DIGITAL INCLUSION AND SOCIAL TRANSFORMATION: A CASE STUDY ON THE IMPLEMENTATION OF BASIC COMPUTER COURSES AT IFRO

INCLUSÃO DIGITAL E TRANSFORMAÇÃO SOCIAL: UM ESTUDO DE CASO SOBRE A EXECUÇÃO DE CURSOS DE INFORMÁTICA BÁSICA NO IFRO

INCLUSIÓN DIGITAL Y TRANSFORMACIÓN SOCIAL: UN ESTUDIO DE CASO SOBRE LA IMPARTICIÓN DE CURSOS DE INFORMÁTICA BÁSICA EN EL IFRO

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Gleison Guardia[1], Geovana da Costa Oliveira Martins[2], Marlos Tadeu Alves Hibner[3], Nayara Bonim do Nascimento[4] and Rosivani da Costa Oliveira[5]

ABSTRACT

This article presents the outcomes of the implementation of Basic Computer Science courses – Levels I and II – conducted from March to June 2025 by the Federal Institute of Rondônia (IFRO) – Ji-Paraná Campus, in collaboration with the Ji-Cred Foundation. The initiative aimed to promote the digital inclusion of socially disadvantaged youth and adults by providing in-person training in essential digital tools, including the Windows 11 operating system, Google accounts, text editors, spreadsheets, and online forms. The course curriculum was developed based on active methodologies, emphasizing meaningful learning and popular education, while respecting the diverse age and experience levels of the participants. Data was collected from institutional records, classroom observations, practical activities, and student feedback. With completion rates of 86% in Level I and 79% in Level II, the results demonstrate positive impacts on the autonomy, self-esteem, and technical proficiency of participants, who began to independently perform tasks previously assigned to others. Despite encountering challenges such as the age disparity between students and fatigue from consecutive classes, the project demonstrated its effectiveness as a means of social empowerment and the reduction of digital disparities. It is concluded that fundamental computer training, when combined with an inclusive and welcoming pedagogical approach, possesses the potential to transform lives and contribute to the development of communities.

Keywords: Digital Inclusion. Professional Education. Basic Computer Skills. Empowerment. Social Transformation.

[1]Mathematician, Data Scientist and Master in Education
Federal Institute of Rondônia - IFRO
gleison.guardia@ifro.edu.br
[2]Bachelor's degree in Accounting, Master's in Professional Education
Federal Institute of Rondônia - IFRO
geovana.costa@ifro.edu.br
[3]Bachelor's degree in Information Systems, Master's in Professional Education
Federal Institute of Rondônia - IFRO
marlos.hibner@ifro.edu.br
[4]Systems Analyst and Developer, Software Engineering Specialist
bonimnayara@gmail.com
[5]Technologist in Public Administration, Specialist in Public Administration
Federal Institute of Rondônia - IFRO
rosivani.costa@ifro.edu.br

RESUMO

Este artigo apresenta os resultados da implementação dos cursos de Ciência da Computação Básica – Níveis I e II – realizados de março a junho de 2025 pelo Instituto Federal de Rondônia (IFRO) – Campus Ji-Paraná, em colaboração com a Fundação Ji-Cred. A iniciativa teve como objetivo promover a inclusão digital de jovens e adultos em situação de vulnerabilidade social, por meio de treinamento presencial em ferramentas digitais essenciais, incluindo o sistema operacional Windows 11, contas Google, editores de texto, planilhas eletrônicas e formulários online. O currículo do curso foi desenvolvido com base em metodologias ativas, enfatizando a aprendizagem significativa e a educação popular, respeitando a diversidade etária e de experiência dos participantes. Os dados foram coletados por meio de registros institucionais, observações em sala de aula, atividades práticas e feedback dos alunos. Com taxas de conclusão de 86% no Nível I e 79% no Nível II, os resultados demonstram impactos positivos na autonomia, autoestima e proficiência técnica dos participantes, que passaram a executar, de forma independente, tarefas anteriormente atribuídas a outros. Apesar dos desafios enfrentados, como a disparidade etária entre os alunos e o cansaço causado por aulas consecutivas, o projeto demonstrou sua eficácia como meio de empoderamento social e redução das disparidades digitais. Conclui-se que o treinamento básico em informática, quando aliado a uma abordagem pedagógica inclusiva e acolhedora, tem o potencial de transformar vidas e contribuir para o desenvolvimento de comunidades.

Palavras-chave: Inclusão Digital. Educação Profissional. Noções Básicas de Informática. Empoderamento. Transformação Social.

RESUMEN

Este artículo presenta los resultados de la implementación de los cursos de Informática Básica (Niveles I y II) de marzo a junio de 2025 por el Instituto Federal de Rondônia (IFRO), Campus Ji-Paraná, en colaboración con la Fundación Ji-Cred. La iniciativa tuvo como objetivo promover la inclusión digital de jóvenes y adultos en situación de desventaja social mediante la capacitación presencial en herramientas digitales esenciales, como el sistema operativo Windows 11, cuentas de Google, editores de texto, hojas de cálculo y formularios en línea. El currículo del curso se desarrolló con base en metodologías activas, priorizando el aprendizaje significativo y la educación popular, respetando la diversidad de edad y experiencia de los participantes. Los datos se recopilaron a partir de registros institucionales, observaciones en el aula, actividades prácticas y retroalimentación de los estudiantes. Con tasas de finalización del 86 % en el Nivel I y del 79 % en el Nivel II, los resultados demuestran impactos positivos en la autonomía, la autoestima y la competencia técnica de los participantes, quienes comenzaron a realizar de forma independiente tareas que antes se les asignaban a otros. A pesar de enfrentar desafíos como la disparidad de edad entre los estudiantes y el cansancio acumulado por las clases consecutivas, el proyecto demostró su eficacia como medio de empoderamiento social y reducción de las disparidades digitales. Se concluye que la formación básica en informática, combinada con un enfoque pedagógico inclusivo y acogedor, tiene el potencial de transformar vidas y contribuir al desarrollo de las comunidades.

Palabras clave: Inclusión Digital. Formación Profesional. Competencias Informáticas Básicas. Empoderamiento. Transformación Social.

1 INTRODUCTION

In the current era, where digital technologies have become ubiquitous in virtually all domains of social, economic, and educational life, proficiency in fundamental computer skills has transcended its competitive edge to become an indispensable prerequisite. Digital exclusion, however, continues to pose a significant challenge to socially disadvantaged communities, restricting their access to essential information, communication, and employment prospects.

In response to this challenge, the Federal Institute of Education, Science, and Technology of Rondônia (IFRO), through its Ji-Paraná Campus, collaborated with the Ji-Cred – Sonho Meu Foundation to develop and execute two in-person professional qualification courses in Basic Computing – Levels I and II. These courses were conducted between March and June 2025. This initiative was aligned with the Digital Transformation technology axis, with the primary objective of fostering the digital inclusion of young people and adults with limited formal education. The courses provided accessible, practical, and contextualized training.

The Basic Computer Course – Level I provided an introductory overview of computer technology, encompassing the Windows 11 operating system, the establishment of Google accounts, email usage, and text editing with Google Docs. Level II delved into advanced spreadsheet and online form capabilities, specifically focusing on organization, data analysis, and graphical representation.

Both courses were meticulously designed employing participatory and inclusive methodologies, drawing inspiration from the principles of popular education and purposeful learning. These methodologies prioritized valuing students' prior knowledge and fostering the collaborative construction of knowledge. The data collected throughout the activities underscored substantial positive impacts on the participants' lives, encompassing both technical and personal aspects. Notably, participants experienced enhanced autonomy, heightened self-esteem, and a profound sense of empowerment in their interactions with technology.

This article presents the structure, methodology, results, and challenges encountered during the course development process. It also reflects on the potential of fundamental computer training as a tool for social transformation and mitigating digital disparities.

2 THEORETICAL BASIS

Digital inclusion, as a means of social transformation and strengthening citizenship, has garnered significant attention in contemporary scientific discourse. Numerous authors emphasize that the access to Information and Communication Technologies (ICT) extends beyond the technical realm, necessitating critical comprehension, civic education, and information proficiency.

Authors such as Silva et al. (2005) underscore that digital inclusion should be regarded as an ethical imperative and a fundamental aspect of citizenship, playing a crucial role in the development of autonomous and socially engaged individuals. The authors propose the concept of information literacy as the primary organizing principle of inclusion, asserting the necessity of fostering critical access to information, particularly that which enhances the quality of life and promotes social empowerment.

In a similar vein, Buzato (2008) posits that digital inclusion is an everyday practice, strategically appropriated by individuals from urban marginal areas. According to the author, it is crucial to acknowledge vernacular digital literacies and the agency of popular subjects in their technological utilization, thereby restoring the political significance of inclusion.

Santarosa and Conforto (2015) reinforce the perspective of inclusion as a social right by analyzing the utilization of mobile technologies in the education of students with autism spectrum disorder (ASD). The findings indicate that tools such as tablets foster autonomy and empowerment among students with specific needs, thereby reaffirming the pivotal role of information and communication technologies (ICT) in promoting educational equity.

In complementing this approach, Pordeus et al. (2024) demonstrate that TDICs can function as mediators for the educational inclusion of students with ASD, provided they are integrated into inclusive and reflective teaching practices. The study underscores the challenges associated with teacher training and the necessity of adequate infrastructure within schools.

Research has also focused on digital literacy among vulnerable populations. Dias et al. (2024) explore hybrid methodologies for the digital inclusion of older adults, emphasizing the cognitive, social, and emotional benefits. The authors underscore that digital education for older adults should encompass not only the transmission of technical skills but also the promotion of digital literacy and autonomy.

In the field of technologies for inclusion, Soloaga et al. (2025) assert that assistive technologies are pivotal tools for the complete integration of individuals with disabilities in educational, professional, and social settings. The study underscores the imperative for comprehensive public policies and the augmentation of digital accessibility.

From a critical theoretical standpoint, Selwyn (2008) posits that UK policies promoting digital inclusion through education are flawed. The author contends that technological access alone does not guarantee social inclusion, and it is crucial to examine the cultural, social, and motivational factors that influence individuals.

This criticism is also evident in Andrade and Abreu (2024), who underscore the imperative to integrate technology and playfulness into teacher training. According to the authors, playfulness serves as a language that fosters inclusivity and engagement and should be seamlessly incorporated into instructional practices in basic education.

From an educational policy perspective, Frigotto (2007) presents a structural analysis of the interplay between fundamental education and professional and technological training in Brazil. The author critiques educational dualism and advocates for the integration of polytechnics across diverse knowledge domains as a prerequisite for sovereign development and the empowerment of the populace.

This view is reinforced by Santos et al. (2025), who discuss continuing education for teachers in digital inclusion. The study highlights that effective programs must combine technical and pedagogical skills, promoting inclusive practices based on the TPACK model.

In conclusion, França et al. (2025) and Soloaga et al. (2025) explore the significance of TDICs as instruments for social transformation and empowerment. The authors underscore the paramount importance of digital inclusion, guided by ethical principles, a commitment to equity, and the fostering of active citizenship.

Consequently, the analyzed studies suggest that effective digital inclusion necessitates not only technological infrastructure but also the development of an educational project rooted in equity, critical training, and the recognition of individuals' social and cultural diversity.

3 METHODOLOGY

This study is a descriptive experience report that aims to document and reflect on the processes, challenges, and outcomes of the implementation of Basic Information Courses Level I and II, which were conducted from March to June 2025.

The activities took place at the Federal Institute of Education, Science, and Technology of Rondônia (IFRO) – Ji-Paraná Campus, with classes made up of young people, adults, and seniors in socially vulnerable situations. The target audience was diverse in terms of age, education level, and previous experience with technology.

The pedagogical proposal was founded on the principles of popular education, meaningful learning, and the recognition of the knowledge possessed by participants. The strategies employed encompassed:

- Interactive exhibitions featuring projected slides.
- Practical demonstrations conducted step-by-step, with students closely monitoring the process on their computers.
- Engaging in collaborative tasks, including the creation of documents, spreadsheets, and forms collectively.
- Diagnostic activities conducted at the commencement of courses to evaluate prior knowledge.
- Utilization of illustrated slides meticulously prepared for the course.

The assessment tools encompass:

- Systematic observation in the classroom setting.
- Practical activities that involve both individual and group tasks.
- Google applications, including Forms, utilized for surveys and self-assessment purposes.
- Collected spontaneous interviews and testimonials from students, conducted at the conclusion of the course and during classroom interactions.

The qualitative analysis of the data generated encompassed the examination of alterations observed in engagement, self-esteem, digital autonomy, and participants assertions regarding the effects of training on their personal and professional spheres.

4 PROJECT DESCRIPTION

4.1 LEVEL I COURSE

The primary objective of the Basic Information Level I Course was to impart fundamental digital literacy skills to students with minimal or no prior exposure to digital technologies. The curriculum encompassed introductory concepts pertaining to the

Windows 11 operating system, internet navigation employing Google, the composition and utilization of email accounts (Gmail), and text editing utilizing Google Docs.

The target audience comprised adult and elderly students with limited formal education and substantial digital exclusion. A significant portion of these individuals had no prior experience with computers, and initial apprehension towards technology was prevalent. The pedagogical approach aimed to mitigate these apprehensions through affective and personalized practices, thereby accommodating each participant's unique learning trajectory.

The course enrolled 22 students, of whom 19 completed all the proposed stages, achieving a completion rate of 86%. Active participation in class discussions, engagement in activities, and spontaneous testimonials demonstrated substantial improvements in the students' relationship with technology. These changes fostered autonomy, self-esteem, and a sense of belonging within the digital community.

4.2 LEVEL II COURSE

The Basic Information Course Level II serves as an extension of the training commenced in Level I, emphasizing the application of the Google platform to more intricate scenarios. It delves specifically into Google Sheets (spreadsheets) and Google Forms (online forms and questionnaires).

The student profile encompassed both Level I graduates and new students with some prior experience in the digital realm. The majority of participants were adults pursuing professional certifications, while young individuals sought to enhance their skills for the job market or personal and academic development.

The course necessitated heightened abstraction and organization from participants, particularly in the application of formulas, the creation of tables, and the interpretation of data. Classes were structured to facilitate learning through practical and contextualized examples, such as the development of spreadsheets for household management and the utilization of forms for rudimentary registrations and surveys.

Out of the 19 students enrolled, 15 completed the training in its entirety, resulting in a completion rate of 79%. The outcomes demonstrated substantial advancements in data comprehension, information organization, and the recognition of the practical applications of digital tools in everyday life. This experience has emerged as a pertinent instance of technological empowerment.

5 RESULTS AND DISCUSSION

A comprehensive analysis of the outcomes across the courses has unveiled substantial impacts on both the technical and subjective dimensions of the participants' training. Notably, one of the primary effects observed is a surge in digital autonomy, as students exhibit progressive confidence in their proficiency with computers, applications, and online productivity tools. Previously delegated tasks, such as composing text, generating spreadsheets, and completing forms, are now undertaken independently.

A noteworthy aspect was the enhancement of students' self-esteem and sense of belonging to the contemporary world. Numerous students expressed feelings of exclusion or embarrassment due to their lack of proficiency in basic technologies. The course provided them with the confidence to confront computers without apprehension. Furthermore, the training fostered technological independence, enabling students to apply their newfound skills to address personal and familial needs, including submitting resumes via email, registering on digital platforms, and managing household finances.

Despite the progress made, certain challenges were identified. The diverse age range of the participants necessitated tailored teaching strategies, as the classes included students aged 15 and seniors over 60. Notably, fatigue was reported by older participants or those who concurrently engaged in other responsibilities due to the demanding workload of three classes per week.

The testimonials provided by the students effectively illustrate their experiences:

1. " Now I know how to create a spreadsheet to manage my money. I never imagined I could do that"
2. " Before, I was afraid to press any button. Today, I open my computer and go straight to doing what I need to do."
3. " The course helped me believe in myself. I thought it was too late to learn."
4. " I can teach my children how to use email now. It was liberating."

Considering the theoretical framework presented, these findings concur with the comprehension of empowerment and social transformation advanced by scholars such as Silva et al. (2005), Frigotto (2007), and Dias et al. (2024).

Digital inclusion transcends the instrumental utilization of technology; it reimagines the interplay between individuals and the world, amplifies their social engagement, and fosters proactive civic awareness. By empowering learners to employ technology autonomously and critically, the courses facilitated the restoration of dignity and the

establishment of a novel social milieu for these individuals. They subsequently came to recognize themselves as the primary agents of their own trajectories.

6 FINAL THOUGHTS

The Basic Computer Courses – Levels I and II demonstrated a transformative impact on the field of digital inclusion, fostering not only the technical proficiency in utilizing computational tools but also the enhancement of self-esteem, autonomy, and citizenship among participants. By empowering historically marginalized individuals from the digital realm to acquire practical and symbolic skills for interacting with technologies, the project made a substantial contribution to human development and the establishment of a more equitable and just society.

The comprehensive reports collected throughout the process, coupled with the indicators of retention and completion, demonstrate that the courses not only imparted technical knowledge but also provided participants with a novel perspective on themselves and their potential in the contemporary world. Notably, a significant number of participants developed a sense of self-sufficiency, enabling them to independently perform routine tasks. This newfound confidence has fostered stronger social, familial, and professional connections.

Despite the positive aspects, the experience also identified areas for enhancement. Notably, the workload distributed over three consecutive nights per week proved to be burdensome for some students, particularly the older ones. As a recommendation for future iterations, we propose reducing face-to-face classes to two nights per week, thereby emphasizing the consolidation of content and the inclusion of more relaxed activities, without compromising the quality of instruction.

Furthermore, this experience reinforces the imperative of sustaining investments in ongoing educator training, equipment updates, and the creation of teaching materials that cater to the specific requirements of the target audience. The knowledge acquired from these courses can serve as a foundation for expanding the proposal to other communities and institutions, thereby contributing to the strengthening of public policies that prioritize digital training with a focus on social equity.

Consequently, it can be surmised that the courses exhibited the potential of inclusive professional education as a means of social transformation. Their ongoing continuity and improvement not only signify a pedagogical feasibility, but also an ethical and civic imperative.

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