is now rocking back and
forth. He puts his tablet down again suddenly. "I am never going to get to 100."
He looks down sadly. A nearby girl moves closer to help.

Jay is having fun playing ST Math until he realizes, once again, he can't get to the next level. He is doing the work, and even his teacher is proud of his accomplishments but he can't pass the computer assessment and get to 100. What Jay doesn't know is that his teacher is digitally keeping track of his progress in ST Math. She reports his scores twice a year to his parents and is constantly checking on his level of achievement. Meanwhile, Jay just thinks it is just a fun math activity and not an assessment. His teacher sends home notes to the parents, who are working double shifts trying to make ends meet. She complains to them about his lack of

progress and sends them data from the computer math game showing how he is not doing well. They do not have time to work with him at home and there is only one laptop for all the children and adults in the house (six people). Mom needs the computer the most because she goes to school at night, trying to finish her associates degree. Jay goes to the library with grandma, when she has time, and plays on the computers there but that is only once a month when grandma is off from work.

Lina, another African American child at Grayson is behind in reading. She is in first grade and her teacher wants her to work on her reading and spelling through computer programs, such as Lexia. Mom and dad do not have any technology in the house and Lina only gets to use the iPad once a week at school. The reading specialist lets Lina use her own personal iPad when she can, but that is not often. Lina is scoring below grade level on the DRA (Developmental Reading Assessment) each time she takes it. Other children who are struggling at the nearby school are making progress because they get to practice reading on their personal iPads during reading workshop everyday. Lina is also in a room with no smart-board or auto-document camera, so the teacher cannot utilize the Internet or reading programs in her reading lessons. Lina is very shy and sits alone a lot. As a former first grade teacher, I know she would benefit from one on one time with a technological device. She is introverted and feels unsure of her academic abilities and needs to practice her reading skills at her own pace.

Billy, who is a Black immigrant from West Africa, is also in first grade and struggling academically. He loves exploring science and nature and devours picture books related to this topic. His teacher wrote a local grant for technological funds, so she has five iPads in the classroom. Twenty-two children are all vying to use an iPad all day long so she has a rotating schedule. Billy gets 15 minutes every three days on an iPad in his room, usually to do ST Math or another required curriculum. When he gets the chance, he sneaks onto science websites because that is what he is most interested in studying. In his weekly computer lab time, he is allowed to look at various science related websites if he finishes his ST Math time (20 minutes). He asks a lot of questions in science, but is always told to look up the answer later, at home. Billy has no technology at home, except his mother's iPhone and she keeps it locked and password protected. His mother works in the retail and caregiving sectors and is not usually home, so a neighbor watches him. Billy would truly benefit from more direct access to technology, as it is his only avenue to learn more about this favorite subject. He is a slow reader, so looking at books for information is not as helpful. In order for him to learn through his area of strength and build on his overall self-esteem as a learner he needs to be able to follow his interests. Technology can be a helpful tool for this approach.

Derek, is from Haiti and speaks Creole and English. In his kindergarten classroom (in a small portable in the back of the school) there is no technology. He only gets to use technological equipment once a week when his teacher signs up for the iPad cart and has to physically carry all the iPads in bags outside and into her portable because the cart can't leave the building. She is required by the district to provide ST Math at least once a week for 30 minutes. She has twenty-three children and no assistant teacher. Derek is considered a behavior problem and is physically very active in class. She finds that he is the calmest when he's playing on the iPad or working on a computer in the computer lab, which is rare. She wishes she had more access to the chrome book carts but they are solely being used by grades 3-5 to get ready for testing, which is now on the computer. Derek's mother works two jobs and is constantly travelling to them on public transportation. A host of neighbors pick him up from school on different days since he and his

mom are the only ones in his family living in the country. There is no access to any technology at his home or his neighbors. In this case, the teacher has noticed a difference in behavior in Derek when he is allowed to use technological devices. She can't use it as a reward because she has very little access to equipment that is housed in the main building. Perhaps if he had more access and could self-regulate through using technological equipment he would not be continually suspended.

Michael, a kindergartner at Grayson excels at math but needs to work on his writing skills. His teacher says that he sometimes just draws circles instead of writing simple sentences. Michael is African American and poor. His brother is failing 2nd grade and this is his first year in a formal school. The teacher, again, is alone in a small portable in the back of the school with no technology. She uses an old fashioned overhead projector in math instead of an auto-document camera. Michael is in the back table and has trouble seeing it clearly. In writing they work at their assigned tables and Michael needs help spelling everything. He stops, stares, and waits, hoping the time will pass quickly. His teacher is concerned even though he is above average in Math and feels that Michael may need to be referred to special education for testing. Michael likes to write on an iPad or type on a computer. He doesn't have to care about his spelling, as it is corrected automatically. He's able to write freely and feels like he is more able to clearly express himself. He has just turned 6 and he has never had any technology in his home. Sometimes he goes to the library where he has access to free Internet services but his mom doesn't take him and his brother that often. He is frequently absent and this upsets his teacher. She feels that when he returns to school he is more behind in his writing skills and it is harder to get him back on track. His mom keeps him out of school sometimes because she is a single mom who works (his father spends 10 months a year as a trucker on the road) and she doesn't have child-care options afterschool. Instead she takes him to an elderly friend of the family in a nearby metropolitan city who can look after him and his brother if she has long workdays. She has no technology in her house either. Michael would benefit from regular use of technology because he can type or speak into assisted devices in order to work on his writing. Utilizing an iPad or a computer more regularly would help him to build upon his strength in Math as well.

## Structural Racism

I will now theorize how the differential use of technology that I observed relates to institutional racism within the school system. Segregated technology is an example of a practice that is embedded within the functioning of the public school. Other examples include: higher referrals of Black children to the special education team, which excludes them from mainstream schooling, higher percentages of suspensions of young Black children, and higher rates of non-White students receiving some type of academic intervention due to low assessment scores in reading and math (Harry & Klingner, 2006; Ferguson, Leonardo, 2013; Randolph, 2013) Both Billy and Derek had four suspensions between them by the end of 1st grade. All five of the children in the study were pulled out of the classroom for academic intervention (reading/math specialists) and identified as non-school ready. Two of the five were referred to the special education team but were not tested (Jay and Billy). The other three teachers talked about possible future referrals. Billy was retained in first grade. he teachers of both Jay and Lina fought to retain them but ultimately passed them to the next grade, on the condition that they were placed in inclusion classrooms. Consistent access to technology would have helped all of the children in this study make more progress in their problem academic areas.

Highly populated non-White schools, like Grayson, suffer the most. They have even higher rates of referral, larger populations of special education and a majority of White teachers (over 85% of the teacher workforce). According to Harry and Klinger, (2006) White teachers in densely populated non-White schools refer 30 to 50 % of their Black students to the special education team. Black children do not just receive fewer resources; they are labeled as deficient learners and tracked at an early age.

A deficit-based discourse surrounds the young low-income Black child's schooling. All five of the children in the study left the regular education classroom the following year. Three moved to an inclusion classroom, with a special education teacher and paraprofessional (Lina, Jay and Michael), one moved to the ELL program at another school (Derek) and the other left the district and was retained in first grade (Billy). This is dominant practice embedded in a system that is racist and classist. Exclusionary tactics help these schools weed out the Black children that do not measure up to the dominant ideology of school based on White middle class discourse. If these children had access to technology regularly perhaps they would not be classified as 'deficient' and non-school ready. The playing field is not level as each school offers differing access to technology and the schools that have lower populations of free and reduced lunch (6%) have a majority of White middle class children (see table 1).

If school, as an institution, is a racialized space that promotes racist practices than young Black children will always be viewed as outside the mainstream. Derek, Jay, Billy, Lina and Michael are not just excluded from access to technology; they are excluded from the school experience itself. This means that giving Grayson and other majority non-White schools more funds for technology is not the answer. This would be akin to putting a Band-Aid on a deep wound. The wound needs to be stitched together to be whole again. Giving a few more iPads, computers and other technological equipment to these already excluded children will not help them to succeed in school. The wound is too deep. Too many years (hundreds) of grounded racist practices within our societal institutions have disenfranchised these non-White children.

## Disruption Brings Awareness

By challenging the normative paradigm of racist exclusionary practices related to technology within the American school system we, as critical educators, can become more aware of how we blindly contribute to these practices. The key to solving this problem is being aware of the segregation practices of technology in early childhood education. This is the real challenge.

An example of this occurs regularly in Grayson's school district. At district wide workshops, it is very clear that other White teachers (from schools with small Black populations) do not respect or understand the differences in populations at Grayson. Each workshop is geared to their populations (White middle class) and does not account for other populations and their possible different needs. In one workshop, related to technology, one of Grayson's teachers asked about her classroom population (18 Black children out of 22 in the class) and how they could possibly implement a new computer based program (ST Math) if their children have no technology at home. The flat response from the district math supervisor was, "they can go to the library." This shows that the district itself does not understand or have the ability to understand the needs of Grayson's population and/or how to cater to these needs. There was no discussion of the inequities of technology resources at other schools, instead the teachers at Grayson were basically told that lack of technology in the student's home was their problem.

This reveals a tremendous lack of awareness on the part of Grayson's larger school district and as such is the main source of the problem. If the school district actually understood the variations of their schools' populations then they would provide more equal access to technology in the school regardless of the PTO's fundraising. They could also work on creative solutions before they purchase a district wide computer based program that is deemed mandatory. Instead this program further exacerbates the segregation of technology.

Grayson is part of a school district that ironically believes it is fully serving all of its population equally. School board meetings and other public gatherings all center on this concept. Therefore, it was a surprise to the school district, when in 2014 the Office of Civil Rights filed a lawsuit. This lawsuit is based on the high percentage of Black children suspended, disciplined within the schools and academic placement.

According to the Office of Civil Rights, a Black child in a public preschool is 3.6 times more likely to be suspended from school than a White preschooler (US Dept. of Education, 2013-14). Proportionately more Blacks are suspended from early childhood programs than all other populations. Blacks are only 19% of the preschool enrollment but they are 47% of all suspensions. In K-12 there were 2.8 million children in the public schools that received one or more out of school suspension and 1.1 million of these children were Black (US Dept. of Education, 2013-14). These figures reveal a crisis of great proportions in our school system. Systemic racism is the issue here and school districts like the one in this study need to be continually investigated for discriminatory practices.

Academic placement refers to the high referrals of Black children to special education environments. At one point teachers were told, at Grayson, by the principal, that they had to cut down on referrals of Black children, because the numbers were too high and were being scrutinized by the district. First of all, the numbers had to be much higher because of the high populations of Blacks in the school. Furthermore, this makes sense when looking at the average statistic that White teachers refer up to 50% of their all Black classrooms (Harry & Klingner, 2006). All k-2 teachers at Grayson are White and are working in a predominantly non-White environment; therefore, the referral rates will always remain high. At Grayson, they were not told until later on that this mandate from the district related to a lawsuit pending against the district. Thus, this pending lawsuit of discriminatory practices was the only reason for this school and the district to look into trying to slow down the referral process. This had a negative side effect, however, as children with real pressing learning disabilities who happen to be Black (i.e.: Jay) could not be referred to the team until after second grade.

This pending lawsuit illustrates a larger problem in our society. A history of racism is embedded into the core of our school system. Even so-called liberal communities such as this one, are not fully aware of this inherent racist structure that is practiced every day. If they are not aware than this practice goes unquestioned. School board members, district officials and family members were all appalled at the development of this lawsuit, mainly because they could not believe that racist discriminatory practices could be found in their own backyard. This is, however, commonplace, as the Office of Civil Rights follows up on thousands of complaints yearly and finds many school districts out of compliance.

## Interruptions and Disturbances

Leonardo points out that "Race is no longer only a variable to be plugged into a research study but rather a dynamic that saturates the entire learning process…Critical Race Theory argues that race and racism are implicated in every aspect of education" (Leonardo, 2013, p. 3). In this case, inequality in access to technology is just one part of a much larger problem. There will never be equality in this area of education if we do not address the daily saturation of dominant practices based on racist discourses.

Therefore, interruptions and disturbances are our forms of protest. In order to take action on these inequalities that continue to dominate our schools, we need to challenge, at every turn, these taken for granted practices. No, it is not acceptable for a school district to mandate a computer math program and not provide equal access to technology in all of their schools. It is also not acceptable practice for young Black children to be in classrooms with little to no technological equipment to help them in their learning. It is not okay for a district to tell teachers at a low-income non-White school that their children can go to the local library to get computer access while middle class White children have personal iPads in their classrooms.

Technology segregation still plays a huge role in the American schooling process. Giving more money for technology programs to predominately non-White schools is only one small solution to this problem. Changing mindsets of district officials, principals and teachers, who are largely White, is much more important. If a district really wants to effectively change its practices, and not be open to Civil Rights lawsuits, it needs to be a part of this disruption process. This means that money needs to be provided for professional development workshops, meetings and committees that work on challenging everyday racist micro-aggressions within the schools and community outreach. All district supervisors must attend workshops that deal with race and racist issues within education. Teachers and principals need to be trained in anti-bias, anti-racist discourse. Communities, even so-called liberal communities, such as the town that houses Grayson, need to form committees to address racist practices, such as: inequities in technological funding, higher suspension rates for Black children, higher placements in special education classrooms and etc. Deep reflection and ongoing educational practices/training need to occur in every district nation-wide. Instead of being surprised by being sued for racist practices, this district should be actively uncovering it and challenging it at every turn.

Billy, Lina, Derek, Jay and Michael are just five children within this district that suffer within technological segregation. It has affected their schooling trajectory and their learning process. It was just another part of the exclusionary process of school and another way for these young children to lose out. It is essential that we are all actively involved in the interruption and disturbance of this taken for granted practice and formally rise up against it.

## References

Anyon, J. (2005). *Radical possibilities: Public policy, urban education and a new social movement.* New York, NY: Routledge.

Ferguson, A. (2001). *Bad boys: Public schools and the making of Black masculinity*. Ann Arbor, MI: University of Michigan Press.

Harry & Klingner (2006). *Why are so many minority students in special education? Understanding race and disability in schools*. New York, NY: Teachers College Press.

Hartle, L & Benson, I. (2012). "On our minds, NAEYC's technology and Young children interest forum's resources for teachers and families." *NAEYC Journal* 67(5), Nov. 2012.

Ladson-Billings, G. & Tate (1995). "Toward a Critical Race Theory in Education" *Teachers College Record 97*(1) 47-68.

Leonardo, Z. (2009). *Race, whiteness and education.* New York, NY: Routledge.

Leonardo, Z. (2013). *Race frameworks: A multidimensional theory of racism and education*. New York, NY: Teachers College Press.

Randolph, A. (2013*). Wrong kind of different: Challenging the meaning of diversity in the classroom*. New York, NY: Teachers College Press.

Tager, M. (2017). *Challenging the school readiness agenda in early childhood education*. New York, NY: Routledge.

U.S Dept. of Education (2013-14 report). Office of Civil Rights. Retrieved from www2.ed.gov

## Author

Dr. Miriam Tager is an assistant professor of early childhood education at Westfield State University in Massachusetts. She teaches courses on early childhood curriculum, early intervention and principles of teaching and learning, with a critical lens on challenging the biases and assumptions of her pre-service teachers. Her first book, *Challenging the Agenda of School Readiness in Early Childhood Education*, was published in 2017 and also delves into the racist structures of early childhood programs. Her next book will be out in 2019 and it expands on this topic of technology segregation.

# Critical Education

criticaleducation.org
ISSN 1920-4175