

# A Critical Analysis of the 2024 USA National Educational Technology Plan

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**Abstract:** Grounded in a vision of “everywhere, all-the-time” learning, the NETP 2024 introduces three interrelated divides—digital access, design, and use—and situates them within the instructional core of teaching, learning, and content. The plan presents actionable recommendations for states, districts, and schools to improve infrastructure, professional development, instructional inclusivity, and digital citizenship. This analysis highlights the plan’s notable strengths, including its support for Universal Design for Learning (UDL), emphasis on accessibility, and focus on educator capacity building. However, it also identifies critical limitations: an overemphasis on standardization, market-oriented policy framing, a narrow conceptualization of digital citizenship, and a lack of sustainable systemic solutions. By critically examining the plan’s assumptions and gaps, this analysis offers recommendations to enhance its relevance, inclusiveness, and long-term impact in bridging digital divides across U.S. K–12 education.

**Keywords:** digital divide, educational technology, digital citizenship, K–12 education

## INTRODUCTION

National policies have played a significant role in integrating technology into education in the last three decades. Many countries have publicized educational technology plans at the national level to outline the development trends, challenges faced, and resources needed in order to meaningfully integrate technology into education, reap the benefits that emerging technologies can bring, avoid the potential risks and pitfalls, and allocate resources or suggest where resources can be allocated to support technology integration in education. As technology continues to grow at a rapid pace, countries have also been updating their national educational technology plans every few years to reflect the development in technology and the changing demand for education.

The U.S. Department of Education (DOE) periodically issues the "National Educational Technology Plan" (NETP). The document typically includes recommendations, strategies, and examples of effective technology implementation in educational settings (Han et al., 2018). The DOE has published this plan every four to six years since 1996 (Han et al., 2018), with the most recent edition coming out in 2024. Each

plan has made significant contributions to the advancement of infrastructure development, digital literacy, personalized learning, and data-driven decision-making. Collectively, the NETPs have played a pivotal role in accommodating the expanding technological landscape, and they continue to guide educational institutions in effectively leveraging technology to enhance teaching and learning (Russell et al., 2013).

The latest NETP, titled “A Call to Action for Closing the Digital Access, Design and Use Divides” was released in January 2024. Building upon earlier documents, the NETP 2024 demonstrates an evolved understanding of how technology can enhance learning outcomes for elementary and secondary students. It presents a clear vision for the use of technology in education, aiming to effectively narrow the digital gaps and promote balanced development in education while enhancing teaching and learning (DOE, 2024). To address barriers to equitable support of learning through EdTech, the NETP 2024 identifies three divides: the digital use divide, the digital design divide, and the digital access divide (DOE, 2024). These divides are considered within the framework of the instructional core, which encompasses “the relationship between the teacher, the student, and the content” and plays a crucial role in shaping instructional practice (DOE, 2024, p. 9).

The NETP 2024 provides actionable recommendations intended to assist educational institutions, educators, and learners in harnessing the potential of technology to facilitate “everywhere, all – the – time” learning (DOE, 2024). These recommendations are categorized for states, districts, or school buildings, and they serve as components of systemic solutions. Additionally, the plan includes examples of classrooms, schools, districts, and states that are implementing these recommendations to improve EdTech practices (DOE, 2024).

However, there are also limitations in this NETP that need to be considered as educators and researchers look into this plan for guidance. In this paper, we’ll analyze this plan with a critical lens to first discuss the areas of strengths demonstrated in this plan, then examine the limitations, and then make recommendations on how the limitations could be addressed or considered.

The table below presents a summary of the main strengths, areas of critique, and recommendations related to the NETP 2024. This overview will serve as a foundation for the in-depth analysis presented in the following sections.

Table 1. *Analyzing Strengths, Areas of Critique, and Recommendations of the 2024 NETP*

<b>Strengths</b>	<b>Areas of Critique</b>	<b>Recommendations</b>
Addressing the challenges of effective edtech implementation	Over-emphasizing standardization	Promoting autonomy instead of standardization
Encouraging student meaningful use of edtech	Technology-driven learning opportunities overshadows principles of Universal Design for Learning (UDL)	Emphasizing collaboration instead of Marketization/Commodification
Improving accessibility	Market-driven approaches to technology use in education	Promoting a more comprehensive conception of citizenship
Enhancing infrastructure	Digital citizenship narrowly defined	Considering systemic solutions
	Lack of systemic solution	

## **STRENGTHS OF NETP 2024**

The most noteworthy and the central strength in the NETP 2024 is its focus on effectively addressing the pressing issue of the digital divide in education. The NETP 2024 plan offers comprehensive recommendations that are in accordance with the real challenges encountered in the current educational landscape. These specific recommendations can be summarized into the following categories: Addressing the Challenges of Effective EdTech Implementation, Encouraging Student Meaningful Use of EdTech; Improving Accessibility; and Enhancing Technology Infrastructure.

### *ADDRESSING THE CHALLENGES OF EFFECTIVE EDTECH IMPLEMENTATION*

The integration of technology into education has witnessed a significant surge, with school districts adopting an array of EdTech tools (Mouza, 2018). According to a LearnPlatform survey conducted in 2023, school districts utilized an average of 2,591 EdTech tools during the 2022–23 academic year (DOE, 2024). However, the rapid implementation of technology without appropriate planning or change management, driven by the challenges posed by the COVID-19 pandemic, has presented challenges for many educational systems (DOE, 2024). As a result, technology is often deployed in classrooms without a thorough understanding of how to effectively harness its potential for learning purposes (Gandolfi et al., 2021). The NETP 2024 presents a comprehensive set of solutions to address the challenges associated with the effective use of EdTech in schools.

Firstly, the plan emphasizes the importance of effective resource allocation. It acknowledges that investments in professional capacity around EdTech have often lagged behind investments in technology itself (DOE, 2024). To bridge this gap, the NETP 2024 advocates for thorough budgeting exercises that encompass hardware, software, professional learning, and necessary adjustments to educator schedules. For instance, if education leaders expect a digital tool to be widely used across classrooms, they should budget for the time and resources necessary for educators to become proficient with the tool (DOE, 2024). By considering these costs comprehensively, the plan aims to address the financial barriers that hinder effective implementation. Moreover, it highlights the availability of federal funds, state-specific funding opportunities, and grants from private foundations to support educator professional development. This strategic approach ensures that educators have the time and resources necessary to develop proficiency with EdTech tools (DOE, 2024).

Secondly, the plan places a strong emphasis on prioritizing professional development initiatives aligned with research-based frameworks like Universal Design for Learning (UDL) (DOE, 2024). Schools and educators have been criticized for providing inadequate support for staging proper inclusive interventions and lacking usability expertise to maximize the impact of educational technologies (Gandolfi et al., 2021). Recognizing that using a tool and designing learning experiences that incorporate that tool require different skill sets, the NETP 2024 encourages that states, school systems, and schools cultivate educators' capacities with new tools while enhancing their proficiency with key learning frameworks (DOE, 2024). The UDL Framework is presented as a research-based structure and language that can guide all teachers in designing inclusive learning experiences for all learners. By prioritizing continuous professional development and providing the necessary time and space for designing UDL-aligned learning opportunities, the plan ensures that educators have the resources and support they need to navigate the complexities of EdTech effectively and create inclusive and impactful learning environments with technology.

Lastly, the NETP 2024 highlights the importance of establishing structures for collaborative review to curate effective educational products (DOE, 2024). Despite substantial financial investments in educational technologies, the plan recognizes the

common issue of purchasing decisions being made without considering evidence of effectiveness, often relying on general web searches and peer recommendations (DOE, 2024). Such approaches often overlook the importance of rigorous evaluation and evidence of effectiveness. To overcome this challenge, the plan advocates for intentional structures that enable educators to collaboratively review the impact, barriers, and effectiveness of educational technologies (DOE, 2024). It emphasizes the need for educators to have dedicated time and support for knowledge sharing, analysis, and professional improvement. By fostering a "community of practice" where educators with a common interest come together to influence and learn from each other over time (Gandolfi et al., 2021), the plan encourages collaboration and transformative instructional practices (DOE, 2024). Thus, ensures that education systems make informed decisions when selecting EdTech tools and empowers educators to design meaningful learning experiences with multiple technological tools.

By advocating for effective resource allocation, prioritizing professional development aligned with UDL, and establishing collaborative review structures, the plan provides a comprehensive framework for education systems to leverage the full potential of educational technology in creating impactful and inclusive learning environments (DOE, 2024).

#### *ENCOURAGING STUDENT MEANINGFUL USE OF EDTECH*

The common notion of digital natives, suggesting that young people are inherently skilled with technology, does not align with the reality that students often lack the necessary training to utilize technology effectively in learning areas (Talaee & Noroozi, 2019; Vassilakopoulou & Hastad, 2023). Despite being born surrounded by digital tools, young people are not necessarily competent in using technology for educational purposes. Their use of technology is often more closely linked to leisure, entertainment, and social relations (Vassilakopoulou & Hastad, 2023). Consequently, there is a need to address the gap between students' familiarity with technology and their ability to meaningfully engage with it for learning.

Moreover, schools face increasing pressure to address student technology use and related concerns, both during and outside of school hours, including on commercial digital platforms (DOE, 2024). While school networks comply with federal content filtering requirements, it is crucial to note that 94 percent of 8-18-year-olds have smartphones provided by their families, granting them unfiltered internet access 24/7. Students begin using digital devices at a young age, even before they start attending schools (DOE, 2024). Research has demonstrated that even disadvantaged students who have digital access are more likely to exhibit insufficient digital skills, limited internet usage, and fewer opportunities for growth (Vassilakopoulou & Hastad, 2023), which underscores the significance of equipping them with the necessary skills to navigate the digital landscape responsibly.

Recognizing the complex and multifaceted relationship between access to technologies and their utilization (Talaee & Noroozi, 2019), and the concept of reconceptualizing the digital divide, the NETP 2024 places significant emphasis on the importance of active and meaningful technology use for learning (DOE, 2024). The plan acknowledges that mere provision of access to technology is insufficient for effective use. It emphasizes the need for thoughtful intervention and attention to how technology is used for learning to prevent the potential widening of the digital divide even as technology access increases (DOE, 2024).

In response to these challenges, the plan acknowledges the multifaceted nature of the digital divide and the importance of comprehensive digital literacy training that goes beyond basic computer skills. It highlights the importance of addressing various literacies,

including information literacy, multimedia literacy, and technology-mediated communication literacy, to effectively bridge the digital divide (DOE, 2024). By prioritizing these literacies, the plan aims to enable individuals to fully leverage technology for educational purposes and develop necessary skills to critically evaluate information, create multimedia content, and engage in effective communication through technology.

Additionally, the plan commendably places emphasis on incorporating digital health, safety, and citizenship skills across all grade levels and subjects. By equipping students with these skills, the plan recognizes the significance of digital literacy in preparing students for success in the workforce and beyond (DOE, 2024). It empowers students to meaningfully and safely engage with technology while promoting their overall well-being. This comprehensive approach ensures that individuals possess the necessary skills, literacies, and awareness to navigate the digital world responsibly, enhancing their digital literacy and promoting their overall well-being (DOE, 2024).

### *IMPROVING ACCESSIBILITY*

The implementation of digital technologies in education has brought forth numerous opportunities for enhancing learning experiences and expanding educational access (Rawlins & Kenhrwald, 2010). However, to ensure equitable opportunities for all learners, it is essential to address the multifaceted challenges that arise in this context. The NETP 2024 has put forward a range of inclusive solutions to ensure that every learner can benefit from technology-enhanced learning environments (DOE, 2024).

While technology has the potential to increase educational access and enhance learning experiences, it is important to note that it can also create barriers for underserved students, including those with special educational needs (Gandolfi et al., 2021, Clarida et al., 2016, Cranmer, 2020). This underscores the need to consider the diverse needs of students and promote inclusive education through technology. The NETP 2024 acknowledges the significance of inclusive education and emphasizes the design and implementation of educational materials, tools, and resources that meet the diverse needs of learners, including those with disabilities (DOE, 2024). By prioritizing the development of inclusive digital pedagogies, the plan shows a commitment to addressing digital inequalities and providing equitable learning opportunities for all students.

One of the key recommendations in the plan is to provide educators with comprehensive training and support to understand and effectively utilize the accessibility features of digital learning tools (DOE, 2024). By empowering educators with the knowledge and tools they need, the plan ensures that every student, regardless of their abilities, can fully engage with technology and benefit from its transformative potential. It is worth noting that many accessibility features can benefit all students, not just those with specific disabilities. Ensuring that all educators bring the knowledge, time, and capacity to ensure accessibility across various educational materials, including websites, classwork, homework, and communications, is crucial. This includes making accessible materials available to all constituents internally and externally (DOE, 2024). By prioritizing accessibility in learning materials and resources and making them available to all constituents internally and externally, the plan fosters inclusivity and equal access to educational resources, guaranteeing that all students can benefit from technology-enhanced learning environments.

The plan also embraces the adoption of UDL as a solution. UDL, when combined with active technology use, offers a powerful approach to cater to the diverse learning needs of students (DOE, 2024). By integrating UDL principles into instructional materials, activities, and assessments, educators can create an inclusive and equitable educational environment that supports various learning preferences and abilities (DOE, 2024). This approach not only equips students with essential skills for a technology-driven world but

also nurtures their ownership of learning, collaboration, critical thinking, creativity, and problem-solving abilities (DOE, 2024).

Another key strength of the plan lies in its recognition of the importance of collaboration across various stakeholders (DOE, 2024). By involving and gathering input from instructional technology, curriculum, special education, and information technology teams, the plan ensures that the diverse needs of all students are met. Breaking down silos within school systems during the planning, implementation, and evaluation of technology purchases is emphasized, fostering collaboration and synergy among different departments (DOE, 2024). Moreover, the plan highlights the significance of including learners with disabilities and their families in decision-making processes. By giving them a voice and actively involving them, the plan ensures that the technology procured effectively addresses their specific needs (DOE, 2024). Incorporating accessibility as an essential component of procurement processes guarantees that educational technology is usable by all students, regardless of their abilities. This commitment to accessibility promotes equal opportunities for learning and provides vital support for students with diverse needs.

#### *ENHANCING INFRASTRUCTURE*

It is essential to recognize that access to resources and tools solely on campus is inadequate for students and educators to fully leverage the potential of "everywhere, all-the-time" learning (DOE, 2024). Despite the widespread use of technology in schools, a significant number of learners, families, and communities still lack reliable, high-speed broadband and essential technology tools. This disparity affects over 18 million households in the United States, with households earning less than \$30,000 per year facing particular disadvantages. They are significantly less likely to have access to a computer compared to those earning over \$100,000 annually. Consequently, approximately 15-16 million K-12 learners face significant obstacles due to insufficient access to reliable, high-speed broadband and technology tools necessary for effective learning (DOE, 2024). The plan astutely acknowledges the long-standing issue of digital access inequity in the U.S. school system and communities, which was further exacerbated by the COVID-19 pandemic (DOE, 2024). The sudden shift to emergency remote learning revealed that many students did not have personal computers, laptops, or tablets at home, severely impeding their ability to participate in online classes and complete assignments. Moreover, students with limited or unreliable home internet access encountered additional challenges in accessing educational resources and engaging in high-bandwidth activities like videoconferencing (DOE, 2024). It is crucial to acknowledge that these pre-existing challenges have continued to contribute to educational inequities, amplified by the impact of the pandemic.

By advocating for the provision of reliable, high-speed broadband access and essential technology tools to every learner, family, and community, the plan takes a significant step toward ensuring that no student is left behind (DOE, 2024). It recognizes that access to these resources is not a luxury but a necessity for 21st-century education. By tackling infrastructure disparities, the plan paves the way for students to fully engage in digital learning, participate in online classes, and access educational resources with ease.

In conclusion, the NETP 2024 plan presents an inspiring vision for inclusive education, addressing the challenges of accessibility and infrastructure with practical solutions. Its recommendations—such as providing educators with training, adopting UDL principles, fostering collaboration among stakeholders, and addressing infrastructure disparities—are essential steps toward creating equitable and technology-enhanced learning environments.

#### **APPLYING THE NETP IN K-12 SETTINGS**

Effective application of the U.S. 2024 NETP in K-12 settings requires coordinated efforts from schools, teachers, administrators, and policymakers. The foundation for

success begins with creating an inclusive, technology-enhanced learning environment that is supported by both robust infrastructure and targeted professional development.

Schools play a central role in establishing the necessary infrastructure, ensuring that digital tools are accessible to all students and staff. This infrastructure should be complemented by ongoing teacher training programs, which not only focus on the technical use of technology but also on digital pedagogy—the integration of technology into instructional practices (DOE, 2024). Administrators should take the lead in making sure that professional development programs are consistent and aligned with best practices, enabling teachers to integrate technology effectively into their teaching (Pongsakdi et al., 2021; Aslan & Zhu, 2016). Without this emphasis on pedagogy, even the most advanced digital tools may remain underused or used ineffectively (Pongsakdi et al., 2021; Brigas et al., 2016).

Beyond training and infrastructure, fostering an inclusive environment requires a collaborative approach among teachers, parents, and other educational professionals (DOE, 2024). Schools should work with all stakeholders to co-design support strategies that meet the diverse needs of students, including those with disabilities. Research suggests that when these groups collaborate effectively, students experience greater inclusion and better academic outcomes (A: Garcia-Melgar et al., 2022; Hargreaves et al., 2021; Heras et al., 2021; Kisbu-Sakarya & Doenyas, 2021). This collaboration is essential to ensuring that technology decisions reflect the broader values of the community and contribute to the NETP’s goals of inclusivity and engagement.

To make technology integration meaningful, teachers must be equipped with the tools to design accessible lessons that leverage digital resources effectively. Applying UDL principles allows teachers to create adaptable lesson plans that engage diverse learners and provide multiple means of engagement, representation, and expression. This approach makes learning more inclusive, ensuring that all students, regardless of their learning needs or abilities, can participate and succeed (DOE, 2024). However, to implement UDL effectively, teachers need ongoing training not only in technology but also in instructional design. Schools should prioritize these types of programs to ensure that digital tools are used to their full potential in supporting diverse learning styles and needs.

Policymakers at the district and state levels also have an important role to play in ensuring that digital literacy and responsible online behaviors are actively taught to students. While access to technology is essential, preparing students for the digital world requires developing their digital literacy skills and fostering responsible online behaviors (DOE, 2024). As national and state leaders increasingly focus on building a workforce proficient in digital skills, it is crucial that educators are trained to impart these competencies (De León et al., 2023). Teacher preparation programs must evolve to include ongoing assessments of both digital literacy and pedagogical strategies to help future educators effectively teach these skills. This ensures that teachers are equipped to engage students in meaningful digital learning experiences that prepare them for success in the 21st-century workforce (De León et al., 2023).

By prioritizing these investments—infrastructure development, training for teachers, and stakeholder collaboration—schools can build a learning environment that embodies the NETP’s vision of an inclusive and equitable digital education. With schools providing the infrastructure, teachers designing adaptable lessons, and students developing essential digital competencies, K-12 institutions can successfully implement the NETP, ensuring that technology enhances every student’s educational journey.

## **AREAS OF CRITIQUE**

However, while the NETP 2024 offers recommendations for bridging these divides, providing a holistic approach and systemic solution for closing all digital divides is a taxing

task considering the complexities of the current educational system under the influence of neoliberalism. The digital divide remains a pressing issue in education (Ritzhaupt et al., 2020). Through diving into the recommendations and examples advocated in the plan for addressing each divide, there are several points of criticisms regarding the perspectives and approaches to technology use in education. One point of criticism lies in the emphasis on standardization as a measure of effectiveness, which raises concerns about overlooking the unique needs of students and strengths of educators, particularly in marginalized communities. Additionally, the marketization and commodification of educational technology, as seen in the plan's call for increased adoption and commercial partnerships, may inadvertently exacerbate existing inequalities by favoring profit/market-driven approaches over equitable access. A narrow focus on digital citizenship, while important, may divert attention from broader issues of social and economic inclusion within the digital realm. Therefore, it is vital to critically examine the NETP 2024 recommendations for addressing the digital divides to ensure that they effectively tackle the complex challenges and implications associated with technology use in education.

#### *OVER-EMPHASIZING STANDARDIZATION*

As a strategy for bridging the digital use divide, the 2024 NETP suggests “develop a “Portrait of a Learner/Graduate” outlining the “cognitive, personal, and interpersonal competencies” students should possess by the time they graduate and transition between grade levels (DOE, 2024, p.17). Creating a Portrait of a Learner/Graduate can “influence curriculum, instruction, assessment, and educational design” by defining the necessary skills and attributes for success (DOE, 2024, p.17). However, this approach may prioritize standardized outcomes over individualized and diverse learning needs of students, potentially limiting the role and potentials of technology in education for fostering creativity, critical thinking, and personalized learning experiences which were guaranteed in the plan. In addition, the acquisition of workforce-ready abilities constitutes only one facet among a multitude of educational intentions and learning goals. Advocating for a limited conception of education disregards the multifaceted requirements and capabilities of students while neglecting to acknowledge the significance of personalized and inclusive instruction.

The 2024 plan acknowledges that in order for students to develop the skills and competencies outlined in their “Portrait of a Learner/Graduate”, educators must embody and exhibit these competencies first (DOE, 2024, p. 35). Therefore, the plan suggests the development of a corresponding “Portrait of an Educator”, aligned with the “Portrait of a Learner/Graduate”, which aims to “connect educator habits and capacities with expected student learning outcomes” (DOE, 2024, p. 35). Nevertheless, it is important to point out that the ultimate goal of developing a portrait of an educator is still centered on increasing the effectiveness of students in acquiring the predefined skills and competencies outlined in their learner portrait. Educators possess diverse skills, backgrounds, and teaching styles that contribute to the richness of the educational experience. The focus on predefined needs and capacities can be seen as a form of standardization that neglects the diverse range of skills and expertise that educators bring. By solely aligning educator profiles with predetermined student outcomes, there is a risk of undervaluing the unique talents and individual contributions that educators bring to the classroom.

Moreover, the plan posits that by setting forth explicit expectations for the needs and abilities of educators with respect to EdTech, “hiring practices, professional learning opportunities, and educator evaluations” can be enhanced to reflect the required competencies. Additionally, it empowers state and district leaders to design professional learning systems in a backward manner, which ensures that “all educators have the necessary time, space, and capacity to develop essential learning design abilities” (DOE,

2024, p. 37). However, employing a top-down approach by using the portrait of the educator as a guide to design professional learning systems can be subject to criticism. This approach may restrict the effectiveness and relevance of professional learning systems as it may not fully consider the unique needs, experiences, and expertise of individual educators. By relying solely on a top-down decision-making process, the input and perspectives of educators in the field may be overlooked.

In order to support the effective realization of the system's predefined learner and educator conditions, the plan further recommends the development of a "Portrait of a Learning Environment" (DOE, 2024, p. 58). By prioritizing the alignment of learning environments with predefined portraits, there is a risk of diminishing the diversity and uniqueness of educational practices, which raises concerns about standardization and the potential loss of autonomy in tailoring environments to specific needs and preferences of both learners and educators. The emphasis on setting expectations for all learning spaces, both physical and digital, may overlook the contextual nuances that influence effective teaching and learning. While the intention may be to enhance the attainment of learning outcomes, it is important to recognize that education is a complex and multifaceted endeavor, and excessive standardization may hinder the creativity, adaptability, and innovation necessary to meet the diverse needs of students.

In summary, the recommendations put forth by the NETP 2024 for establishing a "Portrait of a Learner/Graduate, Teacher, and Learning Environment" as a means to address the digital divide is not without criticism. The plan fails to consider how technology could be adapted in more diverse ways across varied contexts, with applications that are open-ended yet customized to individual needs. Imposing standardized expectations for technology use in education takes away educator and student autonomy. In addition, the top-down approach to professional learning systems overlooks the input and perspectives of educators on the ground, limiting their effectiveness and relevance. A more comprehensive approach is necessary to address the complexities of education and leverage technology effectively. To truly bridge the digital use divide, it is essential to embrace a more inclusive approach that recognizes and responds to the diverse needs of learners, going beyond the narrow focus on the predefined learning objectives and outcomes set by the states and districts.

*TECHNOLOGY-DRIVEN LEARNING OPPORTUNITIES OVERSHADOWS  
PRINCIPLES OF UNIVERSAL DESIGN FOR LEARNING (UDL)*

The NETP 2024 provides detailed suggestions on how to address the digital use, design, and access divides, with an emphasis on effectiveness, efficiency, and sustainability. One key recommendation is to incorporate the principles of Universal Design for Learning (UDL) to improve teaching and learning for all students. UDL, a research-driven framework, aims to make learning accessible and effective by reducing barriers in instruction and addressing individual differences. It emphasizes the need to design instructional materials, learning activities, and assessments that accommodate a wide range of learners.

By emphasizing UDL principles, the plan indicates a commitment to creating an inclusive and flexible learning environment. State and district policymakers are encouraged to gain a "working understanding of UDL, advocate for equity of access to professional learning focused on UDL, and prioritize sustained funding for such initiatives" (DOE, 2024, p. 23). Teacher preparation programs are urged to implement UDL principles and support teachers as learning designers. While the plan acknowledges that UDL can be implemented without modern digital technology, it still promotes EdTech as the merely ideal solution. However, it is important to note that heavily relying on digital tools and devices may inadvertently limit the potential for diverse teaching methods and approaches.

Such narrow focus on technology-driven solutions may overlook the preferences of students and may restrict the exploration of innovative teaching methods that go beyond digital tools. While technology can undoubtedly enhance learning experiences, it should not be seen as the sole means to achieve UDL goals.

While the incorporation of UDL principles and the use of technology has the potential of positively improving teaching and learning, the plan's excessive emphasis on effectiveness, efficiency, and technology-driven solutions may inadvertently neglect other important aspects of education. To foster inclusive and holistic learning experiences that truly empower and inspire all students, it is crucial to take a more balanced approach that encompasses various pedagogical strategies, student needs, and educational goals, while recognizing the multifaceted nature of education and addressing the digital divides through thoughtful planning and resource allocation.

#### *MARKET-DRIVEN APPROACHES TO TECHNOLOGY USE IN EDUCATION*

The recommendations provided by the NETP 2024 emphasize the establishment of public-private partnerships to address digital use, design, and access divides. For instance, the report suggests building partnerships with "local businesses, higher education institutions, and nonprofit organizations" to provide students with "EdTech-enabled hands-on learning and work-based experiences" (DOE, 2024, p. 75).

In the example given in the plan, the Nevada DOE cooperated with the Future of Learning Network to construct a "Portrait of a Nevada Learner," which represents input not only from educators and students, but also business leaders (DOE, 2024, p. 17). The process involved gathering input from diverse constituents through surveys, pilot cohorts, and a youth fellowship program. The NDE made the process transparent by publishing documentation of the portrait's history and development, allowing for statewide ownership and potentially serving as a model for other states. The final portrait highlights the attributes that Nevada learners need for academic and life success in an ever-changing future. However, the example raises concerns about the influence of commercial interests on educational practices. Determining how learners' attributes are portrayed raises questions about whose perspectives and priorities are being prioritized. Commodification occurs when learners are portrayed in a way that is more aligned with market demands or economic interests than with holistic educational goals. Such public-private partnership recommendation embodies a neoliberal, market-based mentality about providing educational services.

The plan also suggests to "foster an inclusive technology ecosystem that solicits input from diverse stakeholders to collaborate on decision-making for technology purchases, learning space design, and curriculum planning" (DOE, 2024, p. 35). For instance, in New Hampshire's School Administrative Unit 16 (SAU-16), educators collaborated with stakeholders to develop a companion "Portrait of an Educator" (DOE, 2024, p. 37). In Sheridan County School District 3 (SCSD3) in Wyoming, facilitators from the University of Wyoming worked with teachers to develop "Portrait of an Educator" (DOE, 2024, p. 38). While soliciting input from diverse stakeholders is recommended to foster an inclusive technology ecosystem, collaborative decision-making can be challenging because educators, administrators, and policymakers often have different priorities. It is essential to carefully consider the representation and inclusion of diverse perspectives to ensure meaningful collaboration and avoid potential power imbalances among stakeholders. Meaningful collaboration may be difficult to achieve as stakeholders often have conflicting interests and priorities, which can lead to power imbalances and challenges in reaching consensus. Therefore, the involvement of diverse stakeholders may not be feasible or effective in practice.

The NETP 2024 also acknowledges the importance of public-private partnerships and community collaboration in expanding broadband internet access to under-connected areas (DOE, 2024, p. 56). While these partnerships are seen as crucial for successful broadband deployment, it is essential to critically examine their implications. The involvement of governments, internet service providers (ISPs), community agencies, nonprofit organizations, and other stakeholders should prioritize the public interest and actively address social issues, such as oppression, inequalities, and injustices that are inherent in education. Collaboration should not solely focus on technical expertise and profit-driven motives but should also center on equitable access and social justice. It is imperative to set clear boundaries between government, for-profit, and nonprofit entities to ensure data security, protect against potential exploitation, and provide safeguards that prevent the undue influence of market forces and ensure that the primary goal remains the welfare of learners and the broader community. By doing so, stakeholders can work together to address the digital divide while simultaneously tackling the systemic issues that perpetuate educational inequities.

#### *DIGITAL CITIZENSHIP NARROWLY DEFINED*

The NETP 2024 puts forth recommendations that highlight the significance of integrating digital literacy skills and digital citizenship principles into educational practices. It acknowledges the need for intentional planning at the state, district, and school levels to effectively address the digital divides and foster academic success (DOE, 2024, p. 60). However, it is important to critically examine the underlying assumptions about citizenship embedded in the plan. The dominant understanding of citizenship portrayed in the plan appears to be influenced by conventional civic republican and liberal ideas, which may limit its scope and relevance in the digital era. By adopting a narrow view of digital citizenship that emphasizes individualist notions of citizenship, the plan may overlook important aspects of collective responsibility and participatory engagement. As a result, it is crucial to critically evaluate the limited perspectives on digital citizenship presented in the plan and explore alternative frameworks that take into account the multifaceted nature of digital citizenship, including individual, collective, and ethical dimensions.

#### *LIMITED PERSPECTIVES ON DIGITAL CITIZENSHIP*

The NETP 2024 places significant emphasis on developing digital literacy, defined as “the skills associated with using technology to enable users to find, evaluate, organize, create, and communicate information; and developing digital citizenship and the responsible use of technology”, framing technology as merely a tool for learning and academic success (DOE, 2024, p. 60). However, this narrow focus overlooks the broader ethical considerations and responsible online participation that are essential components of a comprehensive understanding of digital citizenship. While acknowledging the impact of knowledge and skill inequities on students' readiness for the workforce (DOE, 2024, p. 60), the plan fails to address the need for a holistic approach that includes ethical decision-making, critical thinking, and active engagement in digital spaces.

The plan further recognizes the role of educators and administrators in modeling and facilitating digital literacy skills. It highlights examples of successful implementation in districts like Wichita and Southwestern Pennsylvania, mainly focusing on the development of strategies and skills (DOE, 2024, p. 89). The emphasis on professional learning and alignment with state standards tends to reinforce a narrow view of digital citizenship centered on rule following, rather than encouraging students to critically and responsibly engage in online environments.

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To empower students as well-rounded digital citizens, it is crucial to move beyond a singular focus on academic success or workforce preparation. The plan should incorporate a comprehensive approach to digital citizenship education that encompasses ethical decision-making, critical thinking, and responsible engagement in digital spaces. By fostering these skills, students will be better equipped to navigate the digital world effectively, contribute positively, and act responsibly in online environments. A holistic understanding of digital citizenship is necessary to ensure that students not only thrive academically, but also develop the necessary skills to navigate the digital landscape responsibly and ethically.

#### *NARROW AND RULE-CENTRIC APPROACH TO DIGITAL CITIZENSHIP EDUCATION*

The NETP 2024 defines digital citizenship as “the norms of appropriate, responsible, and healthy behavior in digital platforms”, focusing on respectful and responsible navigation of the digital world (DOE, 2024, p. 87). While it is clear and concise, the plan’s narrow emphasis on technology etiquette as the sole metric for appropriateness raises concerns. The understanding of appropriateness is commonly associated with behaving correctly and following rules, however, solely focusing on technology etiquette may not fully address the importance of helping students develop their individualized selves through reflection on their actions. Such a limited approach also fails to acknowledge the significance of considering students' roles within social and political contexts, both online and offline.

In its approach to digital citizenship, the plan constrains the concept to a set of rules and codes. The plan metaphorically portrayed the internet as an "information superhighway" and suggests that digital health, safety, and citizenship rules should precede access to connectivity and devices (DOE, 2024, p. 82). While it is important to address digital health and safety concerns, an exclusive focus on teaching rules and norms reflects a simplistic understanding of digital citizenship centered on rule following and compliance. The plan undermines the need for a more comprehensive and critical approach to digital citizenship education and a deeper sense of digital citizenship that involves student critical engagement and participation in public activities.

In the context of digital citizenship, the U.S. DOE embraces a civic republican perspective that emphasizes values such as loyalty and service to the political community, where a civic identity among young people is characterized by commitment to the political community, respectful for its symbols, and active participation in its common good. According to the plan, good digital citizens “engage positively and constructively in online communities, possess good digital literacy and critical thinking skills, and demonstrate responsible online behavior, managing their digital footprint and reputation”, along with other technical aspects (DOE, 2024, p. 88). However, such understanding constricts the concept of digital citizenship to a set of rules and codes, rather than galvanizing a sense of digital citizenship that encourages students to actively participate in public activities and contemplate the requirements for engaging with fellow citizens online on complex public issues.

To address these limitations, it is essential for educators to move beyond viewing digital citizenship as a mere set of skills and rules. Instead, they should foster student participation in public activities and help them recognize the significance of digital democracy, citizenship, and freedom. By incorporating digital pedagogies that enable students to make connections between their digital technology use and its social and political implications, educators can cultivate a more comprehensive understanding of digital citizenship.

### *NARROW FOCUS ON DIGITAL HEALTH, SAFETY AND PRIVACY*

Liberal conceptions of citizenship invoke individual rights and freedom from tyranny; these discourses view citizenship as a process of protecting individuals' liberty to shape their own lives and futures. This notion of citizenship is captured in the NETP 2024's explicit naming of digital health and safety issues as key factors of digital citizenship (DOE, 2024, p. 89). Digital citizenship education, as narrowly interpreted in this context, tends to prioritize pedagogy that enables students to protect themselves online and safeguard their rights to privacy and well-being. Such approach overlooks the significance of fostering students' active engagement in public activities, their understanding of complex online issues, and their cultivation of a deeper understanding of the ethical dimensions of digital citizenship. A more comprehensive approach to digital citizenship education should consider broader aspects of citizenship, encompassing social and political engagement that extends beyond the scope of individual protection.

### *THE LACK OF SYSTEMIC SOLUTION*

Notwithstanding the NETP 2024's aim to establish systemic solutions to inequities of access, design, and use of technology in support of learning, there are still aspects that merit attention and room for improvement. First of all, the NETP 2024 introduces the digital design divide as a new aspect at the intersection of school culture. In doing so, it recognizes the complex relationship among socioeconomic status, educational design, and technology utilization within educational institutions (DOE, 2024, p. 21). While the plan acknowledges the historical correlation between socioeconomic status and the disparities observed in technology access and adoption across schools and school systems, it highlights that effective learning design using EdTech does not necessarily align with socioeconomic status (DOE, 2024, p. 21). This perspective disregards the potential impacts that socioeconomic factors have caused on learning design and neglects addressing the challenges they have presented.

Educational institutions operating in economically disadvantaged areas often struggle with limited budgets, outdated infrastructure, insufficient technology resources, and a dearth of professional development opportunities. These resource disparities can significantly impede a school's capacity to develop and implement high-quality learning design using EdTech. Consequently, the plan's neglect of the influence of socioeconomic status overlooks the systemic challenges and resource gaps that can hinder effective instructional design implementation. Furthermore, schools in socioeconomically disadvantaged areas may encounter difficulties in attracting and retaining highly qualified teachers, instructional designers, and educational technology specialists, which directly impacts the quality of instructional design. Neglecting to recognize the potential staffing shortages and acknowledge deficits that educational institutions might encounter is a fundamental oversight in addressing digital design divide.

Furthermore, the sustainability of the proposed solutions for bridging the digital access divide outlined in the NETP 2024 is questioned. While the plan recognizes the urgency of taking action and offers suggestions to improve accessibility, it lacks a comprehensive analysis of the underlying factors that contribute to the divide and fails to propose valid long-term systemic solutions. The plan's primary focus revolves around specific initiatives such as developing learner and teacher portraits, conducting needs assessments, leveraging purchasing power, and establishing administrative roles. While these initiatives may have longer-term implications, there is a need for a more thorough examination of the root causes and the implementation of broader, sustainable strategies to bridge the digital divide. Moreover, the reliance on specific localized initiatives, such as the example of the Lindsay Unified School District's project (DOE, 2024, p. 57), suggests a narrow and

localized approach rather than a broader systemic solution. Thus, the plan fails to address the fundamental causes of the digital access divide and propose sustainable, systemic solutions in effective and long-term measures.

Additionally, the plan lacks specific guidance on the optimal extent of involvement for each element within the instructional core, encompassing students, teachers, and technology/content. The limited scope of recommendations fails to address the multifaceted complexities and interdependencies within the educational system. A more comprehensive understanding of contextual factors, alignment with educational goals, equity considerations, and long-term sustainability is crucial when evaluating educational technology products and services. Neglecting to provide comprehensive guidance on the optimal integration of these elements within the instructional core limits the plan's effectiveness and applicability in practice.

Therefore, it is imperative for the DOE to take into account socioeconomic factors and address underlying issues when formulating systemic solutions to bridge the digital use, design, and access gaps. Acknowledging and prioritizing the long-term sustainability, adopting broader systemic approaches, and developing a comprehensive understanding of the complex dynamics within the educational system are all critical endeavors. Effectively addressing these concerns will be crucial in advancing equitable and effective practices in the realm of digital education.

## CONCLUSION & SUGGESTIONS

In conclusion, the NETP 2024 plan presents valuable recommendations for addressing digital use, design, and access divides, but there are several limitations that require critical examination. The focus on standardization overlooks the importance of embracing diverse pedagogical strategies and student needs. Additionally, the reliance on public-private partnerships as a solution raises concerns about the potential commodification of education, where profit-driven motives may overshadow equitable access and quality learning experiences. The current understanding of digital citizenship is too narrow, failing to encompass the full complexities of integrating digital technology into education. Furthermore, the plan lacks comprehensive systemic solutions to address the digital divides effectively. Moving forward, the following areas that require improvement in addressing these divides:

### *PROMOTING AUTONOMY INSTEAD OF STANDARDIZATION*

Education is complex and multifaceted, and excessive standardization can hinder the autonomy of both educators and students, limiting creativity, adaptability, and innovation. Emphasizing predetermined expectations and outcomes rather than accommodating diverse teaching and learning needs may restrict the potential of educational technology. The focus should, therefore, shift towards promoting flexible technological implementations, allowing for feedback from both educators and students to ensure that technology serves a wide range of needs. To realize this vision of flexibility and responsiveness, teacher preparation programs should equip future educators with the skills to personalize learning, adapt teaching strategies, and implement inclusive practices that address varied student needs (Chaipidech et al., 2022; Bondie, 2023).

Professional development should empower teachers to have a voice in shaping technology use, emphasizing autonomy and contextually relevant solutions. In this process, district administrators play a crucial role by providing the necessary resources, policy frameworks, and support structures to allow teachers this flexibility in practice. By prioritizing teacher agency in technology integration and ensuring that technology responds to individual student needs, administrators help create an environment that nurtures creativity, collaboration, and innovation (Jeon et al., 2022). Together, these efforts

foster an educational ecosystem where both teachers and students can explore and apply technology in meaningful, personalized ways.

*EMPHASIZING COLLABORATION INSTEAD OF MARKETIZATION /  
COMMODIFICATION*

While the NETP 2024 advocates for partnerships with local businesses, higher education institutions, and nonprofits to bridge digital divides, it is crucial to ensure these collaborations are driven by educational goals rather than market interests. Clear boundaries should be established to prevent undue market influence, ensuring that these partnerships prioritize the well-being of students and the integrity of educational institutions. District administrators play a key role in maintaining these boundaries by inclusive decision-making processes that involve teachers in selecting technology and evaluating potential partners (Uygur et al., 2020; Murphy, 2018). By ensuring that partnerships are rooted in educational values and not motivated by profit, administrators help build sustainable collaborations that genuinely enhance educational outcomes (Uygur et al., 2020). In this way, they safeguard the long-term interests of students and create an ecosystem where partnerships contribute to meaningful, equitable learning experiences.

*PROMOTING A MORE COMPREHENSIVE CONCEPTION OF CITIZENSHIP*

While the NETP 2024 provides a foundation for digital literacy, its current definition of digital citizenship remains too narrow, focusing primarily on rules and individual safeguarding. A broader definition that includes ethical decision-making, critical thinking, and democratic participation is essential for empowering students to engage meaningfully and responsibly in digital spaces (Vallès-Peris & Domènech, 2024; Bruce & Casey, 2012; Prasetyo et al., 2023; Choi, 2016). To realize this broader vision, teacher preparation programs must equip future educators with the tools to guide students in navigating these ethical challenges, while fostering critical thinking and active, informed citizenship. Educators need to be prepared to guide students in becoming active and informed citizens who can engage responsibly and meaningfully with the digital world (Prasetyo et al., 2023, Richardson & Milovidov, 2019). In parallel, district administrators play a vital role in supporting this expanded conception of digital citizenship. By implementing policies and providing resources that go beyond digital etiquette, administrators can promote civic engagement, self-expression, and critical thinking. Through creating both online and offline opportunities for participation, they help cultivate an environment where students develop the skills needed to become responsible, engaged digital citizens, prepared to contribute to both the workforce and democratic society.

*CONSIDERING SYSTEMIC SOLUTIONS*

Addressing the disparities in digital design, access, and usage requires systemic solutions that account for socioeconomic factors and tackle the structural issues within the educational system. The DOE must prioritize long-term, sustainable approaches to ensure equitable digital access and usage across all student demographics. Teacher preparation programs are key in this effort, as they can equip future educators with the knowledge and skills needed to recognize and address systemic inequities. By training educators to adapt their teaching strategies and advocate for necessary systemic changes, these programs help create more equitable learning environments that can better meet the needs of all students. At the district level, administrators play an essential role in supporting long-term, equity-centered solutions. In addition to addressing immediate technological needs, they must also ensure the equitable distribution of resources to overcome socioeconomic barriers. By addressing these systemic challenges, district administrators can foster a more inclusive

and equitable digital education landscape, where every student has access to the opportunities technology provides.

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