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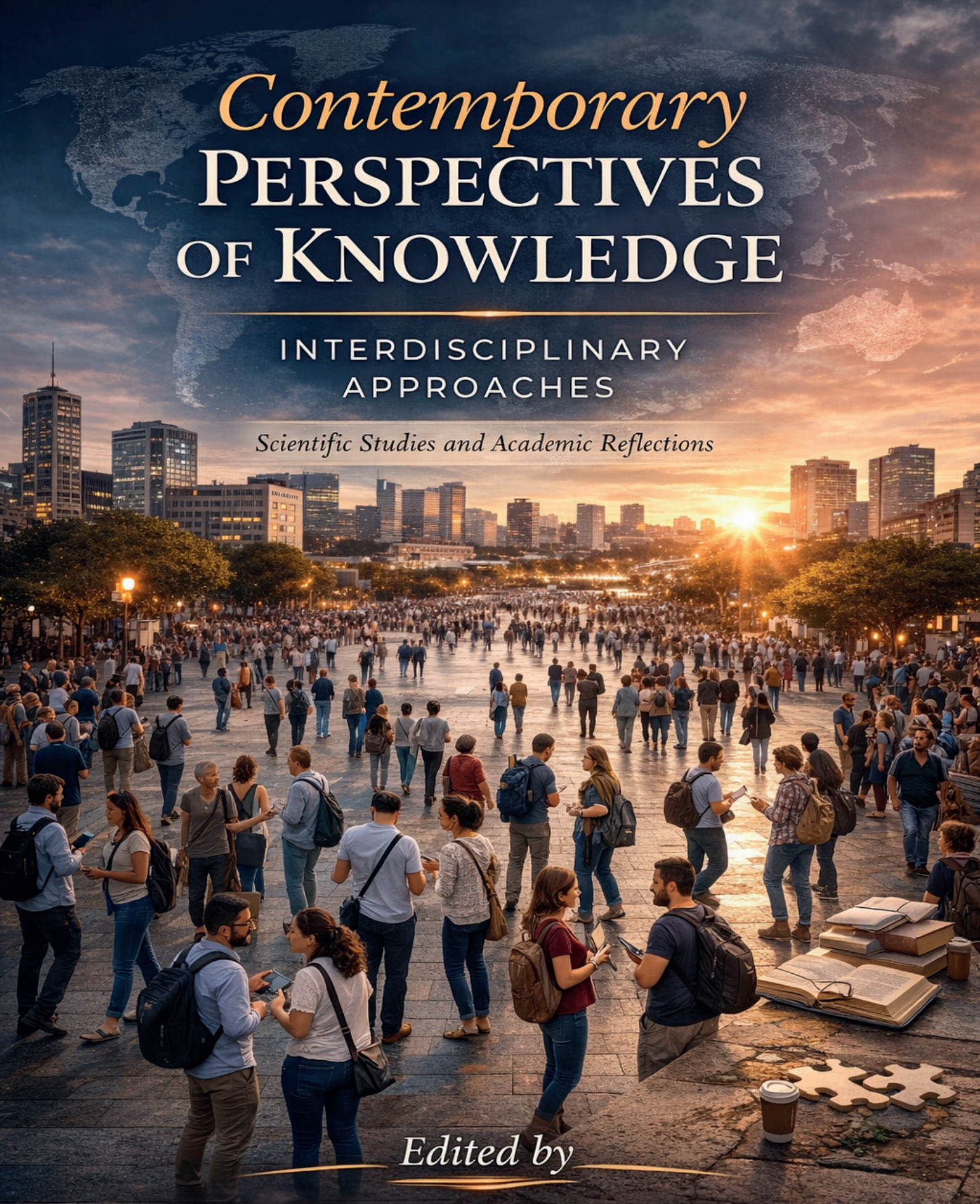

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Rua Josias Lopes Braga, n. 437, Bancários, João Pessoa - PB - Brazil
website: www.periodicojs.com.br
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Chapter 23 TECHNICAL TRAINING AND ECONOMIC INCLUSION: EDUCATIONAL STRATEGIES FOR UNDERREPRESENTED POPULATIONS

TECHNICAL TRAINING AND ECONOMIC INCLUSION: EDUCATIONAL STRATEGIES FOR UNDERREPRESENTED POPULATIONS

Alex Sandro Monteiro Machado[1]

Abstract: This literature review article explores the intersection between technical training and economic inclusion, focusing on educational strategies aimed at underrepresented populations. We analyze the structural barriers that have historically limited these populations' access to professional qualification and investigate how inclusive educational models can act as catalysts for sustainable economic development and social mobility. The discussion ranges from the theoretical foundations of social exclusion and educational justice to the presentation of effective pedagogical strategies and public policies, such as micro-credentials, multisectoral partnerships, and holistic support. Empirical evidence is presented to demonstrate the transformative impact of technical training in reducing inequalities and promoting equitable opportunities in the labor market.

Keywords: Technical Training, Economic Inclusion, Underrepresented Populations, Structural Barriers, Social Mobility.

Introduction

The persistence of global socioeconomic inequalities and the growing demand for a qualified workforce in technical sectors underscore the urgency of addressing the economic inclusion of underrepresented populations. Structural barriers that go beyond a mere lack of financial resources

1 Technical training in Hairdressing and Barbering from SENAC, complemented by specializations in styling, colorimetry, highlights, hairstyles, and hair extensions at leading institutions. Qualification focused on technical excellence, innovation, and the application of best practices in the beauty industry.

— such as geographic segregation, the absence of social capital, and institutional biases — have historically limited these groups' access to quality professional training (JFF, 2024). Consequently, full and equitable participation in the labor market, and the enjoyment of the benefits of economic development, remain a challenge for millions of individuals.

In this context, inclusive educational models emerge as a fundamental strategy for sustainable economic development. Technical training, in particular, has the potential to act as a powerful vector of social mobility, equipping individuals with directly applicable skills that are valued by the market (UNITAR, 2022). This article aims to analyze the scientific evidence on the barriers that prevent the inclusion of vulnerable populations in technical training and the educational strategies that have proven effective in promoting economic inclusion, with a focus on reducing inequalities and creating equitable opportunities.

Theoretical Foundations: Social Exclusion and Educational Justice

To understand the complexity of economic inclusion through technical training, it is essential to ground the discussion in the theoretical constructs of social exclusion and educational justice.

The Theory of Social Exclusion

Social exclusion is a multidimensional phenomenon that transcends economic deprivation, encompassing the denial of social, political, and cultural rights (SILVER, 1995). In the educational sphere, it manifests as restricted access to quality learning opportunities, resulting in a vicious cycle of disadvantage. Underrepresented populations — such as ethnic minorities, people with disabilities, migrants, and low-income individuals — frequently face multiple, mutually reinforcing forms of exclusion, limiting their ability to acquire the skills needed to enter dynamic labor markets (WALSH, 1964).

Educational Justice and Equity

Educational justice, in turn, holds that all individuals, regardless of their origin or condition, should have equitable access to quality education that allows them to develop their potential and fully participate in society (RAWLS, 1971). Equity, in this sense, does not mean treating everyone identically, but rather providing the resources and support needed to overcome initial disadvantages. For underrepresented populations, this implies implementing educational policies and practices that actively address structural barriers and promote an inclusive, welcoming learning environment (FRASER, 2000).

The intersection of these theories reveals that technical training, when designed from an educational-justice perspective, can be a powerful instrument for combating social exclusion. By providing relevant, certifiable skills, it not only increases individuals' human capital but also acts as a signaling mechanism of competence, breaking down barriers and promoting social mobility (BECKER, 1964).

Structural Barriers to Technical Training and Economic Inclusion

Access to technical training — and, consequently, to economic inclusion — for underrepresented populations is frequently obstructed by a complex web of structural barriers. These barriers are not merely individual but systemic, rooted in historical and social inequalities (NATIONAL SKILLS COALITION, 2025).

Socioeconomic and Geographic Barriers

Poverty and economic deprivation are primary barriers, limiting access to educational

resources, transportation, and even adequate nutrition, all of which are prerequisites for academic and professional success. Geographic segregation, in which vulnerable communities are located far from educational centers and employment opportunities, exacerbates this situation (IPEA, [s.d.]a). The lack of digital infrastructure in many of these regions also impedes access to distance-learning platforms and online resources, which are crucial for contemporary technical training (YUSVANA, 2025).

Cultural and Institutional Barriers

Cultural prejudices and stereotypes can discourage the participation of certain groups in technical fields perceived as masculine or elitist. In addition, educational institutions themselves may exhibit biases, whether in designing curricula that fail to engage with these populations' realities or in the lack of adequate pedagogical and psychosocial support (JFF, 2024). The absence of role models and the devaluation of vocational education relative to traditional higher education also contribute to low uptake (RESEARCHGATE, 2025).

Social Capital and Information Barriers

Underrepresented populations frequently lack social capital — networks of contacts and information that facilitate access to opportunities. The lack of career guidance, unfamiliarity with labor-market demands, and the absence of mentors can be just as prohibitive as a lack of financial resources (GRANOVETTER, 1973). The information asymmetry regarding the value and returns of technical training perpetuates the cycle of disadvantage, preventing informed educational and career choices.

The table below summarizes the main categories of structural barriers:

Barrier Category	Specific Examples	Impact on Economic Inclusion
Socioeconomic	Poverty, lack of transportation, poor digital infrastructure.	Limits physical and financial access to education and employment.
Geographic	Distance from educational and industrial centers.	Hinders participation in in-person programs and job searching.
Cultural	Stereotypes, devaluation of technical training.	Discourages choosing technical careers and persisting in them.
Institutional	Misaligned curricula, lack of pedagogical support.	Fails to meet students' specific needs, leading to dropout.
Social Capital	Absence of contact networks, lack of mentoring.	Restricts access to information about opportunities and networking.

Overcoming these barriers requires a multifaceted, integrated approach that combines public policy, pedagogical innovation, and the engagement of diverse social actors.

Inclusive Educational Strategies for Underrepresented Populations

To effectively combat structural barriers and promote the economic inclusion of underrepresented populations, it is essential to develop and implement educational strategies that are inherently inclusive, adaptable, and holistic. These strategies must go beyond simply offering courses, addressing the multiple dimensions of exclusion.

Adaptive and Flexible Pedagogical Models

Flexibility is a central pillar. This includes offering courses in varied formats (in-person, hybrid, distance learning), schedules adapted to students' realities (who often need to balance study and work), and modular curricula that allow gradual skill acquisition. The micro-credential methodology, for example, allows students to obtain certifications for specific skills over a short period, facilitating

rapid entry into the labor market and continuous progression (PSI, 2025).

Multisectoral Partnerships and Community Engagement

The success of inclusive technical training programs depends heavily on collaboration among governments, educational institutions, businesses, and civil society organizations. Public-private partnerships can ensure that curricula are aligned with labor-market demands, offering internships, workplace learning, and employment opportunities (FOSTERING INCLUSIVE, SUSTAINABLE ECONOMIC GROWTH AND "GREEN" SKILLS DEVELOPMENT IN LEARNING CITIES THROUGH PARTNERSHIPS, 2018). Community engagement is crucial for building trust, understanding local needs, and mobilizing the participation of underrepresented populations, transforming technical schools into community development hubs (VOCATIONAL EDUCATION FOR A SUSTAINABLE FUTURE: UNVEILING REAL STORIES, 2023).

Holistic Support and Psychosocial Follow-up

Recognizing that barriers are multifaceted, the support provided must be holistic. This includes financial assistance (scholarships, transportation, food), academic support (tutoring, remedial instruction), and psychosocial follow-up (counseling, mentoring). Mentoring programs, in particular, can be effective in providing social capital and role models, helping students navigate academic and professional challenges (JFF, 2024). The use of assistive technologies and pedagogical adaptations for people with disabilities, as well as the development of culturally relevant teaching materials, are equally essential.

Integration of Digital Technologies and Pedagogical Innovation

Digital infrastructure and e-learning technologies play a vital role in expanding access to technical training. Online learning platforms, open educational resources (OER), and the use of virtual/augmented reality for practical simulations can democratize access to high-quality content and immersive learning experiences, overcoming geographic and cost barriers (YUSVANA, 2025). However, it is essential to ensure that digital inclusion is accompanied by access to connectivity and equipment, avoiding the creation of new forms of exclusion.

Implementing these strategies in an integrated manner, adapted to local contexts, is essential to transform technical training into a genuine engine of economic inclusion and social mobility for underrepresented populations.

Impacts on Economic Inclusion and Social Mobility

The effective implementation of inclusive educational strategies in technical training has demonstrated profound impacts on the economic inclusion and social mobility of underrepresented populations. Empirical evidence points to a positive correlation between participation in quality technical training programs and improved living conditions and career opportunities.

Increased Employability and Income

Longitudinal studies in various countries indicate that individuals from underrepresented populations who complete technical training programs have significantly higher employability rates and higher starting salaries compared to those without such qualifications (J-PAL, 2023). In Brazil, technical training has been associated with an increase in average income and greater insertion into formal employment, especially for young people and adults in situations of social vulnerability (IPEA,

[s.d.]b).

Upward Social Mobility

Technical training acts as a catalyst for upward social mobility, allowing individuals and their families to break intergenerational cycles of poverty. By acquiring market-demanded skills, graduates of inclusive programs not only improve their own economic condition but also contribute to the development of their communities, generating a multiplier effect (MOBILIDADE SOCIAL: O QUE É, TIPOS, CAUSAS, [s.d.]). Social mobility, in this context, is not restricted to the economic dimension, but also encompasses access to better health, education, and civic participation.

Reduction of Inequalities and Sustainable Development

By focusing on underrepresented populations, inclusive technical training contributes directly to the reduction of social and regional inequalities. Programs that integrate the development of "green skills" into their curricula, for example, not only prepare workers for the economy of the future but also promote more sustainable and resilient economic development (UNITAR, 2022). The economic inclusion of marginalized groups is a fundamental pillar for achieving the Sustainable Development Goals (SDGs) of the 2030 Agenda.

The table below illustrates the main impacts of inclusive technical training:

Impact Dimension	Description	Evidence/Reference
Employability	Increased occupation rates and reduced unemployment.	Global research on TVET (Technical and Vocational Education and Training) (J-PAL, 2023).
Income	Average wage increase for graduates of technical programs.	IPEA studies on professional qualification in Brazil (IPEA, [s.d.]b).

Social Mobility	Socioeconomic ascent and breaking cycles of poverty.	Analyses of social mobility and education (MOBILIDADE SOCIAL: O QUE É, TIPOS, CAUSAS, [s.d.]).
Community Development	Generation of human and social capital in vulnerable communities.	Studies on the impact of local qualification programs (VOCATIONAL EDUCATION FOR A SUSTAINABLE FUTURE: UNVEILING REAL STORIES, 2023).
Reduction of Inequalities	Decreased disparity in opportunities and income.	Reports on the SDGs and economic inclusion (UNITAR, 2022).

Conclusion and Policy Implications

Inclusive technical training represents an educational strategy of vital importance for promoting the economic inclusion and social mobility of underrepresented populations. Overcoming structural barriers requires a multifaceted approach that combines adaptive pedagogical models, multisectoral partnerships, holistic support, and the integration of digital technologies. Evidence shows that, when well implemented, these programs not only increase individuals' employability and income, but also contribute to reducing inequalities and to a fairer, more sustainable socioeconomic development.

For public policymakers, the implications are clear: it is essential to invest in policies that ensure equitable access to quality technical training, that promote the articulation between education and the labor market, and that offer comprehensive support to students. Expanding micro-credential programs, fostering partnerships with the productive sector, and democratizing access to digital infrastructure are crucial steps toward building a more inclusive and prosperous society. Future research should further examine the long-term impacts of these strategies and the effectiveness of different intervention models in specific contexts.

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