

Educational Inequality, Digital Learning, and Social Reproduction: A Comparative Analysis of Remote Schooling in Finland and the United States

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ABSTRACT

Digital learning has become a central arena through which educational inequality is reproduced, challenged, and institutionally managed. While online education is often presented as a democratizing technological innovation, the comparative evidence indicates that its social consequences depend upon pre-existing institutional structures, welfare regimes, household resources, teacher capacity, and digital inclusion policies. This article examines digital learning and educational inequality through a comparative analysis of Finland and the United States, focusing on how remote schooling during and after the COVID-19 pandemic exposed deeper differences in educational governance, social trust, and institutional capacity. Finland represents a comprehensive welfare-oriented education system characterized by strong public provision, high teacher professionalization, relatively low school segregation, and institutional trust. The United States represents a decentralized and stratified education system marked by unequal school funding, racialized residential segregation, uneven digital access, and fragmented policy authority. Drawing on sociology of education, digital society studies, public policy analysis, and social reproduction theory, the article argues that digital learning does not independently produce equity or inequality; rather, it amplifies the institutional conditions in which it is embedded. The study contributes to social humanities scholarship by developing a comparative framework linking digital learning infrastructures, social reproduction, educational governance, and democratic equality.

Keywords: educational inequality; digital learning; social reproduction; Finland; United States; sociology of education; digital divide; remote schooling; public policy; social humanities

INTRODUCTION

Educational inequality remains one of the most consequential social problems in contemporary societies because education structures life chances, labor market mobility, civic participation, cultural capital, and democratic inclusion. The rapid expansion of digital learning has intensified debate about whether technology can reduce educational inequality or whether it reproduces existing social hierarchies through new infrastructures. The COVID-19 pandemic made this question globally urgent. School closures affected more than 1.5 billion learners at the height of the crisis, and UNESCO warned that interruptions to schooling risked deepening inequality among children already disadvantaged by poverty, disability, gender, migration status, language, and rural location (UNESCO, 2021). Although many education systems adopted remote learning as an emergency response, the outcomes varied dramatically across countries, regions, schools, and households.

The global shift to digital learning must be understood within broader social and institutional transformations. Digital platforms now mediate educational communication, assessment, homework, parental engagement, learning analytics, and classroom management. International organizations such as the OECD, UNESCO, and World Bank emphasize that digital technology can support educational innovation only when accompanied by teacher training, equitable access, curriculum integration, and inclusive public policy (OECD, 2023; UNESCO, 2023; World Bank, 2022). Yet digitalization also creates new inequalities involving devices, broadband, learning space, parental support, algorithmic bias, platform governance, and data privacy.

This article examines these dynamics through a comparative analysis of Finland and the United States. These cases are selected because both are wealthy democracies with advanced digital infrastructures, yet they possess sharply different educational governance systems and social welfare arrangements. Finland is widely associated with comprehensive public education, teacher professionalism, relatively low inequality across schools, and high institutional trust (Sahlberg, 2021). The United States is characterized by decentralized educational governance, unequal local school funding, racialized residential segregation, high variation in school resources, and significant disparities in digital access and educational outcomes (Darling-Hammond, 2020).

This comparison enables analysis of how digital learning interacts with different institutional environments. Finland's experience suggests that digital education is more likely to support equity when embedded in a universalist welfare-state education system. The United States demonstrates how digital learning may amplify inequality when introduced into stratified systems marked by unequal school finance, household resource disparities, and fragmented public authority. The comparison therefore challenges

technological determinism by showing that digital tools are socially and institutionally mediated.

The central social humanities problem addressed in this article is the relationship between digital learning and social reproduction. Educational systems do not merely transmit knowledge; they also reproduce or disrupt social inequalities. Bourdieu and Passeron (1977) famously argued that schools reproduce class advantage by rewarding dominant cultural capital. Bowles and Gintis (1976) analyzed schooling as a mechanism of capitalist social reproduction. Bernstein (1971) emphasized the role of language codes and pedagogic communication in reproducing inequality. More recent scholarship has expanded these insights to examine race, gender, disability, migration, and digital exclusion in educational systems (Reay, 2017; Selwyn, 2022).

While previous studies emphasize the digital divide as a matter of internet access, other scholars argue that digital inequality is multidimensional, involving skills, usage, institutional support, and social outcomes (van Deursen & van Dijk, 2019). Warschauer (2004) similarly argued that meaningful digital inclusion requires social embeddedness, literacy, content relevance, and institutional capacity. Digital learning therefore cannot be reduced to device distribution. It depends on the social organization of learning.

Existing scholarship on pandemic schooling provides further insight. Studies show that school closures disproportionately affected low-income students, racialized minorities, students with disabilities, and students in unstable housing (Engzell et al., 2021; UNESCO, 2021). However, current literature remains limited in several respects. First, much analysis focuses on emergency learning loss without sufficiently examining deeper institutional mechanisms of inequality. Second, comparative work often compares test-score outcomes but underanalyzes welfare regimes, public trust, and teacher professionalism. Third, digital education research frequently examines platforms and pedagogy without embedding them in social reproduction theory. Fourth, policy literature often treats remote learning as a technical problem rather than a political and institutional issue. Fifth, social humanities scholarship has not fully theorized digital learning as a new site where home, school, market, and state intersect.

This article addresses these gaps by developing an institutional social reproduction framework for digital learning. It argues that digital learning outcomes are shaped by the interaction of four mechanisms: household learning resources, school institutional capacity, teacher professional autonomy, and welfare-state support. Household resources include devices, broadband, quiet space, parental time, language support, and cultural capital. School institutional capacity includes funding, digital platforms, support staff, and inclusive pedagogy. Teacher professional autonomy affects the ability to adapt digital learning to students' needs. Welfare-state support shapes whether children's basic conditions of learning—nutrition, housing, healthcare, and family income security—are stabilized.

The novelty of this article lies in linking digital education to broader social humanities debates concerning inequality, social reproduction, institutional trust, and democratic equality. Rather than asking whether technology improves learning in general, the study asks under what social and institutional conditions digital learning becomes equitable or exclusionary.

The analytical framework developed here proposes the following relationship: digital learning infrastructure → household and school resource mediation → pedagogical participation → educational inequality or inclusion → social mobility and democratic equality. This framework identifies digital learning as a mediated social process rather than a neutral technological intervention.

The research objective of this article is to explain how digital learning reshapes educational inequality and social reproduction in Finland and the United States, and what this comparison reveals about the institutional conditions required for equitable digital education.

METHODOLOGY

This study employs a comparative institutional and interpretive social humanities design combining sociology of education, digital inequality research, and public policy analysis to examine how digital learning shaped educational inequality in Finland and the United States. The cases are selected through a theoretically informed contrastive logic: both are high-income democracies with advanced digital infrastructures and extensive exposure to pandemic-era remote learning, yet they differ markedly in educational governance, welfare-state design, school funding, teacher professionalization, residential segregation, and institutional trust. Finland is analyzed as a comprehensive public education system in which digital learning operates within comparatively egalitarian school structures and universalist social supports. The United States is analyzed as a decentralized and stratified education system in which digital learning interacts with racialized inequality, local school finance disparities, household wealth variation, and uneven broadband access. The principal units of analysis are national education systems, digital learning infrastructures, household learning environments, teacher professional capacity, welfare-state supports, and inequality outcomes.

The empirical basis consists of UNESCO, OECD, World Bank, national education reports, peer-reviewed education research, digital divide studies, pandemic schooling analyses, and established theoretical literature on social reproduction. The study does not fabricate interviews, classroom observations, or survey responses; it synthesizes documented institutional evidence and published research. Analytical techniques include comparative institutional interpretation, thematic synthesis, policy discourse analysis, and theory-guided cross-case comparison. Core variables include digital access, household resources, school funding equity, teacher autonomy, public trust, student participation, and educational inequality. Validation is pursued through triangulation across international datasets, national policy documents, and peer-reviewed scholarship. Ethical considerations include avoiding deficit-based depictions of disadvantaged students and recognizing that inequality is institutionally produced rather than individually caused. Limitations include variation within each country, the evolving nature of post-pandemic digital education, and the difficulty of isolating digital learning effects from broader social inequalities; nevertheless, the comparison provides strong analytical leverage for theorizing the institutional conditions under which educational digitalization reproduces or reduces inequality.

Findings and Discussion

1. Digital Access and the Social Conditions of Learning

The first major finding is that digital access is socially mediated. During remote schooling, access to a device and internet connection was necessary but insufficient for meaningful participation. Students also needed quiet space, adult support, stable routines, accessible platforms, teacher feedback, emotional security, and confidence navigating digital learning environments.

In Finland, digital learning occurred within a relatively egalitarian school system where students had more consistent access to publicly supported education services, school meals, special education support, and teacher guidance. Although Finland also faced disruptions, its comprehensive welfare and education systems reduced the degree to which household inequality translated directly into learning inequality. Digital access was embedded in a broader institutional environment that recognized education as a public responsibility.

In the United States, digital learning exposed deep disparities in broadband access, device availability, parental work flexibility, housing stability, and school resources. Low-income students, rural students, Black and Latino students, Indigenous students, students with disabilities, and English language learners were disproportionately affected by remote schooling barriers. This reflects not merely technological inequality but historically structured social inequality.

The comparison demonstrates that the digital divide is not simply a technical gap. It is a social divide shaped by class, race, geography, disability, language, and institutional capacity. This finding aligns with van Deursen and van Dijk's (2019) multidimensional theory of digital inequality and Warschauer's (2004) argument that meaningful access depends on social embeddedness.

The theoretical implication is that digital learning amplifies the home-school relationship. When schooling moves into the home, household resources become more directly consequential. Bourdieu's concept of cultural capital is therefore newly relevant: students whose families possess educational confidence, time, language proficiency, and digital skills are better positioned to navigate remote learning.

The societal implication is clear. Policies that distribute devices without addressing housing, food security, parental labor conditions, disability support, and linguistic accessibility cannot produce equitable digital education.

2. School Governance, Funding Inequality, and Institutional Capacity

The second finding concerns institutional capacity. Finland's education system is characterized by relatively equitable school funding, high-quality public provision, and limited school segregation compared with many other countries. This institutional structure meant that digital learning responses were more likely to be implemented through common public norms and professional trust.

The United States, by contrast, has a highly decentralized education system in which local property taxation, state policy variation, and district-level inequality produce uneven institutional capacity. During remote schooling,

affluent districts were often better able to provide devices, learning platforms, synchronous instruction, technical support, and family communication. Under-resourced districts faced greater difficulty sustaining digital instruction.

The comparative evidence indicates that digital learning magnifies institutional inequalities when school systems are already stratified. In unequal systems, digitalization may become another layer of advantage for well-resourced schools and another burden for disadvantaged schools. This supports Darling-Hammond's (2020) argument that educational opportunity in the United States is deeply tied to structural inequality.

Finland's relative strength lies in its institutional coherence. The state's role in guaranteeing high-quality public education reduces the dependence of learning opportunities on local wealth. The United States' weakness lies not in the absence of innovation but in the fragmentation of institutional authority and unequal resource distribution.

This finding contributes to social humanities scholarship by showing that digital education must be analyzed as public infrastructure. Platforms and devices are not substitutes for institutional capacity. Effective digital learning requires teachers, counselors, support staff, accessible curricula, public investment, and equitable governance.

3. Teacher Professionalism and Pedagogical Adaptation

The third finding is that teacher professionalism mediates digital learning outcomes. Finland's education system grants teachers high professional status, strong preparation, and pedagogical autonomy. During digital learning transitions, this professional capacity allowed teachers to adapt instruction, communicate with families, and interpret students' needs within a trust-based system.

In the United States, teacher professionalism varies considerably across states, districts, and schools. Many teachers demonstrated extraordinary adaptability during remote schooling, but they often worked under conditions of policy uncertainty, inadequate support, high accountability pressure, and unequal technological resources. Teachers in disadvantaged schools faced greater demands with fewer institutional supports.

The comparison indicates that digital learning depends heavily on pedagogical judgment. Technology cannot replace the relational and interpretive work of teaching. Students' engagement, motivation, comprehension, and emotional well-being require human mediation. Digital platforms can facilitate communication, but teachers translate digital tools into educational meaning.

This finding challenges market-oriented narratives that treat educational technology as a scalable solution independent of teachers. It supports Selwyn's (2022) critique of technological solutionism in education and reinforces the importance of pedagogical labor.

The theoretical linkage concerns the sociology of professions. Where teachers are trusted professionals, digital tools can be integrated flexibly into pedagogical practice. Where teachers are constrained by fragmented accountability systems and unequal resources, digital tools may intensify workload and stress without producing equitable outcomes.

The policy implication is that digital education reform must invest in teacher preparation, collaborative

planning time, professional autonomy, and inclusive digital pedagogy. Technology policy without teacher capacity is institutionally weak.

4. Social Reproduction, Race, Class, and Educational Inequality

The fourth finding is that digital learning reproduces inequality through multiple mechanisms of social reproduction. In the United States, remote schooling intensified existing racial and class disparities because disadvantaged students were more likely to experience inadequate devices, unstable internet, crowded housing, food insecurity, parental job insecurity, and limited access to academic support. These inequalities reflect long histories of racialized residential segregation, school finance inequality, and unequal social protection.

In Finland, inequality was not absent. Migrant-background students, students requiring special support, and students in vulnerable households also faced challenges. However, Finland’s stronger welfare and school support systems reduced the scale of inequality amplification. The comparative evidence therefore indicates that digital learning does not produce inequality from nothing; it activates existing social structures.

This finding directly extends Bourdieu and Passeron’s theory of social reproduction. Digital education introduces new forms of capital—digital capital, platform literacy, and home-learning infrastructure—while also reinforcing older forms of economic, cultural, and social capital. Students with greater resources can convert digital tools into educational advantage, while students with fewer supports experience digital learning as exclusion.

The comparison also reveals the racialized dimension of digital inequality. In the United States, race and class are historically intertwined through housing, school funding, employment, and health disparities. Digital learning therefore became a site where structural racism entered the classroom through the household. Finland’s inequalities are differently structured, often involving migration, language, and socio-economic disadvantage, but they are less intensified by local school funding disparities.

The societal implication is that educational equality cannot be achieved through school policy alone. Housing, healthcare, labor rights, broadband infrastructure, income support, and anti-racist policy are all educational policies in practice because they shape the conditions of learning.

Table 1. Comparative Matrix of Social Variables, Institutional Mechanisms, and Societal Outcomes

Variable	Finland	United States	Empirical/Interpretive Evidence	Analytical Interpretation
Education Governance	Comprehensive public education system	Decentralized and stratified education system	OECD, UNESCO, and national education research	Governance structure mediates digital learning equity
Digital Access	More evenly supported through public	Uneven across income, race, region,	Digital divide and pandemic schooling studies	Device access is necessary but not sufficient

	institutions	and district		for inclusion
School Funding	Relatively equitable public funding	Strong local and state variation	Comparative education policy literature	Funding inequality shapes institutional capacity
Teacher Professionalism	High professional autonomy and preparation	Uneven support and status across systems	Sociology of education research	Teacher capacity mediates technology effectiveness
Household Resources	Inequalities exist but buffered by welfare supports	Household inequality strongly affects learning participation	Social reproduction and pandemic studies	Remote schooling intensifies home-based inequality
Welfare-State Support	Stronger universal supports for children and families	More fragmented social protection	OECD and World Bank reports	Welfare policy shapes educational resilience
Social Reproduction	Moderated by egalitarian institutions	Intensified through race, class, and school segregation	Bourdieuian and critical education scholarship	Digital learning reproduces existing inequalities
Societal Outcome	Digital education more likely to support inclusive continuity	Digital education more likely to amplify inequality	Comparative interpretive synthesis	Educational digitalization requires institutional equality

The table demonstrates that digital learning outcomes are not determined by technology alone. Finland and the United States both used digital tools, but their effects differed because of variation in education governance, welfare institutions, household resources, and teacher capacity. The deeper analytical conclusion is that digital learning is an institutional amplifier: it magnifies the strengths and weaknesses of the social systems into which it is introduced.

5. Public Trust, Educational Legitimacy, and Democratic Equality

The fifth finding concerns public trust and democratic legitimacy. Education systems depend on trust among families, teachers, students, administrators, and public institutions. Finland's high-trust education culture supported relatively coherent responses to remote schooling. Teachers were trusted to exercise professional judgment, and families generally trusted public institutions to act in children's interests.

In the United States, pandemic schooling became politically polarized in many regions. Disputes over school closures, masks, curriculum, technology, and public authority reflected broader distrust in institutions. Digital learning became embedded in cultural conflict over expertise, parental rights, inequality, and government responsibility.

The comparative evidence indicates that educational digitalization is not merely technical; it is political. Public trust shapes whether families accept institutional guidance, whether teachers can exercise professional judgment, and whether students experience schooling as stable. Where trust is low, digital education may become another site of political conflict.

This finding connects education research with democratic theory. Public schooling is a democratic institution because it forms citizens, distributes opportunity, and embodies collective responsibility. When digital learning deepens inequality, it undermines democratic equality. When implemented equitably, it can support educational continuity and inclusion.

The societal implication is that digital education policy must be publicly legitimate. Decisions about platforms, data privacy, assessment, online attendance, and AI-assisted learning should be transparent, participatory, and accountable. Without democratic governance, educational technology may weaken rather than strengthen public education.

Conceptual Framework

Institutional Social Reproduction Framework for Digital Learning

The findings support the following conceptual framework:

Digital Learning Infrastructure → Household and School Resource Mediation → Pedagogical Participation → Educational Inequality or Inclusion → Social Mobility and Democratic Equality

This framework conceptualizes digital learning as a socially mediated process. Digital infrastructure includes devices, broadband, platforms, and learning systems. These infrastructures are mediated by household resources and school capacity, including parental time, learning space, teacher support, funding, and institutional coordination. These conditions shape pedagogical participation: whether students can attend, understand, interact, receive feedback, and remain emotionally engaged. Participation then influences whether digital learning produces inequality or inclusion. Over time, these outcomes affect social mobility and democratic equality.

The framework demonstrates that technology cannot be evaluated independently from institutional context. Digital learning becomes equitable only when embedded in socially supportive, well-funded, professionally trusted, and publicly accountable education systems.

CONCLUSION

This article has examined how digital learning reshapes educational inequality and social reproduction in Finland and the United States. The central finding is that digital education does not independently democratize learning. Instead, it amplifies the institutional and social conditions in which it is embedded. In egalitarian education systems with strong welfare supports, high teacher professionalism, and public trust, digital learning can support continuity and inclusion. In stratified systems marked by unequal school funding, household inequality, racial segregation, and fragmented governance, digital learning can intensify educational disadvantage.

The comparative evidence demonstrates that Finland's relative resilience during digital learning transitions was not primarily the result of superior technology but of institutional coherence. Public education, teacher autonomy, welfare supports, and social trust helped buffer inequality. The United States' challenges reflected deeper structural inequalities that remote schooling made more visible: unequal broadband, unequal housing, unequal school funding, unequal parental labor flexibility, and racialized social vulnerability.

The theoretical contribution of this article lies in linking digital learning to social reproduction theory. Digital education creates new forms of advantage and disadvantage through digital capital, household learning infrastructure, platform literacy, and institutional access. The article therefore extends Bourdieuan and critical education theory into the digital era.

Empirically and interpretively, the article contributes by comparing two wealthy democracies with contrasting educational institutions. The comparison shows that digital equity policy must go beyond device provision. It must address school finance, teacher professional development, broadband infrastructure, disability inclusion, multilingual support, housing stability, food security, and democratic accountability.

The institutional and societal implications are substantial. Governments should treat digital education as public infrastructure rather than market innovation. Equitable digital learning requires universal broadband, publicly accountable platforms, teacher-centered pedagogy, inclusive design, and welfare policies that secure the conditions of learning. Education ministries should evaluate digital tools not only by efficiency or scalability but by their effects on inequality, privacy, participation, and democratic trust.

The study has limitations. It relies on secondary research and institutional evidence rather than original classroom ethnography. It also compares national systems while recognizing substantial internal variation within each country. Future research should examine student experiences, teacher labor, AI-assisted learning, platform governance, disability inclusion, and the long-term effects of digital education on social mobility.

Ultimately, this article demonstrates that educational technology is never merely educational or technological. It is social, political, and institutional. The future of digital learning will depend on whether

societies build education systems capable of turning technological capacity into democratic equality.

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