

ELIZABETH CHOI

To Desegregate or to Integrate: Colorblind Imaginings of Education Amidst the Digital Divide

ABSTRACT. Education has historically served as a legal avenue for the construction of racial meaning, witnessed through the landmark case *Brown v. Board of Education*. Though *Brown* is primarily known for outlawing racial segregation, its impact in foundationalizing racial colorblindness—particularly through subsequent distinctions between desegregation and integration due to the case’s ambiguous verbiage—is often ignored. This article analyzes *Brown*’s racial footprint on the education system by examining the digital divide. An exploration of the case *Cayla J. v. State of California*, in conjunction with the Elementary and Secondary Education Act and the Digital Equity Act, illuminates the reproduction of racialization stemming from post-*Brown* debates between colorblind desegregation and race-conscious integration. Given the rapid development of artificial intelligence (AI), preventative measures emphasizing race-conscious integration must be implemented to narrow the racialized digital divide. This article reviews prospective legislation regarding AI literacy as a case study of the modern digital divide, identifying its shortcomings and offering suggestions for future race-conscious education policy that embraces integration perspectives.

AUTHOR. Elizabeth Choi (she/her) is a pre-law sophomore double-majoring in Ethnic Studies and Political Science with a concentration in Data Analytics and a minor in Classical Studies. Her campus engagements as a researcher and leader at the Cross-Cultural Center and the Associated Students Office of Equity, Diversity, and Inclusion have shaped her curiosity about the legal intersections between race, education, and technology. Elizabeth would like to thank Dr. LaGina Gause, Tara Vatandoust, and Lauren Murphy for their guidance and invaluable feedback throughout the writing process. She is also grateful for the passionate educators in her life who constantly inspire her.

INTRODUCTION

The digital divide—defined as disparities in access to technologies and their usages—has gained widespread prominence since the establishment of the World Wide Web.¹ Major components of the digital divide, including infrastructure, broadband access, and literacy, have demonstrated the danger of disproportionate access to technology and its race-producing effects.² Rapid technological advancements have contextualized the relevance of the digital divide and its racial impacts within numerous fields, including education. As education adapts to technological progress, its racial impacts continue evolving in ways that appear neutral at face value, seemingly lacking racializing effects on minorities due to apparent equality in education law. The digital divide exemplifies the racialized ramifications of digital technologies through educational inequalities.

Laws such as the Elementary and Secondary School Act of 1965 and the Digital Equity Act of 2021 have attempted to narrow the racialized digital divide through funding allocations. However, the effectiveness of these laws in their design and implementation is questionable. For example, disparate racial impacts caused by the digital divide were especially prominent during the COVID-19 pandemic, as remote learning exposed stark inequities between high and low-income students, many of the latter being students of color.³ The heavy reliance on technology in education demonstrated during the pandemic foreshadows the disproportionate impact of artificial intelligence within education.

Artificial intelligence (AI) is defined as a machine's capability to perform various human cognitive tasks.⁴ Generative AI, a type of AI that gained widespread usage following OpenAI's release of ChatGPT in 2022, creates original content in response to a user's prompt, relying on deep learning model algorithms trained on massive amounts of data.⁵ The use of AI—particularly generative AI—has become increasingly

¹ Fatima Ahmed, *The Digital Divide and AI in Education: Addressing Equity and Accessibility*, 1 AI Educ. J. 12, (2024).

² Herman G. van de Werfhorst, Emma Kessenich & Sara Geven, *The Digital Divide in Online Education: Inequality in Digital Readiness of Students and Schools*, 3 Computers & Educ. Open. 1, (2022); Michael Omi & Howard Winant, *Racial Formation in the United States* (3d ed. 2015).

³ *Cayla J. v. State of California*, No. RG20084386 (Cal. Super. Ct. 2021) (challenged the state's failure to provide adequate educational opportunities to students with disabilities).

⁴ Cong Guan, Jian Mou & Zhiying Jiang, *Artificial Intelligence Innovation in Education: A Twenty-Year Data-Driven Historical Analysis*, 4 Int'l J. Innovation Stud. 134, 135 (2020).

⁵ Cole Stryker & Mark Scapicchio, *What is Generative AI?*, IBM, <https://www.ibm.com/think/topics/generative-ai> (last visited Jan. 12, 2026).

normalized following rapid progress in ability and accessibility, bringing into question the extent to which AI will impact systemic institutions. Scholars argue that AI can be used to narrow the educational digital divide through usage of features such as personalized adaptive learning that can serve historically marginalized populations.⁶ However, the use of AI in education simultaneously holds the looming potential to widen the digital divide, particularly concerning access and literacy of advancing technology.⁷

This article explores how education has historically served as a site for racialization, evidenced by its continued pervasiveness in the digital divide. In turn, the digital divide's racial manifestations have often been witnessed through the legal avenue of education.⁸ Manifestations of racialization within education are often demonstrated through colorblind rhetoric—the claim to not “see” color.⁹ Groundbreaking cases such as *Brown v. Board of Education* (1954) unintentionally created colorblind norms through nuanced distinctions between the politicized verbiage of “desegregation” and “integration” resulting from ambiguous case verbiage.¹⁰ Subsequent statutes, including the Elementary and Secondary Education Act and the Digital Equity Act, in addition to the case *Cayla J. v. State of California* (2021), demonstrate deep-rooted legal racializations that imitate post-*Brown* racial narratives. In the context of recent AI developments, an examination of the racialized digital divide within education provides insight into race-conscious action involving AI literacy that can narrow the digital divide. The growing relevance of AI in practically every institution has lent it the name of the “fourth industrial revolution,” a new technological age.¹¹ As such, access to and literacy of AI is a salient issue.

Section One of this article demonstrates how the United States education system has historically been racialized by examining *Brown* and its aftermath. Although *Brown* ordered the desegregation of schools nationwide, ambiguous wording in the case decision resulted in conservative interpretations that aided in foundationalizing

⁶ Regina Holt, *Bridging the Digital Divide: AI and Educational Inequality* 4 (Lib. Cong. 2025).

⁷ Jessica M. Eaglin, *Racializing Algorithms*, 111 Cal. L. Rev. 753, 784 (2023).

⁸ Kern Alexander, M. David Alexander & F. King Alexander, *The Law of Schools, Students and Teachers in a Nutshell* 341 (West Academic 7th ed. 2022).

⁹ Richard Delgado & Jean Stefancic, *Critical Race Theory: An Introduction* 27 (N.Y. Univ. Press 3d ed. 2017).

¹⁰ *Brown v. Board of Education of Topeka*, 347 U.S. 483, 495 (1954) (“Separate educational facilities are inherently unequal”).

¹¹ Channarong Intahchomphoo & Odd Erik Gundersen, *Artificial Intelligence and Race: A Systematic Review*, 20 Legal Info. Mgmt. 74, 74 (2020).

systemic racism. This was accomplished via colorblind rhetoric that distinguished between the nuanced verbiage of desegregation and integration. Section Two draws from these racialized narratives to analyze developments of the digital divide within education. An examination of *Cayla J.* demonstrates the relevance of technological inequity as an educational civil rights issue that perpetuates post-*Brown* colorblind narratives. Section Three scrutinizes legal remedies that have attempted—and failed—to enforce equity within education, both broadly and within the digital realm specifically, ultimately perpetuating racializing post-*Brown* ideologies. Lastly, Section Four explores the developing field of AI in Education, jointly with proposed bills that seek to expand digital equity. Section Four also exemplifies the issue of AI literacy as a case study of the modern digital divide, emphasizing that integrative race-conscious AI literacy within national education statutes is a necessary and undervalued component of equitable education legislation to prevent the widening of the digital divide.

I. THE RACIALIZATION OF EDUCATION AS SEEN POST-BROWN

The concepts of racialization and race production refer to the societal construction and assignment of racial meanings.¹² Rather than retaining an unwavering definition, social conceptualizations of race exhibit plasticity, adapting according to varying historical contexts that systemically maintain White supremacy. For example, racialization has evolved from trans-Atlantic slavery to modern manifestations of mass incarceration.¹³ Racial bias and discrimination are present in all sociopolitical institutions and affect individuals at varying levels. This is highlighted through the concept of intersectionality, which posits that the overlapping aspects of a person's identity (e.g. race, ethnicity, gender, sexuality, and ability) affect the ways they are affected by social inequality.¹⁴

Education law has historically served as a race-producing institution. Many of the most notable court case decisions involving racial discrimination have been educationally related.¹⁵ The realm of education can thus be considered a racial project, defined as an area through and by which racialization occurs and undergoes social

¹² Michael Omi & Howard Winant, *Racial Formation in the United States* (3d ed. 2015); Delgado & Stefancic, *supra* note 9, at 9.

¹³ Michelle Alexander, *The New Jim Crow: Mass Incarceration in the Age of Colorblindness* (2010).

¹⁴ Kimberlé Crenshaw, *Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color*, 43 *Stan. L. Rev.* 1241, 1244-1245 (1991).

¹⁵ Alexander, Alexander & Alexander, *supra* note 8, at 341.

manifestations.¹⁶ Given the plasticity of racialization, the presence of race in education has evolved in light of different historical contexts. For instance, although racialization was enacted via explicit school segregation following *Plessy v. Ferguson* (1896), interpretations of the *Brown* ruling, which ruled racial segregation to be unconstitutional, continue to contribute to racialization, albeit through starkly different means.¹⁷

This section analyzes *Brown* not only as a court case that set precedents outlawing racial segregation, but also as a national turning point in new racial productions, especially within education. Judicial ambivalence in the development of the *Brown* decision helped make this turning point possible. The racialization seen post-*Brown* is prominent in modern dealings of race-making through the educational digital divide. Analyses of current court cases and acts—particularly those that draw from an institutionalized colorblind approach—emphasize *Brown*'s significance as a case that set precedent for these novel understandings of racial production.

A. Judicial Ambivalence in Brown and Its Immediate Consequences

Brown set a crucial legal foundation for navigating racial constructs in education, both in its jurisdiction surrounding racial segregation and its institutionalization of novel race production.¹⁸ *Brown* is largely known for ruling racial segregation as unconstitutional. This ruling occurred through the Supreme Court's interpretation of the Fourteenth Amendment's Equal Protection Clause, which prohibits the State from "deny[ing] to any person within its jurisdiction the equal protection of the laws,"¹⁹ differing from the Court's former interpretation of the clause in *Plessy v. Ferguson*. Whereas in *Plessy*, the Court ruled that notions of "separate but equal" in the context of school segregation did not violate the Equal Protection Clause, the Court's decision in *Brown* found that segregation did indeed violate the clause.²⁰ The Court determined that denying equal protection, including racial segregation, entailed differential treatment of an individual or group without sufficient reason.²¹

¹⁶ Omi & Winant, *supra* note 12.

¹⁷ *Plessy v. Ferguson*, 163 U.S. 537, 552 (1896) (affirmed that racial segregation under a "separate but equal" doctrine is not a violation of the Equal Protection Clause); *Brown*, 347 U.S. at 495.

¹⁸ *Brown*, 347 U.S. at 495.

¹⁹ U.S. Const. amend. XIV, § 1.

²⁰ *Plessy*, 163 U.S. at 552.

²¹ Blokhuis et al., *Educational Law* 275 (6d ed 2020).

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Brown's impacts refigured previous understandings of racial segregation, particularly through its foundationalization of colorblindness: the belief that neglecting racial identity and differences, or not “seeing” color, is an effective approach towards preventing racial discrimination.²² While on the surface, a colorblind approach may appear non-discriminatory, conceptualizations of colorblindness fail to account for implicit biases, which inherently prevent individuals from adopting a truly “colorblind” view that progresses racial equity.²³ Colorblindness also fails to account for systemic injustices that require a color-conscious approach in order to progress towards actual equity. A colorblind framework unfairly claims to be equitable while attributing the racialized status of Black communities to their own deficiencies, given that physical forces of racialization as seen through explicit segregation are no longer prevalent within education.²⁴

The development of a colorblind framework as a mode of racialization was a product of *Brown's* judicial process, along with the case's immediate and long-term impacts. While *Brown* is foremost considered groundbreaking in its unanimous invalidation of public school segregation as a constitutional practice, judicial proceedings encountered ambivalence in the development of *Brown I* (1954) and *Brown II* (1955). *Brown's* favorable unanimous ruling does not reflect the deep conflict that occurred within the judges, with Vinson and Reed supporting segregation in terms of policy and constitutionality, Black, Douglas, Burton, and Minton being wholly against segregation, and Frankfurter, Jackson, and Clark exhibiting ambivalence on the matter.²⁵ Tradeoffs due to this ambivalence accommodated Southern resistance against desegregation and created space for conservative interpretations that distinguished between minimal desegregation and race-conscious integration, perpetuating colorblind narratives.²⁶

Several tensions contributed to *Brown's* ambiguity despite its unanimous decision. These tensions can be attributed to the distinction between previously set legal precedent (namely through *Plessy*) and moral prerogative, the most appropriate avenue

²² Apfelbaum et al., *Racial Colorblindness: Emergence, Practice, and Implications*, 21 *Current Directions in Psychological Science* 205, 205 (2012); Delgado & Stefancic, *supra* note 9, at 27.

²³ Derrick Bell, *Silent Covenants: Brown v. Board of Education and the Unfulfilled Hopes for Racial Reform* 10 (Oxford Univ. Press 2005).

²⁴ *Id.* at 6-7.

²⁵ Michael J. Klarman, *Brown, Racial Change, and the Civil Rights Movement*, 80 *Va. L. Rev.* 7, 290-291 (1994).

²⁶ *Id.* at 290, 314.

for invalidating segregation²⁷, and the institutionalization of (de)segregation implementations on a state or federal level.²⁸ Ambivalence on these matters—especially due to the fear of intense Southern backlash²⁹—led to compromises that resulted in unanimity on the *Brown* decision in exchange for the flexible and gradualist nature of subsequent remedies.³⁰ Such ambivalence not only prophesied a lack of urgency for immediate and effective desegregation in public schools across the nation, but also induced colorblind understandings of *Brown* that sought to accomplish the bare minimum of desegregation, rather than working to fulfill equitable and racially integrative practices.³¹

The immediate effects of *Brown* were indicative of this compromise. Processes of removing segregation from public education institutions differed drastically across the nation. The tradeoff of unanimity in exchange for gradualism was exemplified in *Brown II*'s verbiage of “all deliberate speed”³² in desegregating public schools, whose subjectivity left desegregation implementations entirely up to district and state discretion.³³ Consequently, up until 1964, *Brown* had virtually no impact on ending racial segregation in American public schools.³⁴ Southern states in particular tended to strongly resist desegregation following the decision.³⁵ In the ten years after *Brown*, only 1.2% of nearly 3 million Black students in eleven southern states attended school with White students.³⁶

However, the 1960s witnessed a shift in how *Brown* was understood, largely due to the newly added context of the relevant Civil Rights movement. Despite apparently being previously restricted by anticipated Southern backlash, which contributed to *Brown*'s ambiguous verbiage, the justices began to exhibit “greater creativity” in challenging the former social and political climate that had resisted desegregation processes.³⁷ The passage of new civil rights and education legislation—in addition to

²⁷ For example, whether segregation matters should be determined via the legislative or judicial branch.

²⁸ Klarman, *supra* note 25, at 295, 300, 308.

²⁹ Klarman, *supra* note 25, at 314.

³⁰ *Id.* at 313.

³¹ Delgado & Stefancic, *supra* note 9, at 30.

³² *Brown*, 347 U.S. at 495 (“with all deliberate speed”).

³³ Alexander, Alexander & Alexander, *supra* note 8, at 344.

³⁴ Bell, *supra* note 23.

³⁵ Katy J Harriger, *The Civil Rights Act of 1964 and School Desegregation: A Double-edged Sword*, 6 Wake Forest J.L. & Pol'y 157, 159 (2016).

³⁶ U.S. Commission on Civil Rights, *Fulfilling The Letter and Spirit of the Law: Desegregation of the Nations Public Schools* (1976).

³⁷ Klarman, *supra* note 25, at 290, 340.

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more aggressive Court intervention in matters of desegregation—legally shifted *Brown*'s trajectory.³⁸

Title VI of the Civil Rights Act of 1964 and the Elementary and Secondary Education Act of 1965 (ESEA) were especially effective and arguably racially integrative.³⁹ Title VI prohibits discrimination on the basis of race, color, and national origin in programs or activities receiving federal financial aid, setting a precedent for the ESEA.⁴⁰ The ESEA was the first statute in the United States' legislative history dedicated to educational equity. The act was a result of the ongoing Civil Rights movement, resolving national inequities within the education system by distributing federal financial aid to disadvantaged students, while seeking to more effectively remedy the shortcomings of *Brown*. Specifically, the ESEA enforced funding for programs geared towards disadvantaged students, educators, those centering English literacy and history, a well-rounded education, impact aid, and more.⁴¹

The Civil Rights Act and the ESEA caused instantaneous demographic changes across public schools. From the 1965-1966 to 1966-1967 school years, the percentage of Black students in the South who attended school with White students increased from approximately 6% to 17%, then to 32% two years later.⁴² The effectiveness of these statutes in the context of the Civil Rights movement was also seen in subsequent court rulings, as the Supreme Court began to assert a more aggressive stance on racial integration. Two notable cases, *Green v. County School Board of New Kent County* (1968) and *Alexander v. Holmes County Board of Education* (1969), increased racial diversity in public schools.⁴³ *Green* and *Alexander* settled ambiguities in former interpretations of *Brown* that formerly allowed racial segregation to continue in schools nationwide.⁴⁴

Green involved a debate over a “freedom of choice” plan for desegregating schools in Virginia, which permitted students to choose between the historically Black and

³⁸ Harriger, *supra* note 35, at 159.

³⁹ Civil Rights Act of 1964, 42 U.S.C. §§ 2000d–2000d-7 (2000); Elementary and Secondary Education Act of 1965, 20 U.S.C. §§ 6301–7981 (2006).

⁴⁰ Civil Rights Act of 1964, 42 U.S.C. §§ 2000d–2000d-7 (2000); Blokhuis et al., *supra* note 21, at 275.

⁴¹ Every Student Succeeds Act, 20 U.S.C. §§ 6301–7981 (2015).

⁴² Gerald Rosenberg, *The Hollow Hope* 50 (Univ. of Chicago Press 3rd ed. 2023).

⁴³ Harriger, *supra* note 35, at 183, 189.

⁴⁴ *Green v. County School Board of New Kent County*, 391 U.S. 430, 437–38 (1968) (held that school boards have a duty to dismantle racially segregated school systems); *Alexander v. Holmes County Board of Education*, 396 U.S. 19, 20 (1969) (ordered immediate desegregation of public schools).

White schools in the district.⁴⁵ In the three years of this plan’s operation, no White student attended the historically Black school, and 85% of Black students continued to attend the historically Black school.⁴⁶ Subsequently, *Green* ruled that this “freedom of choice” plan, which outwardly appeared racially neutral in allowing students to choose which school to attend, was insufficient in implementing desegregation called for by *Brown* and Title VI.⁴⁷

Alexander finally settled the ambiguity surrounding the “all deliberate speed” verbiage in *Brown*. The *Brown* verbiage initially allowed Southern school districts to prolong racial segregation or, like *Green*, permit inaction towards desegregation while claiming neutrality.⁴⁸ *Alexander*’s removal of this ambiguity asserted that this standard was no longer constitutionally permissible, ordering that schools be operated on a unitary basis,⁴⁹ effective immediately.⁵⁰

The rulings in *Green* and *Alexander* indicated a nationwide shift towards genuine commitment to racial integration. However, the racially integrative effects—resulting from a combination of new *Brown* interpretations, emerging civil rights and education legislation, and the following court cases—were only viable insofar as racially equitable education remained a relevant national priority in the context of the Civil Rights movement. Subsequently, a newly interpreted distinction between desegregation and integration—though previously applied synonymously—would soon emerge following Nixon’s presidency, thus judicially and legislatively deprioritizing racially equitable education that could be traced to *Brown*’s initial ambiguity.

B. *Post-Brown Racial Imaginings Through Colorblind Desegregation*

Though *Brown*’s intent was centered around racial desegregation as a way to uphold the Equal Protection Clause, the long-term impacts of the decision and its interpretations ultimately instituted new understandings of race through a colorblind framework that persists in modern racializations of the education system.⁵¹ *Brown*’s effects on racial integration within schools dwindled during Nixon’s presidency into

⁴⁵ *Green*, 391 U.S. at 437–38.

⁴⁶ *Green*, 391 U.S. at 437–38.

⁴⁷ *Id.*

⁴⁸ Harriger, *supra* note 35, at 183.

⁴⁹ A “unitary basis” is defined as the status a school system achieves when it no longer discriminates between students on the basis of race.

⁵⁰ *Alexander*, 396 U.S. at 20.

⁵¹ Bell, *supra* note 23, at 135.

the late seventies and early eighties due to the waning prioritization of the Civil Rights movement.⁵² The holdings of *Green* and *Alexander* indicated the justices' belief that striking down segregation practices would result in integrated schools.⁵³ However, as more conservative outlooks were instilled through Nixon's Court appointments and statements surrounding *Brown*, those initial beliefs held increasingly less true, shedding light on the pressing impact of *Brown's* judicial ambivalence. Racial integration became deprioritized in favor of colorblind desegregation. Nixon's presidency and Courts-instilled debates differentiated between the nuanced implications of desegregation versus integration, covertly officiating a preference towards desegregation.⁵⁴ The former promoted colorblind ideologies, while the latter promoted color-conscious approaches.

Nixon's presidential speeches helped perpetuate the emergence of colorblind ideologies. On March 24, 1970, Nixon publicly supported the *Brown* decision. However, his perspectives on segregation—namely, his interpretation of de jure versus de facto segregation and their constitutionalities—revealed the roots for colorblind ideologies that would soon pervade the educational realm. Whereas de jure (“of law”) segregation constitutes racial segregation that occurs as a result of explicitly intentional segregation, de facto (“in fact”) segregation does not directly result from segregation law, but rather through societal happenstance, which often develops from legalized—and thus institutionalized—discrimination.⁵⁵

Though quick to emphasize that de jure segregation was indeed unconstitutional, Nixon asserted that de facto segregation did not violate the Constitution and therefore did not require action to correct any racial imbalance.⁵⁶ As one example, Nixon stressed the importance of not disrupting busing systems within education for the sake of integration. Nixon expressed disapproval for the decision in *Swann v. Charlotte Mecklenburg Board of Education* (1971), which held that altering the busing systems

⁵² Harriger, *supra* note 35, at 197.

⁵³ Harriger, *supra* note 35, at 166.

⁵⁴ *Id.* at 157.

⁵⁵ Paul Auster, *De-Facto Segregation*, 6 *Wm. & Mary L. Rev.* 41, 41 (1965); Hannah Park, *Antiracist Praxis: Segregation and De Facto Segregation*, Subject Guides, <https://subjectguides.library.american.edu/c.php?g=1025915&p=7749743> (last visited Feb. 17, 2026).

⁵⁶ Richard Nixon, *Statement About Desegregation of Elementary and Secondary Schools*, The American Presidency Project, <https://www.presidency.ucsb.edu/documents/statement-about-desegregation-elementary-and-secondary-schools> (last visited Feb. 2, 2026).

appropriately helped progress racial integration.⁵⁷ He implicitly distinguished between the ideologically nuanced integration and desegregation, which formerly held a negligible difference in meaning. His preference for a colorblind desegregation perspective was furthered by his emphasis on an “open” society that did not require Americans to “fit [their] lives into prescribed places on a racial grid—whether segregated or integrated.”⁵⁸

Nixon’s claims—that the open society of the United States should not necessitate active integration efforts and should enable freedom of choice—contradicted the ruling in *Green*, which favored a racially integrative approach. His statements ignored the evidence in *Green*’s ruling that enabling freedom of choice had little impact on fostering racial integration, thus diminishing the importance of taking active measures towards integration. These views—judicially enabled by the ambivalence exhibited in the now decades-old *Brown* decision—foreshadowed colorblind racial understandings that pervade the modern educational landscape. Nixon’s appointment of conservative Supreme Court judges Warren Burger, Harry Blackmun, Lewis Powell Jr., and William Rehnquist judicially enforced the bare minimum of sole desegregation based on de jure segregation.⁵⁹

The Court’s interpretations favoring desegregation during Nixon’s presidency were predominant in *Milliken v. Bradley* (1974) and *Keyes v. School District No. 1* (1973), setting new judicial precedents in colorblind views on education. In *Milliken*, the Court ruled that school district lines could not be redrawn to combat racial segregation unless racial segregation directly resulted from de jure segregation.⁶⁰ Similarly, in *Keyes*, following the plaintiffs’ attempt to desegregate a school district in Denver, the Court ruled that there must be evidence of de jure segregation to incite desegregation efforts.⁶¹

Consequently, as Nixon and the new Court leaned towards strict constitutional interpretations of desegregation, the integrative progress instilled by the Civil Rights

⁵⁷ *Swann v. Charlotte-Mecklenburg Board of Education*, 402 U.S. 1, 15 (1971) (approved busing, redistricting, and racial balancing as mechanisms to alleviate school segregation).

⁵⁸ Nixon, *supra* note 56.

⁵⁹ U.S. Senate, *Supreme Court Nominations (1789-Present)*, <https://www.senate.gov/legislative/nominations/SupremeCourtNominations1789present.htm> (last visited Dec. 26, 2026).

⁶⁰ *Milliken v. Bradley*, 418 U.S. 717, 744–45 (1974) (held that interdistrict desegregation required evidence of interdistrict violations).

⁶¹ *Keyes v. School District No. 1*, 413 U.S. 189, 208 (1973) (held that intentional segregation in one zone of a school district could trigger desegregation obligations district-wide).

Act and the ESEA reached a stalemate. The construction of race through its former physical manifestations—namely, through explicit racial segregation—shifted, exhibiting plasticity as new racial imaginings through colorblind desegregation emerged. Court interpretations of desegregation as a literal and limited digestion of the Equal Protection Clause—omitting the context of systemically ingrained racism since the nation’s founding—enacted a new form of covert racialization that has pervaded education. Colorblind desegregation ideologies stemming from interpretations of the Equal Protection Clause paved the way for implicit denials of the systemic racial impacts of previous segregation. Specifically, claims of equality rather than equity led to racially perpetuating views that were “blind” to color.

Rather than progressing towards long-term racial integration that sought to achieve true racial equity within public education, *Brown* inadvertently helped instill a different—yet readily racializing—form of discrimination due to the case’s purposeful ambiguity intended to appease Southern states. As such, *Brown* brought forth a transformation without real change.⁶²

II. MODERN EDUCATIONAL CIVIL RIGHTS ISSUES: THE DIGITAL DIVIDE

Though racialization within education was characterized by segregation throughout the mid to late 1900s, racialized education has evolved amidst the digital divide. In examining the digital divide, it is clear that colorblind logics instituted post-*Brown* have emerged in modern technological contexts. Digital divide issues were brought to the forefront of the racialization of education during the COVID-19 pandemic, which exposed drastic socioeconomic disparities resulting from technological barriers during a period of exclusively remote learning.⁶³ The case *Cayla J. v. State of California* (2021) examines the continued racialization of education amidst modern understandings of desegregation versus integration. *Cayla J.* also foreshadows future racial disparities within education, favoring a desegregation perspective that may widen the digital divide in light of rapidly developing AI technologies.

⁶² Bell, *supra* note 23, at 6.

⁶³ Stephen Rodriguez-Elliott & Karl Vachuska, *Measuring the Digital Divide: A Neighborhood-Level Analysis of Racial Inequality in Internet Speed during the COVID-19 Pandemic*, 13 *Societies*. 92, 1 (2023).

A. The Digital Divide in Education

In the context of education, the digital divide can be defined as disparities in access to digital technologies and their utility, which include the internet, computing devices, and most recently, AI-powered educational tools.⁶⁴ Although previous definitions of the digital divide encompassed the gap between those who had access to technology and those who did not, the digital divide is now theorized to exist in three main layers: (1) access to computers and the internet, (2) skills and usages of technology, and (3) inequality in the effects of technology access.⁶⁵ This divide has commonly manifested through unequal access to devices such as computers, tablets, and smartphones, as well as reliable high-speed internet connections.⁶⁶ With the advent of personal computers and the World Wide Web in the 1980s, information and communication technology have become increasingly relevant in education, as has the digital divide.⁶⁷ The digital divide has long served as a barrier to equal access to education, disproportionately impacting underserved communities, such as rural areas and low-income neighborhoods.⁶⁸

Realities of the digital divide were certainly problematic prior to 2020, but the COVID-19 pandemic further strengthened the link between the digital divide and racial academic achievement gaps.⁶⁹ The pandemic exacerbated growing dependencies on digital education and online learning, speeding up digital transformation in the education sector.⁷⁰ Inequalities resulting from the educational digital divide were amplified during mandated remote learning during the COVID-19 pandemic, disproportionately impacting racial minority communities.⁷¹ Such inequalities

⁶⁴ Fatima Ahmed, *The Digital Divide and AI in Education: Addressing Equity and Accessibility*, 1 AI Educ. J. 12, 12 (2024).

⁶⁵ Guillermo van der Linde, Cristobal Rodriguez-Montoya & Luis E. Garrido, *Landscape of AI Literacy in Education: Approaches, Impacts, and Challenges for Student Preparedness—A Narrative Review*, 4 Discov. Educ. 561, 563 (2025); Ali Cheshmehzangi et al., *The Growing Digital Divide in Education Among Primary and Secondary Children During the COVID-19 Pandemic: An Overview of Social Exclusion and Education Equality Issues*, 33 J. Hum. Behav. Soc. Env't. 434, 435 (2023).

⁶⁶ Holt, *supra* note 6, at 3.

⁶⁷ Aileen Park et al., *Digital Inclusion and Digital Divide in Education Revealed by the Global Pandemic*, 23 Int'l J. Multicultural Educ. 1, 1 (2021).

⁶⁸ Holt, *supra* note 6, at 3.

⁶⁹ Dania V. Francis & Christian E. Weller, *Economic Inequality, the Digital Divide, and Remote Learning During COVID-19*, 49 Rev. Black Pol. Econ. 41, 46 (2022).

⁷⁰ Cheshmehzangi et al., *supra* note 65, at 440.

⁷¹ Rodriguez-Elliott & Vachuska, *supra* note 63, at 1-2.

spanned from internet speed to access. A post-pandemic study indicated that 24.7% of Black households and 19.1% of Latinx households did not have reliable internet and devices available for remote learning, compared to 13% of White households.⁷² Out of 9.6 million African American households with children in K-12 public and private schools, only 61.6% had access to technology to allow their children to do their online schoolwork, compared to 73% of White households.⁷³

Despite long-standing inequities resulting from the digital divide, its civil rights implications have rarely breached mainstream judicial contexts. *Cayla J.*, a lawsuit brought by low-income students of color against the state of California for failing to provide adequate technological and educational access during the pandemic, depicts *Brown's* lasting relevance in modern applications of desegregation and integration.

B. *Cayla J. v. State of California*

Cayla J. highlighted the issue of inequitable access to technology during the pandemic. The plaintiffs claimed that the state's failure to provide adequate technological access during remote learning disproportionately impacted low-income students of color.⁷⁴ Drawing from the decision in *O'Connell v. Superior Court of California* (2006), which ruled that students could pursue equal protection challenges against California, given that education is a fundamental right under the California Constitution, the plaintiffs argued that the state of California denied their equal educational opportunity.⁷⁵

While the digital divide was exacerbated during the pandemic, the plaintiffs pointed out the gravity of this issue even prior to the cessation of in-person educational instruction. The pandemic only unmasked these long-standing disparities.⁷⁶ Underprivileged students—largely low-income Black and Latinx students, students

⁷² Francis & Weller, *supra* note 69, at 51.

⁷³ *How the Racial Digital Divide Impacts Online Education During the Pandemic*, J. Blacks Higher Educ. (May 25, 2020), <https://jbhe.com/2020/05/how-the-racial-digital-divide-impacts-online-education-during-the-pandemic/>.

⁷⁴ *Cayla J.*, No. RG20084386 (challenged the state's failure to provide adequate educational opportunities to students with disabilities).

⁷⁵ *Id.* (As dictated by the California state constitution, access to education is a “uniquely fundamental personal interest” Education should be an equal system open to students on equal terms to higher income, and all California students possess a constitutional right to “equal access to a public education system that will teach them the skills they need to succeed as productive members of modern society”).

⁷⁶ Rodriguez-Elliott & Vachuska, *supra* note 63, at 2 (2023).

experiencing homelessness, and non-native English speakers—who were unable to meet state standards for their grade levels and dropped out of school at disproportionately high rates before the pandemic were further left behind during COVID-19. Because of the technological dependency resulting from remote learning, disparate access to educational opportunities and digital resources became a mainstream race issue.

The *Cayla J.* plaintiffs raised several issues, including a lack of access to (1) sufficient devices (such as a laptop), (2) a clear connection with educators, leading to issues such as attendance miscommunications, (3) content in comparison to in-person learning, and (4) an understanding of the technology being used.⁷⁷ As one example, the mother of plaintiffs Cayla J. and Kai J., eight-year-old twins attending third grade at a school in the Oakland Unified School District, shared that between March 17, 2020, and the end of the 2019-2020 school year, the twins' teacher held class only twice. The teacher believed that because some students did not have access to appropriate digital tools for remote learning, it was fairer to discontinue remote learning for all students.⁷⁸ Additionally, multiple parents of the plaintiffs reported immense difficulty in understanding technologies being used during remote learning—an issue shouldered particularly heavily by low-income families due to their strict time constraints in balancing work and other responsibilities.⁷⁹

The plaintiffs in *Cayla J.* recognized that on the surface, remote learning appeared equitable and facially neutral, seemingly treating every public school student with the same positives and negatives involved with remote learning.⁸⁰ However, they pointed out that the reality of remote learning varied widely between wealthy and poor families. For example, while the wealthy could troubleshoot when Internet connectivity failed, poor families either could not or experienced significant difficulty in doing so.⁸¹ These facially neutral understandings of remote learning can be paralleled to colorblind desegregation perspectives stemming from post-*Brown* racializations of education. This logic translates to the modern context of prevalent technological integrations, which are often advertised to improve access for marginalized populations. Because these facially neutral technologies have disparate impacts, adopting colorblind approaches towards regulating these technologies can have detrimental racializing effects on

⁷⁷ *Cayla J.*, No. RG20084386.

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ *Id.*

marginalized populations, widening the digital divide.

Cayla J. offers a pressing example of the dangerous and widespread ramifications of the digital divide on minority students in the face of seemingly neutral colorblind practices and technologies. *Cayla J.* did not result in a judicial ruling, but rather culminated in a settlement agreement and state legislative action that committed billions of dollars towards recovery programs from the pandemic.⁸² Thus, *Cayla J.*'s most significant impact was not its judicial result, but rather its illumination of the increasingly relevant issue of the digital divide in a legal civil rights context—a racial equity issue that has evolved from post-*Brown* judicial implications. The case points to gaps in existing legislation that prevent racially integrative perspectives from being effectuated in the digital divide.

III. AN ANALYSIS OF LEGAL REMEDIES IN NARROWING THE DIGITAL DIVIDE — AND THEIR FAILURES

The digital divide issues presented in *Cayla J.*, though lacking sufficient long-term solutions, have historically been met with federal attempts to mitigate educational inequities, including racial disparities.⁸³ As seen post-*Brown*, Title VI of the Civil Rights Act of 1964 and the Elementary and Secondary Education Act of 1965 made efforts to progress towards educational equity with initially racially integrative intentions. However, the integrative elements of these statutes proved only momentary, given Nixon and the Court's abrupt shift to colorblind desegregation in place of racially conscious integration. Colorblind desegregation interpretations of the Constitution, as upheld by the Court during Nixon's presidency, have manifested in the modern digital divide. Examinations of the Elementary and Secondary Education Act, in addition to recent iterations of the Act and modern legislation such as the Digital Equity Act, are testament to these racializations, demonstrating the reproduction of post-*Brown* racial interpretations.

A. *The Elementary and Secondary Education Act and Its Iterations*

The Elementary and Secondary Education Act of 1965 (ESEA), which enforced federal funding for educational programs, is often regarded as the most foundational

⁸² *Cayla J.*, No. RG20084386.

⁸³ Kimberly J. Robinson, *Restructuring the Elementary and Secondary Education Act's Approach to Equity*, 103 Minn. L. Rev. 915, 917 (2018).

piece of education legislation.⁸⁴ Despite being widely flexible at its onset, with minimal guidelines regarding transparency for educational funding plans, the late 1970s and early 1980s saw a halt in increased funding towards the ESEA. Rather than specifically targeting holistic resource equity as it was initially intended, funds associated with the ESEA began to resemble general aid and block grants.⁸⁵ Scholars attribute these changes to a growing disillusionment with desegregation, disappointment in the academic results produced by federal funding, and a resurgence of states' rights.⁸⁶ Coincidentally, these changes temporally aligned with national shifts towards colorblind desegregation implementations of *Brown* during Nixon's presidency.

The largest expansion of the ESEA occurred in 2002, through the No Child Left Behind Act (NCLB) reauthorization. The NCLB was unpopular, as its requirements were far stricter than those of the initial ESEA, including annual benchmarks that schools must meet to receive funding, and accumulating consequences if schools failed to meet these goals.⁸⁷ Rather than strengthening resource equality requirements, the NCLB served as an accountability regime, demanding strict output equality with punitive measures that negatively impacted minorities whom the ESEA was originally designed to help.⁸⁸ Thus, NCLB failed to enact equitable measures that were both effective and racially integrative.

The ESEA's most recent iteration in 2015, the Every Student Succeeds Act (ESSA), offered alternatives to NCLB's strict authorizations. While these alternatives provided short-term fixes to NCLB's issues, the fixes problematized educational disparities long-term.⁸⁹ The ESSA loosened national quality checks on academic standards, de-emphasized standardized testing and accountability, and, notably, reduced federal power over education by giving states more discretion in spending existing funds.⁹⁰ The reduction of federal power over education was particularly troubling due to its potential in reinstating issues thought to be constitutionally resolved in the decade

⁸⁴ David A. Gamson et al., *The Elementary and Secondary Education Act at Fifty: Aspirations, Effects, and Limitations*, 1 Russell Sage Found. J. Soc. Sci. 1, 1 (2015); Elementary and Secondary Education Act of 1965, 20 U.S.C. §§ 6301–7981 (2006).

⁸⁵ Justin Lam, *Advancing Student Achievement Through Elementary and Secondary Education Act Waivers*, 106 Minn. L. Rev. Headnotes 26, 29-30 (2021).

⁸⁶ Derek W. Black, *Abandoning the Federal Role in Education: The Every Student Succeeds Act*, 105 Cal. L. Rev. 1309, 1321 (2017).

⁸⁷ No Child Left Behind Act of 2001, 20 U.S.C. §§ 6301–7941 (2006).

⁸⁸ Black, *supra* note 86, at 1323, 1327.

⁸⁹ *Id.* at 1332.

⁹⁰ Every Student Succeeds Act, 20 U.S.C. §§ 6301–7981 (2015).

following the Civil Rights Act.

States have historically diverged widely on a variety of issues, such as the differences between the North and South in adopting desegregation policies within schools. Many Southern states have long exhibited a resistance to racial equity and integration.⁹¹ Such instances have pervaded the issue of equitable education, demonstrating a lack of a nationwide consensus on such problems. For example, although both the Virginia and California state constitutions include education as a fundamental right, the enactments of these inclusions differ. This is apparent in the differences between the rulings of *Scott v. Commonwealth* (1994) and *Cayla J.* The ruling in *Scott* denied the right to equitable funding for low-income schools in Virginia, as the Virginia Constitution does not require “equal, or substantially equal, funding or programs among and within the Commonwealth’s school divisions.”⁹² In contrast, the concerns raised by *Cayla J.* surrounding equitable education for low-income students of color resulted in a settlement granting billions of dollars towards equitable education in efforts to alleviate these concerns.⁹³

A consideration of *Scott* in conjunction with *Cayla J.* indicates varying state conclusions in the issues of educational funding, exhibiting distinctions between desegregation and integration ideals. These approaches, left unregulated by the federal government, have resulted in a lack of cohesive national understanding of the racialized nature of education. Thus, because the ESSA does not require states nor districts to take action when funding disparities are revealed, educational disparities, especially those pertaining to race, continue to differ from state to state.⁹⁴

Such colorblind approaches echo the issue of “freedom of choice” (that was judicially refuted in *Green*) at the state level, prematurely permitted by the ambiguity presented in *Brown*. Unlike *Green*, which sought to reinvigorate integration efforts by eliminating the “freedom of choice” formerly offered to schools in their desegregation processes, modern colorblind imaginings via education legislation have sought to differ.⁹⁵ Issuing more state power over educational jurisdiction further threatens to

⁹¹ Black, *supra* note 86, at 1342.

⁹² *Scott v. Commonwealth*, 247 Va. 379, 383, 443 S.E.2d 138, 140 (1994) (held that the Commonwealth had a duty to provide adequate educational funding to all students. Although *Scott v. Commonwealth* occurred in 1994, Virginia court cases have not contradicted nor changed this ruling in other cases since, thus holding *Scott*’s ruling still valid).

⁹³ *Cayla J.*, No. RG20084386.

⁹⁴ Celia Calano, *Bridging the Digital Divide in Education through the Every Student Succeeds Act*, 5 Geo. L. Tech Rev 1, 148 (2021).

⁹⁵ Harriger, *supra* note 35, at 168.

reinforce colorblind racialization in the context of the digital divide.

As noted in the analysis of *Cayla J.*, digital equity—despite its pressing relevance concerning prevalent usages of technology and AI in education—is seldom brought forth in judicial matters as a daunting federal education civil rights issue. Judicial debates centering on digital equity have only occurred at the state level, and only in a minority of states. This highlights the disjointed condition of modern educational issues throughout the nation, raising urgent concerns about how educational access and equity may evolve as states employ “freedom of choice” in their allocation of funds. While some states may choose—and have chosen—to allocate funds through a race-conscious integration lens, others allocate them through a colorblind desegregation framework.⁹⁶

Despite the federal government’s now limited power in educational contexts, its role continues to be vital.⁹⁷ Currently, the ESSA remains the main source of federal aid for education.⁹⁸ The ESSA’s modernity has been witnessed through the authorization of a new education technology program to provide funding through Student Support and Academic Enrichment (SSAE) grants that support the effective use of technology within education.⁹⁹ Although the program allocates funding based on poverty levels, the structure of the SSAE grants incentivizes districts to misallocate funds dedicated towards educational technology.¹⁰⁰ Apportionment requirements include an infrastructure cap (which can provide students with appropriate devices), causing states to allocate educational technology funds towards teacher development programs. Without sufficient access to technology at school and home, however, teacher development has little impact, thus perpetuating the digital divide.¹⁰¹

⁹⁶ Grace Tepper, *State Plans Show Us the Cost of Eliminating the Digital Equity Act*, Benton Inst. for Broadband & Soc’y (May 30, 2025), <https://www.benton.org/blog/state-plans-show-us-cost-eliminating-digital-equity-act>.

⁹⁷ Elizabeth H. Debray et al., *Re-centering Civil Rights in the Reauthorization of ESEA: An Equitable, Ecological, Evidence-Based Framework*, 31 Educ. Pol’y Analysis Archives 1, 4 (2023); Robinson, *supra* note 83, at 977 (compared to states, the federal government has a superior track record for enacting reforms that promote equal opportunity. Examples include Title IX of the Education Amendments of 1972, the Rehabilitation Act of 1973, the Education for all Handicapped Children Act of 1975, and Pell Grants under the Higher Education Act of 1965).

⁹⁸ Lam, *supra* note 85, at 27.

⁹⁹ Every Student Succeeds Act, 20 U.S.C. §§ 6301–7981 (2015).

¹⁰⁰ Calano, *supra* note 94, at 24.

¹⁰¹ *Id.* at 31.

B. The Digital Equity Act

The Digital Equity Act of 2021 enacted the largest investment in broadband deployment in the nation's history, passing with overwhelming bipartisan support.¹⁰² Unlike the ESSA, which focuses on education as a whole with a small segment on the digital divide, the Digital Equity Act was the first nationwide initiative dedicated to the advancement of digital equity.¹⁰³ The Act's significance lies not only in its pioneering status as a nationwide attempt towards digital equity, but also in its ramifications that foretell *Brown's* lasting impact on racialized manifestations. The Digital Equity Act allocated \$2.75 billion towards three new grant programs to be administered by the National Telecommunications and Information Administration (NTIA): state digital equity planning grants, state digital equity capacity grants, and digital equity competitive grants.¹⁰⁴

The state digital equity planning grant program allocated \$60 million for states and territories to develop digital equity plans, which must identify barriers to digital equity and formulate measurable objectives for documenting and promoting digital equity initiatives.¹⁰⁵ One such initiative promoted educational initiatives through digital literacy, defined by the Act as "skills associated with using technology to enable users to find, evaluate, organize, create, and communicate information."¹⁰⁶ The state's plan must assess how these objectives impact the state's goals, including education, and describe how they will collaborate with key stakeholders.¹⁰⁷ The state digital equity capacity grant program allocated another \$1.44 billion to support the implementation of state digital equity plans.¹⁰⁸ Lastly, the grant program allocated the remaining \$1.25 billion to eligible applicants on a competitive basis, supporting efforts to achieve digital equity, promote digital inclusion activities, and facilitate the adoption of broadband among covered populations.¹⁰⁹

The Digital Equity Act's potential was remarkable for multiple reasons. Rather

¹⁰² Digital Equity Act of 2021, 47 U.S. Code § 1721–1726 (2021) (as defined by the Digital Equity Act, "adoption of broadband" refers to the "process by which an individual obtains daily access to the internet with the digital skills that are necessary for the individual to participate online").

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

than solely focusing on the installation of broadband cables and WiFi hotspots, the Act was thoughtfully constructed to establish pathways for holistic digital inclusion. This intentionality was made evident through its emphasis on digital literacy, which demonstrated a deeper understanding of digital equity to include the means to use available technology to its fullest capacity.¹¹⁰ Additionally, the Digital Equity Act encouraged partnerships between public and private entities by requiring states to create digital equity plans. This expanded the landscape of digital equity initiatives to collaborations that had immense potential to foster digital equity through funding from private organizations.¹¹¹

Rather than serving as a one-size-fits-all solution, the Digital Equity Act provided flexibility in the development and adoption of digital equity plans. This flexibility had both benefits and drawbacks. While these provisions allowed states to adapt and tailor their plans according to their specific needs, they also made the Act's success contingent on state and local governments' ability to effectively implement their plans.¹¹² As demonstrated through "freedom of choice" issues—whether in post-*Brown* desegregation ideologies or in more recent state cases with varying interpretations of education as a fundamental right—granting state discretion has proven to yield widely varying results.

The Digital Equity Act held significant potential to narrow the digital divide, especially on an educational level, through its digital literacy provision. However, the sustainability of the Act would only reach its effective potential insofar as funding for the Act continued over a long term.¹¹³ Ultimately, the Act was short-lived. On May 9, 2025, the Trump administration canceled the Digital Equity Act grant programs, effectively withdrawing over two billion dollars of funds the original act had entailed and uprooting any potential the Act had in advancing digital equity.¹¹⁴

On a national scale, the cancellation of the Digital Equity Act's programs threatens to widen the digital divide and degrade economic growth. For example, a case study in Washington state indicated that carrying on the mission of digital equity would require

¹¹⁰ Carlos Ramalho, *Bridging the Divide: The Digital Equity Act and Its Impact on Marginalized Communities*, Living Independently for Today and Tomorrow, 17, <https://liftt.org/wp-content/uploads/Carlos-Ramalho-Bridging-the-Divide-The-Digital-Equity-Act-and-Its-Impact-on-Marginalized-Communities-09.2024-1.pdf>.

¹¹¹ *Id.* at 12.

¹¹² *Id.* at 18.

¹¹³ *Id.* at 32.

¹¹⁴ Digital Equity Act of 2021, 47 U.S. Code § 1721–1726 (2021).

the identification of alternative funding sources, straining state and local budgets.¹¹⁵ In response to Trump's cancellation of the Digital Equity Act, over twenty states filed federal lawsuits. The National Digital Inclusion Alliance also filed a lawsuit against the Trump administration, challenging the "unilateral repeal" by the Executive Branch of the Digital Equity Competitive Grant Program, claiming its unconstitutionality.¹¹⁶ These lawsuits are currently ongoing.

Despite the Digital Equality Act's potential to alleviate the digital divide in ways that have not been emphasized in the ESSA, the Act was ultimately unsuccessful due to modern reimaginings of colorblind desegregation ideals that prevented the Act's effectuation. These reimaginings echo the conservative interpretations seen in the Supreme Court during Nixon's presidency, lawfully tolerated because of the leeway that *Brown's* ambiguity permitted. The increase in state discretion that implemented the return of "freedom of choice" through the ESSA, as well as the cancellation of the Digital Equity Act, underscores a continuation of the colorblind desegregation versus race-conscious integration debate, of which the federal government has indicated a clear preference towards the former.

IV. IMAGININGS OF INTEGRATION AMIDST A FOURTH INDUSTRIAL REVOLUTION

Current educational contexts center on technology and AI usage amidst an evolving racial divide. Thus, equitable education law that effectively embraces race-conscious integrative approaches, steering from colorblind desegregation approaches institutionalized post-*Brown*, is increasingly important. Although federal legislation, such as the ESEA and Digital Equity Act, has attempted to remedy digital divide ramifications, these efforts have been unsuccessful. This section elucidates on a relevant component of digital equity through the case study of AI in education. Some scholars attribute AI and its applications in various systems as the "new digital divide."¹¹⁷ Race-conscious imaginings through AI literacy in conversation with proposed bills have the potential to narrow the educational digital divide amidst a fourth industrial revolution, embracing integration logics seldom employed

¹¹⁵ Keely Quinlan, *Trump Proposal to End Digital Equity Act Is 'Serious Setback,' Says State Broadband Chief*, StateScoop, May 14, 2025, <https://statescoop.com/trump-digital-equity-act-cancellation-2025/>.

¹¹⁶ National Digital Inclusion Alliance v. Trump, No. 1:25-cv-03606 (D.D.C. filed Oct. 7, 2025) (challenged the administration's termination of federal digital equity funding programs).

¹¹⁷ Peter Yu, *The Algorithmic Divide and Equality in the Age of Artificial Intelligence*, 72 *Fla. L. Rev.* 331, 337 (2021).

post-Brown.

A. AI in Education: A Continuation of the Digital Divide

In recent years, AI advancements have pervaded the educational realm, whether through adaptive learning platforms, personalized tutoring systems, writing tools, or profiling and prediction, and even face the possibility of becoming a cornerstone in the educational system.¹¹⁸ As such, academic fields such as AI in Education (AIEd)—a rapidly growing body of literature that surrounds various topics relating to usages and applications of AI in primary, secondary, and higher education—have become extremely relevant.¹¹⁹ AIEd has rapidly evolved since its first application in 1970, given recent developments in generative AI.¹²⁰ Current studies indicate that 43% of college students in the US actively use AI tools, including ChatGPT, and half of all instructors employ AI in lesson planning.¹²¹

At first glance, the use of AIEd appears to have positive effects on K-12 student learning. One study indicated that adaptive learning with AIEd improved student test results by 62%.¹²² Despite these seeming improvements, the beneficial qualities of AIEd remain questionable amidst adaptations to the rapid pace of technological change, complicating robust research and driving the possibility of quickly outdated AI studies.¹²³ Additionally, studies within AIEd focus predominantly on application design and the impacts of AI on learning. Approximately only 2% of AIEd studies focus on the challenges and ethical concerns of AIEd, including racial biases and social contexts.¹²⁴ The majority of AIEd studies investigate higher education, with only 4% of

¹¹⁸ Shan Wang et al., *Artificial Intelligence in Education: A Systematic Literature Review*, 252 *Expert Sys. with Applications* 1, 1 (2024).

¹¹⁹ Hoang Pham et al., *How will AI Impact Racial Disparities in Education?*, Stanford Law School (June 29, 2024), <https://law.stanford.edu/2024/06/29/how-will-ai-impact-racial-disparities-in-education/>.

¹²⁰ *Id.*; Cong Guan et al., *Artificial Intelligence Innovation in Education: A Twenty-Year Data-Driven Historical Analysis*, 4 *Int'l J. Innovation Stud.* 134, 135 (2020).

¹²¹ Wang et al., *supra* note 118, at 1.

¹²² *Id.* 2.

¹²³ Leslie Loble & Kelly Stephens, *Taming the AI Tools – Education First, Technology Second: Artificial Intelligence and Education Special Issue of Theory into Practice*, 64 *Theory Into Prac.* 369, 369 (2025).

¹²⁴ Guan et al., *supra* note 120, at 140; Daniel Schiff, *Education for AI, not AI for Education: The Role of Education and Ethics in National AI Policy Strategies*, 32 *Int'l. J. Artif. Intell. Educ.* 527, 545 (2022); Kun Wang et al., *Examining First- and Second-Level Digital Divide at the Intersection of Race/Ethnicity, Gender, and Socioeconomic Status: An Analysis of the National Health and Aging Trends Study*, 64 *Gerontologist*. 1, 141 (2024).

these studies focusing on the K-12 education system.¹²⁵ These patterns indicate an overfixation on the purely technical elements of AIEd, neglecting the social and ethical consequences that exacerbate the digital divide.

While not specifically addressing AI, *Cayla J.* can exemplify and foreshadow technological and educational disparities within AI developments, setting a precedent for modern dealings of racialization involving the intersection between education and technology. As addressed by the plaintiffs in *Cayla J.*, nationwide transitions to remote learning appeared to equalize educational opportunities for racial groups, all while contributing to the problem. The lived experiences depicted in *Cayla J.* refuted the pandemic's "we are on the same ship" mentality, instead demonstrating the pandemic's educational detriment to underserved communities.¹²⁶ Rather than equalizing opportunities, forced dependencies on technology within education during the pandemic revealed notable socioeconomic deficiencies concerning technological access, increasing the importance of racially integrative perspectives.¹²⁷

Similarly, while AIEd appears to have vast potential to equalize educational opportunities, neglecting its potential to continue the substantiation of race production within education can reproduce parallel consequences to those presented in *Cayla J.*, and even to the broader issues presented post-*Brown*. The pandemic's abrupt shift to remote learning and subsequent technological dependency unmasked and heightened already existing racial disparities. The resulting circumstances, such as those seen in the realities of the plaintiffs in *Cayla J.*, foretell how technological pervasiveness and dependence—as well as its race-producing consequences—may play out in the future of an already racialized site of education. The rapidly evolving field of AIEd is indicative of the fact that this future has already begun to unravel.

B. AI Literacy

The Digital Equity Act was particularly innovative given its emphasis on digital literacy as a means of narrowing the digital divide. Similarly, incorporating AI literacy as a pillar within digital and educational statutes can be an effective approach to expanding digital understanding among underserved communities, adopting race-conscious integration methods. AI literacy generally refers to a holistic

¹²⁵ Yusra Ahmed et al., *The Role of Artificial Intelligence in Modernizing Multi-tiered Systems of Support*, 64 *Theory Into Prac.* 448, 449 (2025).

¹²⁶ *Cayla J.*, No. RG20084386.

¹²⁷ Cheshmehzangi et al., *supra* note 65, at 437 (2023).

understanding of AI, including technical proficiency and a social and ethical awareness of its impacts. Though various definitions of AI literacy exist, common themes include a basic technical proficiency of AI, career readiness in the age of AI, an understanding of AI's social and ethical implications, and cultural and subjective adaptability of AI usage.¹²⁸ Amidst the fourth industrial revolution, adjusting to a new technological environment necessitates the acquisition of high levels of algorithmic literacy.¹²⁹ As jobs become increasingly integrated with AI, the importance of AI literacy is heightened and may soon be viewed as important as literacy in reading and writing.¹³⁰ Thus, AI literacy will become a pressing educational equity concern, whose racialized roots can be traced to judicial perspectives and the aftermath of *Brown*.

Despite the widespread use of AI, there is a limited understanding of AI's mechanisms and impacts, as well as a lack of emphasis placed on AI literacy as a part of education.¹³¹ For example, there is no established curriculum nor comprehensive pedagogical AI literacy framework within the US education system, particularly for K-12 education, which are transformative years for adolescents.¹³² Despite this, a study indicated that 98% of educators identified a need for at least some education on ethical AI usage, with over 60% recommending comprehensive education.¹³³ The lack of initiative taken to address these educationally backed concerns and assume preventative measures threatens to reproduce the ambiguity of *Brown* and its resulting colorblind interpretations.

On local, state, and national levels, court cases have not dealt with AI literacy. Thus, *Cayla J.* becomes relevant once again, given its standing as one of the few cases contesting the racialization of the digital divide. *Cayla J.* foreshadows the disparate impacts that inconsistencies, ambiguity, and lack of AI literacy within school districts threaten to have on racialized communities. While AI literacy was not a driving issue in

¹²⁸ Gabriele Biagini, *Towards an AI-Literate Future: A Systematic Literature Review Exploring Education, Ethics, and Applications*, 35 Int'l. J. Artif. Intell. Educ. 2616, 2632-2633 (2025); Guillermo van der Linde et al., *supra* note 65, at 1.

¹²⁹ Peter Yu, *supra* note 117, at 383.

¹³⁰ Lorena Casal-Otero et al., *AI Literacy in K-12: A Systematic Literature Review*, 10 Int'l J. STEM Educ. 1, 2 (2023).

¹³¹ Biagini, *supra* note 128, at 2618.

¹³² Thomas K.F. Chiu, *TechTrends: Linking Research & Practice to Improve Learning*, 65 Assoc. Edu. Comm'n. & Tech, 796, 797 (2021); Biagini, *supra* note 128, at 2638; Casal-Otero et al., *supra* note 130, at 11.

¹³³ Ilana Hamilton, *Artificial Intelligence In Education: Teachers' Opinions On AI In The Classroom*, Forbes (June 6, 2024, 4:04 AM), <https://www.forbes.com/advisor/education/it-and-tech/artificial-intelligence-in-school/>.

Cayla J., technology literacy was indeed a posed concern that contributed to the inequity spotlighted by the plights of remote learning. Multiple parents of the plaintiffs involved in *Cayla J.* shared their difficulties in understanding the technologies being used, resulting in a prolonged time being taken to assist their children by learning about these technologies. The plaintiffs' low-income status additionally affected the livelihood of their families. Oftentimes, these parents were forced to spend more time learning about educational technologies to assist their children instead of using that time to obtain a living.¹³⁴ Problems like these highlight the discrepancy between low-income and racialized versus high-income families in the education system. These inequities flourish in the face of desegregation perspectives.

The lack of technology literacy witnessed in *Cayla J.* foreshadows concerns with AI that can easily become widespread. Since *Cayla J.*, hybrid education¹³⁵ has evolved to become no longer solely a pandemic response, but now a permanent educational model.¹³⁶ Within the current education system, many interact with AI without fully understanding it.¹³⁷ Though scholars argue that AI developments will promote national and global accessibility to all learners, the issues resulting from AI and a lack of AI literacy curricula are less addressed, reflecting a pattern of inaction and ambiguity prophesied from *Brown's* ruling and subsequent colorblind desegregation interpretations.¹³⁸

Potential advantages of widespread accessibility are contingent on equitable technology access and AI literacy itself.¹³⁹ The unrelenting evolution of AI technologies without proper AI literacy curricula threatens to continue reproducing racialized ramifications that put minority students at further risk for being digitally disadvantaged.¹⁴⁰ As such, it is crucial to address the race-producing elements of AI with education in considering educational equity and the disproportionate impacts of these advancements.¹⁴¹ *Cayla J.* details the racialized consequences of what may result

¹³⁴ *Cayla J.*, No. RG20084386.

¹³⁵ Hybrid education refers to a combination of remote learning and in-person schooling.

¹³⁶ Payal Rao, *10 Key EdTech Future Trends Shaping Education in 2026*, AlmaShines (Apr 27, 2026) <https://www.almashines.io/edtech-future-trends-2025/>.

¹³⁷ Biagini, *supra* note 128, at 2618.

¹³⁸ Vladyslav Varynskyi et al., *Artificial Intelligence in Education: Tool, Object, "Subject" of Learning*, 10 J. Int'l. Legal Comm'n. 46, 49 (2023).

¹³⁹ Prem Lata, *Towards Equitable Learning: Exploring Artificial Intelligence in Inclusive Education*, 7 Int'l J.L. Mgmt. & Human. 416, 425 (2024).

¹⁴⁰ Francis & Weller, *supra* note 69, at 42.

¹⁴¹ Stryker & Scapicchio, *supra* note 5.

when intentional measures surrounding access and literacy are not put into place, raising ambiguities that post-*Brown* racial realities have deemed problematic.

Emphasizing equitable AI literacy as a core aspect of modern education, especially in the context of AI's rising prevalence within education, becomes increasingly important in combating a widening of the digital divide.¹⁴² Indeed, statutes such as the ESSA and the Digital Equity Act have incorporated digital elements, with the Digital Equity Act including a section dedicated to digital literacy. However, neither act has sufficiently established digital—let alone specifically AI—literacy guidelines that promote race-conscious efforts to narrow the digital divide and promote equitable integration. Given the ties between technology access and systemic racism, the lack of direction for AIED is detrimental to already educationally racialized communities, raising possibilities for an increasingly racialized digital divide that favors desegregation over integration.¹⁴³

C. *Imaginings of a Race-Conscious AI-Literate Future*

The Artificial Intelligence Literacy Act of 2023 (AILA), the Artificial Intelligence Literacy and Inclusion Act of 2025 (AILIA), and the LIFT AI Act of 2025 were introduced to target AI literacy issues, including educational components. None of these bills have yet been passed.

The AILA was intended as an amendment to the Digital Equity Act of 2021 with a larger emphasis on AI literacy specifically, while AILIA and LIFT were proposed as separate bills. Unlike the AILA, the AILIA directly emphasizes color-conscious inclusion. The AILIA's purpose is to direct National Science Foundation (NSF)¹⁴⁴ funds towards marginalized communities, “with priority given to communities of color, low-income populations, rural areas, senior citizens, people with disabilities, and other underserved groups.”¹⁴⁵ In contrast, LIFT directly focuses on AI literacy within K-12 education through NSF grants, but lacks any mention of equity or focus on marginalized communities, instead focusing primarily on competition, weaponization, productivity, and the US as a global leader.¹⁴⁶

Similar to definitions of AI literacy within academia, the three bills lack a

¹⁴²Aileen Park et al., *supra* note 67, at 5.

¹⁴³Intahchomphoo & Gundersen, *supra* note 11, at 76.

¹⁴⁴The National Science Foundation (NSF) is an independent federal agency supporting science and engineering in the United States.

¹⁴⁵Artificial Intelligence Literacy and Inclusion Act of 2025, H.R. 882, 119th Cong. (2025).

¹⁴⁶LIFT AI Act, H.R. 1819, 119th Cong. (2025).

consistent definition of AI literacy and consequently deem such ambiguity to be permissible amidst the urgency of the fourth industrial revolution. The AILA defines AI literacy as “the skills associated with the ability to comprehend the basic principles, concepts, and applications of artificial intelligence, as well as the implications, limitations, and ethical considerations associated with the use of artificial intelligence.”¹⁴⁷ The AILIA defines it as “the ability for humans to understand, evaluate, and effectively use artificial intelligence technologies, including understanding artificial intelligence basics and knowing what artificial intelligence can do, how artificial intelligence works, and being aware of the effects on society of artificial intelligence.”¹⁴⁸ Lastly, LIFT defines it as “having the age-appropriate knowledge and ability to use artificial intelligence effectively, to critically interpret outputs, to solve problems in an AI-enabled world, and to mitigate potential risks.”¹⁴⁹

The varying definitions of AI literacy across all three bills are reflective of each bill’s substance and ambiguity, highlighting the lack of national cohesiveness and understanding of AI literacy. Thus, foundational AI literacy initiatives and curricula are an increasingly important civil rights issue with the potential of threatening inequitable racial impacts. For example, the AILIA’s definition of AI literacy is the only one that includes the phrase “effects on society,” also serving as the only act of the three that centers on inclusion. The AILA does include “ethical considerations” associated with AI as a part of the AI literacy definition, while LIFT does not mention societal or ethical concerns. These considerations, or lack thereof, permit varying approaches to incorporating equity, echoing different post-*Brown* interpretations that have drawn distinctions between desegregation and integration.

Despite their differences in approach and language, the AILA, AILIA, and LIFT each include elements that, if conjoined, could effectively promote equitable race-conscious education by instilling steadfast AI literacy protocols. For example, although LIFT leans towards desegregation approaches in implementing AI literacy through NSF funds, its primary focus on awarding funds specifically to K-12 education is critical for navigating equitable education. On the other hand, of the three acts, the AILIA (which, like LIFT, also deals with the allocation of NSF awards) employs the most race-conscious integrative approach, offering the potential to narrow the digital divide through AI literacy. However, its implementations in education

¹⁴⁷ Artificial Intelligence Literacy Act of 2023, S. 2714, 118th Cong. (2023).

¹⁴⁸ Artificial Intelligence Literacy and Inclusion Act of 2025, H.R. 882, 119th Cong. (2025).

¹⁴⁹ LIFT AI Act, H.R. 1819, 119th Cong. (2025).

(including K-12 and higher education) comprise only a brief subsection.¹⁵⁰

The AILA may be particularly effective in its AI-specific adaptation of the already existing Digital Equity Act that allocates funding towards digital equity (though noting that the Digital Equity Act is currently inactive). One of the AILA's amendments to the Digital Equity Act includes a grant for AI literacy initiatives within K-12 schools, which would be an invaluable asset for a revised Digital Equity Act. Specific components from the Digital Equity Act, seen in the AILA, could also help expand AI literacy in a racially equitable and integrative way. For example, the Digital Equity Act's encouragement of collaboration between private organizations—particularly large tech companies—and public entities offered vast potential for allocating funds to low-income and racialized groups to narrow the digital divide.¹⁵¹ Emphasizing partnerships between private and public sectors, with large fund apportionment requirements for low-income, racialized communities, can be effective in garnering additional funding targeted towards AI literacy initiatives.

Apart from the legislative recommendations in proposed bills, adjusting the ESSA's current framework and granting more legislative power to the federal government through the AILA, AILIA, and LIFT can promote race consciousness while narrowing the digital divide. The ESSA's current framework, though promoting equity, does not employ an integrative race-conscious approach emphasizing *racial* equity as an overall goal or in its components.¹⁵² As demonstrated, “freedom of choice” to the states—stemming from historical state differences in interpreting *Brown*—has done little to further equitable initiatives.¹⁵³ Increased state power over educational matters—though offering flexibility to tailor education according to the needs of each state—dangerously increases the ability of states to employ colorblind desegregation philosophies. Thus, implementing firmer restrictions on state allocation of funding—namely by requiring states to apportion funding specifically towards AI literacy initiatives and necessary infrastructure (i.e., computers, broadband access, etc.) for underserved communities—is necessary when considering adjustments to the ESSA or the AILA, AILIA, and LIFT. In enforcing these restrictions, the civil rights issue of AI literacy can pursue race-conscious integration, steering away from the colorblind danger to which ambiguity may subject itself.

¹⁵⁰ Artificial Intelligence Literacy and Inclusion Act of 2025, H.R. 882 § 2(b)(1)(D).

¹⁵¹ Chris C. Goodman, *Just-AIED: An Essay on Just Applications of Artificial Intelligence in Education*, 123 W. Va. L. Rev. 937, 948 (2020).

¹⁵² Robinson, *supra* note 83, at 918.

¹⁵³ Debray et al., *supra* note 97, at 10.

Regarding the content involved in AI literacy itself, legislation should dictate specifically what proper, sufficient, and equitable AI literacy entails. The variance in definitions of AI literacy between AILA, AILIA, and LIFT evidences the sheer legislative and educational disconnect over what AI literacy comprises. Paralleling patterns within AIEd, there is an especially sparse focus within existing AI literacy curricula on understanding social and ethical ramifications of AI, including race production.¹⁵⁴ As the AILA and AILIA incorporate in their definitions, AI literacy should necessitate social and ethical components to promote race-consciousness and increase educational understandings of technology and its racialized impacts. Including this as a core component of AI literacy legislation, specifically by apportioning AI literacy funds towards social and ethical learning, is critical.

CONCLUSION

Though *Brown* marked a turning point in explicitly racially segregating practices, its judicial ambivalence simultaneously triggered new modes of race-making, whose ramifications are readily witnessed in the digital divide. Nuanced distinctions between desegregation and integration have made their way to the forefront of modern racial understanding. The plasticity of racialization has cultivated the possibilities for colorblind post-racial imaginings in the current education system, whether through the ESEA or in racist accusations of the Digital Equity Act.

Cases like *Cayla J.* shed light on persisting educational and racial disparities that have digitally evolved, demonstrating an evolution of civil rights concerns. In an age of AI, digital divide concerns are especially pressing. The growing pervasiveness of AI in all fields—particularly education—threatens to reproduce racialized outcomes already witnessed in the digital divide. Consequently, AI literacy in educational and technological statutes must be implemented. Increasing the accessibility of AI through literacy can serve as a critical measure that employs a race-conscious integrative lens by means of funding allocation, avoiding the consequences of post-*Brown* ambiguity while preventing the digital divide from further widening.

The future of technology holds immense potential in its racializing capacity within education. It is up to the law—and the people who exercise it—whether this potential accelerates colorblind desegregation perspectives or embraces the race-conscious integration that might have materialized from *Brown*.

¹⁵⁴ Guillermo van der Linde et al., *supra* note 65, at 1, 2.