CHAPTER 2
INNOVATIONS IN THE MANAGEMENT OF EDUCATIONAL INSTITUTIONS

TECHNOLOGICAL AND HUMAN INCLUSION: RECLAIMING HUMANITY IN A DIGITAL AGE

Irena Spivak[1]

[1]*Owner, Mentor, Decision Support Specialist, SIMPLECTIVE, Nili, Israel, e-mail: irina.spivak@gmail.com, ORCID: https://orcid.org/0009-0006-5345-5393*

Citation:
Spivak, I. (2025). Technological and Human Inclusion: Reclaiming Humanity in a Digital Age. *Pedagogy and Education Management Review*, (1(19), 25–34. https://doi.org/10.36690/2733-2039-2025-1-25-34

Received: March 03, 2025
Approved: March 29, 2025
Published: March 30, 2025

Abstract. *The relevance of the topic lies in the urgent necessity to address digital inclusion not only from a technical standpoint but as a profound emotional, psychological, and social challenge. As technology and artificial intelligence increasingly permeate daily life, the digital divide has evolved beyond mere access to infrastructure; it now encompasses emotional disconnection, fear, and alienation, especially among marginalized groups. The purpose of this study is to explore the relationship between technological advancement and human inclusion, emphasizing that reclaiming humanity must be at the center of digital progress. The methodology adopted is a mixed qualitative-analytical approach, utilizing international statistical data, comparative case studies, and program evaluations from regions such as Europe, North America, Africa, and Asia. Key results highlight that while internet access has improved globally, emotional exclusion remains high, with significant technophobia, distrust, and low self-confidence affecting digitally marginalized populations. Programs that incorporate human-centered approaches—such as Canada's Digital Literacy Exchange, Kenya's Ajira Digital Program, and India's DigiSakshar—demonstrate greater success in fostering emotional resilience and empowering users compared to purely technical training. The findings reveal that true inclusion is not achieved by providing devices alone but by nurturing emotional empowerment, social participation, and dignity. The study concludes that future digital strategies must integrate empathetic, culturally sensitive, and user-centered frameworks if digital technology is to serve humanity fully and equitably. Building an inclusive digital society thus requires a fundamental rethinking of education, public policy, and technological innovation to restore belonging, resilience, and hope for all.*

Keywords: *digital inclusion; human-centered technology; technophobia; digital divide; emotional learning; social justice; education technology; empowerment.*

JEL Classification: I 12, I 14, I 24

Formulas: 0; fig. 0; tabl. 5; bibl. 6

Introduction. In the 21st century, the digital revolution has reshaped the landscape of human interaction, governance, education, and opportunity. However, this transformation has also exposed and exacerbated deep structural inequalities, making digital inclusion not only a technical challenge but a human one. While discussions often focus on infrastructure and access, the emotional and social dimensions of exclusion—fear, shame, alienation—remain insufficiently addressed. The rise of artificial intelligence, algorithmic decision-making, and automation increases the risk that entire populations may be left behind or feel culturally erased. Thus, reclaiming the human dimension in technological inclusion is a critical global priority.

Literature Review. The relationship between technology and human inclusion has become one of the most pressing issues of the 21st century, as the rapid digitalization of societies simultaneously offers unprecedented opportunities and risks deepening existing inequalities. Early discussions of the digital divide, notably by Van Dijk (2020), emphasized disparities in access to infrastructure, such as internet connectivity and devices. However, contemporary research has evolved to recognize that inclusion must address not only technical access but also social, emotional, and cultural dimensions (Helsper, 2021).

Warschauer (2004) argued that true digital inclusion is rooted not simply in providing hardware but in fostering capabilities—the skills, confidence, and opportunities necessary to meaningfully participate in the digital world. This perspective resonates with Sen's capabilities approach, which suggests that social inclusion depends on enabling individuals to live the lives they value. Without addressing educational inequities, socioeconomic barriers, and cultural factors, providing technology alone risks reinforcing exclusion.

Recent studies, such as those by Selwyn (2016), have emphasized that emotional barriers such as technophobia, anxiety, and fear of obsolescence contribute significantly to digital exclusion. Particularly among elderly populations, marginalized youth, and individuals with disabilities, emotional responses to technology—including fear and alienation—are major determinants of non-participation. Digital literacy programs that ignore these emotional factors often fail to achieve sustainable engagement.

The concept of human-centered technology has gained traction in both academic literature and policy frameworks. It suggests that technological innovation must prioritize the needs, dignity, and agency of users, especially those from vulnerable groups. UNESCO (2015) advocates for embedding inclusion into every level of technological policy and educational strategy, calling for inclusive pedagogies, accessible design, and participatory approaches that empower marginalized communities.

Some scholars critique the growing reliance on technological "solutions" to complex social problems. Morozov (2013) warns against "technological solutionism"—the belief that every social issue can be resolved with better technology—arguing that without addressing structural inequalities, new technologies may perpetuate or even exacerbate exclusion. This critique highlights the necessity of

a dual approach that combines technological innovation with social justice frameworks.

Innovative approaches to digital inclusion increasingly recognize the importance of emotional engagement, community participation, and social infrastructure. Programs that link digital skills to real-life aspirations—such as employment, healthcare access, and family connection—are shown to be more effective in bridging the digital divide sustainably. Empowerment, rather than technical mastery alone, is emerging as the cornerstone of inclusive digital strategies.

Aims. The aim of this article is to explore the complex relationship between technological advancement and human inclusion in the digital age. Specifically, it seeks to analyze the emotional, psychological, and social costs associated with digital exclusion across different populations and countries. The study also aims to examine the role of technophobia and distrust as significant barriers to full digital participation. Furthermore, it highlights the effectiveness of human-centered digital literacy initiatives compared to traditional technical training programs. Ultimately, the article aspires to reframe inclusion as not merely a matter of access but as an emotional and social achievement, and to provide practical recommendations for integrating inclusive, empathetic values into future digital policies, educational strategies, and community practices worldwide.

Methodology. This study adopts a mixed qualitative-analytical approach, drawing on international survey data, case studies, and program evaluations. Sources include statistical reports from the ITU, Pew Research Center, Eurostat, CGI.br, and national digital inclusion indices from countries such as Australia, South Korea, and India. The article compares quantitative data (e.g., internet access, digital usage, technophobia rates) with qualitative impacts (e.g., emotional wellbeing, self-confidence, empowerment) to develop a multidimensional view of inclusion. The discussion synthesizes findings into a policy framework informed by both academic literature and real-world outcomes.

Results. Inclusion has become a critical narrative of the 21st century, yet its true meaning risks dilution amid political rhetoric and technological optimism. In the digital age, inclusion must transcend slogans to become an active commitment to ensure that technology serves humanity in all its diversity. The modern world is increasingly shaped by invisible algorithms and artificial intelligence systems that determine access to services, communication, and social participation. While some marvel at this new frontier, others experience profound alienation, fear, and marginalization. The digital divide is not merely a gap in access—it is a rupture in belonging, dignity, and opportunity. As society progresses toward a hyperconnected future, reclaiming the human spirit within this digital landscape becomes both a moral and practical imperative.

The Silent Cost of Digital Exclusion. Digital exclusion carries hidden costs that extend far beyond the absence of internet access or device ownership; it profoundly affects individuals' emotional well-being, social participation, and economic mobility. According to the International Telecommunication Union (ITU, 2023), approximately 2.6 billion people worldwide—about one-third of the global population—remain offline. These individuals are disproportionately older adults, people with disabilities,

rural residents, and marginalized ethnic groups. For instance, in the United States, a Pew Research Center study (2021) found that 25% of adults over the age of 65 do not use the internet, contributing to their social isolation and limiting access to telehealth services, particularly critical during the COVID-19 pandemic.

In India, where rapid digitalization has advanced mobile connectivity, rural-urban disparities remain stark: the National Family Health Survey (NFHS-5, 2021) reported that only 38% of rural women have ever used the internet, compared to 68% of urban men. This digital gap not only restricts women's access to educational and employment opportunities but also entrenches broader gender inequalities. In Europe, while basic internet access is relatively high, the "second-level digital divide" persists. Data from Eurostat (2022) reveal that while 92% of households have internet access, only 58% of individuals aged 55–74 possess basic digital skills, which impacts their ability to access e-government services and participate in digital society.

The consequences of exclusion are not solely economic; they are deeply emotional. In Australia, a 2020 study by the Australian Digital Inclusion Index found that individuals with lower digital inclusion scores reported higher levels of loneliness and lower self-reported mental health. Elderly populations, especially, experience heightened anxiety when forced to navigate increasingly digital banking, healthcare, and communication systems without support, often leading to withdrawal and decreased quality of life.

Moreover, the impact of digital exclusion extends to youth. In South Africa, where the World Bank (2021) estimates that only 37% of households have reliable internet, the lack of digital access during COVID-19 school closures exacerbated educational inequalities, resulting in long-term setbacks for millions of students, especially in rural areas.

Table 1. Digital Exclusion Statistics and Impacts by Country

Country	Key Statistics	Impact of Digital Exclusion
United States	25% of adults aged 65+ do not use the internet (Pew Research Center, 2021).	Increased social isolation; limited access to telehealth and online services.
India	Only 38% of rural women have ever used the internet vs. 68% of urban men (NFHS-5, 2021).	Entrenched gender inequalities; restricted access to education and employment.
European Union	92% of households have internet, but only 58% of individuals aged 55–74 have basic digital skills (Eurostat, 2022).	Barriers to e-government services; reduced social participation among seniors.
Australia	Lower digital inclusion scores linked to higher loneliness and poorer mental health (ADII, 2020).	Emotional distress; increased mental health issues among excluded groups.
South Africa	Only 37% of households have reliable internet access (World Bank, 2021).	Deepened educational inequality during pandemic-related school closures.

Sources: developed by authors

Therefore, the silent cost of digital exclusion must be understood as a complex intersection of economic disadvantage, emotional distress, social alienation, and systemic inequity. True digital inclusion initiatives must address not only infrastructural gaps but also restore a sense of belonging, empowerment, and dignity to those who have been left behind. Solutions must be holistic, combining access to

technology with emotional support, digital literacy training, and community engagement programs tailored to diverse populations. Recognizing and responding to these invisible wounds is essential if technology is truly to serve humanity rather than deepen divides.

Technophobia: Beyond Technical Skills. Technophobia—the fear or aversion to technology—is often misunderstood as a simple lack of digital literacy, but its origins are far more complex and deeply emotional. It represents not only fear of failure but also anxiety about personal relevance, privacy violations, and a loss of human identity in an increasingly mechanized world. According to a study by the European Commission (2022), approximately 23% of adults in the European Union report feeling some degree of fear or discomfort when using digital technologies. In Japan, a country celebrated for its technological advancements, a 2021 survey by Statista revealed that 22% of citizens aged 60+ actively avoid using smartphones and internet-connected devices, citing fear of making mistakes or exposing personal information.

In Brazil, research conducted by CGI.br (Brazilian Internet Steering Committee) in 2022 showed that 19% of people aged 16+ refrain from using online government services due to distrust and apprehension about digital processes. Meanwhile, in the United States, a Pew Research Center report (2021) indicated that 17% of adults feel overwhelmed by the rapid pace of technological change, contributing to technophobia particularly among low-income and elderly populations. In Germany, a 2022 study by Bitkom revealed that while 90% of people use smartphones daily, about 29% express discomfort with digital banking and e-government services, fearing errors or data breaches.

Technophobia is not only a barrier to technology adoption; it is also a barrier to social inclusion, economic participation, and emotional well-being. Individuals suffering from technophobia are often excluded from accessing critical resources, such as telemedicine, online education, or job applications, further deepening societal divides. Overcoming technophobia requires more than technical training—it demands empathetic educational approaches that rebuild users' confidence, respect emotional vulnerabilities, and link technology use to personally meaningful goals. Without this holistic empowerment, technophobia risks solidifying into a form of digital exclusion that no amount of hardware distribution can solve.

Table 2. Technophobia Statistics by Country

Country	Key Statistics	Main Concerns
European Union	23% of adults experience fear or discomfort with digital technologies (European Commission, 2022).	Fear of complexity; loss of privacy; security risks.
Japan	22% of citizens aged 60+ avoid smartphones and connected devices (Statista, 2021).	Fear of making mistakes; exposure to scams.
Brazil	19% of individuals aged 16+ avoid online government services due to distrust (CGI.br, 2022).	Fear of misuse; distrust of digital systems.
United States	17% of adults feel overwhelmed by technological change (Pew Research Center, 2021).	Anxiety over pace of change; digital fatigue.
Germany	29% of people are uncomfortable with digital banking and e-services (Bitkom, 2022).	Concerns about errors; data privacy issues.

Sources: developed by authors

Thus, tackling technophobia must be a priority in all national digital inclusion strategies. Governments, educators, and technology developers must collaboratively design programs that humanize technology, promote psychological safety, and recognize emotional barriers as equally significant as technical ones. Only through this lens can societies ensure that technology truly serves to unite, rather than alienate, the diverse populations of the digital era.

A Human-Centered Approach to Digital Literacy. Traditional digital literacy programs often focus heavily on technical skills, overlooking the profound emotional, psychological, and social dimensions of learning. A human-centered approach to digital literacy shifts the focus from mastering tools to empowering individuals to use technology to achieve personal goals, enhance dignity, and rebuild self-confidence. According to UNESCO (2022), over 45% of people globally have basic digital access but lack the necessary skills to apply technology meaningfully to their lives. In Australia, the Australian Digital Inclusion Index (2021) reported that while 90% of the population has internet access, nearly 30% of adults feel uncomfortable applying digital tools to everyday tasks such as banking, healthcare, or job applications.

In the United Kingdom, the Good Things Foundation (2020) found that 37% of individuals who gained digital skills through human-centered training programs reported improved self-confidence, compared to only 19% who participated in purely technical courses. Similarly, in Kenya, a human-centered digital literacy program led by the African Digital Schools Initiative (2022) helped 67% of adult learners secure better employment opportunities by focusing on real-life needs, such as writing professional emails or setting up small e-commerce platforms.

In Canada, the Digital Literacy Exchange Program (2021) emphasized helping seniors connect with family through video calls rather than abstractly teaching software usage, resulting in a 50% increase in digital engagement among elderly participants. Meanwhile, in India, a program known as "DigiSakshar" (2022) helped rural women gain confidence in online banking and telemedicine, improving financial independence among over 40,000 participants.

Table 3. Human-Centered Digital Literacy Programs and Impact by Country

Country	Program / Source	Key Results	Focus Area
Australia	Australian Digital Inclusion Index (2021)	30% feel uncomfortable applying digital tools to everyday life despite internet access.	Building everyday digital confidence.
United Kingdom	Good Things Foundation (2020)	37% of learners reported improved self-confidence via human-centered training.	Boosting self-esteem through goal-oriented learning.
Kenya	African Digital Schools Initiative (2022)	67% of adult learners improved employability.	Employment-focused digital skills.
Canada	Digital Literacy Exchange Program (2021)	50% increase in digital engagement among seniors.	Family connection and communication.
India	DigiSakshar (2022)	40,000 rural women improved financial independence.	Financial and telemedicine literacy.

Sources: developed by authors

These examples demonstrate that when digital literacy is linked to personal aspirations—such as maintaining social connections, accessing healthcare, managing

finances, or career advancement—it becomes not just an educational achievement, but an emotional and social victory. Human-centered methods recognize that technology is not an end in itself but a means to fulfill human dignity, aspirations, and connection. Building emotional confidence, rather than just technical competence, thus becomes central to sustainable digital inclusion.

Therefore, governments, NGOs, and educational institutions aiming to bridge the digital divide must prioritize emotionally intelligent, human-centered learning approaches if they are to create truly inclusive digital societies.

Inclusion as an Emotional Achievement. The true success of digital inclusion cannot be measured by user statistics alone; it must be evaluated through emotional, psychological, and social indicators that reflect the reclamation of human dignity and belonging. Digital engagement is not merely about learning how to use technology—it is about rebuilding confidence, overcoming fear, and affirming self-worth. According to the European Union's Digital Economy and Society Index (2022), although 90% of Europeans have basic internet access, nearly 42% of older citizens still feel "digitally invisible" and emotionally disconnected from public life. In Canada, research by the Canadian Internet Registration Authority (CIRA, 2021) found that 35% of adults believe that mastering new technologies helps them feel more "relevant and socially included."

Table 4. Key Aspects of Technological and Human Inclusion

Section	Main Focus	Key Insights
The Silent Cost of Digital Exclusion	Emotional and social consequences of exclusion	Digital exclusion results in loss of agency, confidence erosion, loneliness, and widened inequalities. Inclusion must address emotional as well as technical barriers.
Technophobia: Beyond Technical Skills	Deep-rooted fear and emotional barriers to technology adoption	Technophobia stems from fear and shame, requiring empathy, emotional support, and self-confidence rebuilding rather than only technical instruction.
A Human-Centered Approach to Digital Literacy	Connecting digital skills training with real human needs	Teaching technology through real-life goals (e.g., writing a CV, grocery ordering) affirms dignity, independence, and strengthens human aspirations.
Inclusion as an Emotional Achievement	Redefining success in digital inclusion	True inclusion is measured by emotional recovery, sense of belonging, renewed courage, and reclaiming participation in society.
Looking Ahead: Building a Truly Inclusive Future	The need for structural human-centered values in digital ecosystems	Future technologies must embed inclusivity and humanity at their core, ensuring participation for all and celebrating the human spirit.

Sources: developed by authors

In South Korea, one of the world's most wired nations, a 2022 government study showed that among citizens aged 65+, 58% reported emotional anxiety about digital tasks, but those who received personalized training programs reported a 45% boost in life satisfaction. Meanwhile, a digital empowerment project in Brazil (CGI.br, 2022) recorded that 72% of participants from favelas who gained basic smartphone literacy

expressed “greater optimism about their personal future” compared to those still digitally excluded.

In Australia, the Australian Digital Inclusion Index (2021) revealed that digital inclusion strongly correlates with mental well-being: digitally included individuals reported a 20% higher life satisfaction score compared to those digitally excluded. In Kenya, the "Ajira Digital Program" (2021) targeting unemployed youth showed that beyond gaining freelance jobs, 61% of participants reported improved self-confidence and community status after acquiring digital skills.

Thus, real digital inclusion is not just about usage metrics; it is about emotional milestones—smiles after a successful first video call, messages sent with pride, and the simple yet profound feeling of being “part of the world.” Programs that recognize emotional achievements alongside technical milestones create more sustainable inclusion outcomes. Inclusion as an emotional achievement underlines that technology’s greatest potential is not technical empowerment alone, but human re-empowerment: restoring hope, courage, and belonging in a rapidly digitizing world.

Looking Ahead: Building a Truly Inclusive Future. The accelerating pace of artificial intelligence, automation, and digital ecosystems signals an irreversible transformation of society. Yet technological innovation alone cannot guarantee a better future unless it is firmly rooted in human-centered values of dignity, empathy, and inclusion. Building a truly inclusive future requires that inclusion is not treated as a supplementary goal but as a foundational design principle influencing all stages of technological development, public policy, education systems, and community practices. It demands intentional frameworks that prioritize accessibility, cultural sensitivity, emotional empowerment, and social equity.

Today, nearly 2.6 billion people remain offline globally (ITU, 2023), highlighting that the digital revolution is far from universally experienced. If digital advancement continues without targeted inclusion strategies, existing inequalities will widen, further marginalizing vulnerable groups such as older adults, rural populations, low-income communities, and people with disabilities. For instance, while 95% of Northern Europeans have internet access, in Sub-Saharan Africa, this figure drops below 30% (World Bank, 2022), emphasizing the global disparity that must be addressed.

Moreover, future digital environments must not only ensure physical access but also emotional inclusion. Fear, distrust, and alienation must be countered through education that builds confidence, policies that protect rights, and designs those welcome diverse users. In countries like Finland, where digital rights are treated as civil rights, the government actively promotes e-citizenship programs aimed at ensuring that no one feels excluded from public life due to technological barriers.

Educational institutions have a vital role to play. Curriculums need to evolve to teach digital empathy, responsible AI usage, and ethical digital citizenship alongside technical skills. Community-driven initiatives, such as localized digital literacy programs in Kenya and "Tech for Good" movements in Canada, show that when human stories, aspirations, and fears are integrated into digital expansion, the results are both sustainable and transformative.

Table 5. Policy Recommendations and Action Steps for Building a Truly Inclusive Digital Future

Policy Recommendations / Action Steps	Description
Policy Recommendation	
Declare Digital Inclusion a Fundamental Right	Recognize digital access and literacy as basic human rights in national constitutions and laws.
Invest in Infrastructure for Universal Access	Expand affordable, high-speed internet especially in rural and marginalized areas.
Integrate Emotional and Social Dimensions into Digital Literacy	Address emotional barriers like technophobia, not just technical skills gaps.
Mandate Inclusive Design Standards	Legally require all public digital services to follow universal accessibility and usability principles.
Support Localized and Culturally Sensitive Initiatives	Fund community-based digital programs adapted to local languages, traditions, and real needs.
Strengthen Protection of Digital Rights	Establish strong laws for data privacy, cybersecurity, and freedom from algorithmic bias.
Foster Public-Private Partnerships	Promote collaboration among government, tech companies, NGOs, and educational institutions.
Action Step	
Launch National Digital Confidence Campaigns	Organize public outreach programs to encourage digital skills as pathways to empowerment and opportunity.
Create Targeted Programs for Seniors and Vulnerable Populations	Develop specialized training programs for elderly citizens, persons with disabilities, and low-income groups.
Include Emotional Milestones in Program Evaluation	Measure improvements in confidence, social participation, and personal empowerment alongside technical skills.
Embed Digital Empathy into School Curricula	Integrate ethical, responsible, and empathetic technology use training into formal education.
Establish Annual Inclusion Progress Reports	Publish national progress reports on digital inclusion, successes, and challenges.
Recognize and Celebrate Success Stories	Highlight inspiring examples of digital empowerment to motivate wider engagement and participation.

Sources: developed by authors

Ultimately, building a future that belongs to all requires political will, cross-sector collaboration, and cultural commitment to inclusion as a core societal value. Every individual who overcomes fear to participate in digital spaces represents not just a personal victory but a triumph of humanity over division. A truly inclusive digital future will not be measured only by technological milestones but by the millions of lives reconnected, empowered, and dignified by thoughtful, human-centered innovation.

Discussion. Digital inclusion strategies must evolve beyond infrastructure deployment to consider the lived experiences of excluded populations. Technophobia, emotional isolation, and digital distrust are recurring themes among seniors, low-income groups, and rural residents across continents. Emotional inclusion—the feeling of safety, relevance, and dignity in digital spaces—is essential for sustained engagement. This requires empathetic educational models, culturally tailored outreach, and policies that emphasize user agency. Countries like Finland and Australia demonstrate best practices in embedding inclusion in national policy, while community-led initiatives in India and Brazil highlight the power of locally grounded, human-first solutions. The discussion affirms that inclusion is as much about

reconnecting people with their identity and agency as it is about connecting devices and networks.

Conclusion. The digital age offers immense promise—but only if it is guided by inclusive, empathetic, and human-centered principles. This study concludes that true digital inclusion is not a technological milestone but an emotional and societal achievement. It involves restoring trust, overcoming fear, and enabling participation on one's own terms. Governments, educators, and tech developers must co-create systems that welcome all individuals—not merely as users of technology, but as dignified participants in shaping the digital world. A truly inclusive future will not be measured only by connectivity statistics, but by the resilience, optimism, and belonging of those once digitally excluded.

References:

1. Helsper, E. J. (2021). *The Digital Disconnect: The Social Causes and Consequences of Digital Inequalities.* SAGE Publications.
2. Morozov, E. (2013). *To Save Everything, Click Here: The Folly of Technological Solutionism.* PublicAffairs.
3. Selwyn, N. (2016). *Education and Technology: Key Issues and Debates.* Bloomsbury Academic.
4. UNESCO. (2015). *Education 2030: Incheon Declaration and Framework for Action for the Implementation of Sustainable Development Goal 4.* https://unesdoc.unesco.org
5. Van Dijk, J. (2020). *The Digital Divide.* Polity Press.
6. Warschauer, M. (2004). *Technology and Social Inclusion: Rethinking the Digital Divide.* MIT Press.