iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 14 **Issue:** III **Month of publication:** March 2026

DOI: https://doi.org/10.22214/ijraset.2026.77809

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 14 Issue III Mar 2026- Available at www.ijraset.com

Social Acceptance and Psychological Impact on Physically Challenged People Using Assistive Technology

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Abstract: ***This research paper says about how people with physical disabilities feel and think when they use assistive technology, like wheelchairs or talking devices, to help them in daily life. It shows that using these tools can make people feel more independent and confident, helping them take part in family, school, and work activities. But sometimes, people may feel shy or worried about what others think when using these devices. The paper explains how important it is for society to accept and support people who use assistive technology so they feel comfortable and happy. It also suggests designing these tools in a way that helps people feel good about themselves and making sure everyone understands how helpful these devices are. Helping users feel accepted and supported can make a big difference in their lives. this study examines the social acceptance and psychological impact of assistive technology on physically challenged individuals. Assistive technologies (AT) have the potential to significantly enhance the quality of life by promoting independence, inclusivity, and participation in educational and social activities. However, issues such as social stigma, inadequate training, and mismatches between user needs and device functionality affect their acceptance and use. Social perceptions and emotional experiences play crucial roles in the adoption of AT, with users often facing stigma and embarrassment. Yet, AT can also transform users' psychological experiences by fostering academic and social engagement. Understanding these dynamics requires a user-centered design approach that addresses individual and societal challenges, aiming to reduce stigma and enhance the overall efficiency and acceptance of assistive technologies. Future research and innovation should focus on creating devices that cater to the diverse needs of users while promoting social inclusion and reducing psychological barriers.***

I. INTRODUCTION

Assistive technology (AT) has revolutionized the lives of people with physical disabilities, empowering them to participate more fully in daily activities, education, and employment. Its history says back to simple mobility aids(assistance) such as crutches and wheelchairs, to the development of sophisticated electronic devices and adaptive systems.

Provide value and advances in technology have brought global attention to the importance of accessibility and inclusion since the late 20th century. The WHO reports that over 1 billion people worldwide could benefit from assistive technology, yet only 1 in 10 has access to needed products due to barriers like affordability and limited awareness. Many people around the world live with physical disabilities, which can make everyday activities like walking, moving, speaking, or even using a computer very difficult. To help with these challenges, people use assistive technology. Assistive technology simply means any tool, device, equipment, or software that helps someone with a disability do tasks that might be hard or impossible otherwise. This can be something basic like a cane or a wheelchair, or it can be advanced, like a speech-to-text app, a special keyboard, or even a robot that helps someone move around the house.

People have used basic tools to help with disabilities for centuries, like crutches for walking. Over time, these tools have become more advanced. Today, there are hundreds of different assistive devices. Technology keeps improving, giving more independence and opportunities to people with physical disabilities. Still, according to the World Health Organization, more than 1 billion people could benefit from assistive technology, but very few get the devices they need, especially in poorer countries.

II. KEY ELEMENTS

In the realm of assistive technology research, several key terms are frequently used to describe and explore the complexities and impacts of these technologies. Understanding these terms is crucial for grasping the full scope of the research and its implications:

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1) Assistive Technology (AT): This refers to any tool or device that assists individuals with disabilities in performing tasks that they might find challenging due to their disabilities. AT can range from simple devices like wheelchairs and hearing aids to advanced technologies such as speech-to-text applications and robotic aides.
2) Independence and Interdependence: While AT aims to enhance the independence of users by enabling them to perform tasks independently, the concept of interdependence emphasizes the collaborative nature of these technologies. It highlights the contributions of individuals with disabilities in refining and enhancing technology, thus shifting the focus from solitary independence to shared access and support.
3) Barriers: These refer to the challenges and obstacles that prevent optimal use of assistive technologies. Barriers can be systemic, such as lack of funding or inadequate staff training, or personal, such as negative attitudes and lack of awareness. Overcoming these barriers is crucial for effective AT integration in schools, workplaces, and homes.
4) Technology Acceptance: This concept deals with how receptive individuals are to adopting new technologies. It involves understanding the factors that encourage or deter people from using AT, such as ease of use, perceived benefits, and cultural factors. Acceptance is a key determinant of whether AT will be effectively utilized.
5) Intellectual Disability and AT: This involves the use of assistive technology to aid individuals with intellectual disabilities, a group often overlooked in research. The focus here is on creating user-appropriate technologies that cater to the specific needs of individuals with intellectual disabilities, thereby enhancing their quality of life and ensuring their rights and access to necessary tools.
6) Inclusion: The use of assistive technology to promote the inclusion of individuals with disabilities in mainstream settings is a central theme in AT research. This involves not only the physical integration of individuals into different societal sectors but also the social and educational integration where AT plays a pivotal role in leveling the playing field .

III. RESEARCH GAP

Despite advancements in assistive technology and its recognized benefits, there are notable research gaps. One primary gap is the underutilization and low adoption rates of assistive technologies among users, which is often due to a lack of personalization and user-centric design (Kuo et al., 2018; Bouck, 2016).

Additionally, there is insufficient research focused on assistive technology for individuals with intellectual disabilities, an area that offers significant opportunities for advancing population health and ensuring the realization of basic human rights (Boot et al., 2017). Furthermore, barriers such as staff training, negative attitudes, and inadequate funding hinder effective integration and use within educational and home environments.

IV. OBJECTIVES

The primary objective is to enhance the utilization and effectiveness of assistive technology through user-centered design approaches, particularly for underserved populations such as individuals with intellectual disabilities. Another goal is to bridge the gap between technology availability and practical implementation by ensuring assistive devices meet the diverse needs of users, thereby increasing adoption rates and weather or not it is approval worthy.

This research aims to evaluate the level of social acceptance and psychological impact experienced by physically challenged users of assistive technology, identify factors that promote greater inclusion, and suggest design and policy improvements to enhance user experience and wellbeing.

V. SCOPE

The scope of this research involves developing frameworks and methodologies that make assistive technology more accessible and tailored to individual needs.

This includes examining the factors that influence technology acceptance and use across various disability groups and settings, from educational institutions to home environments. The scope extends to policy recommendations that support comprehensive access to and support for assistive technologies . Focus on AT solutions for physical disabilities, such as mobility aids, communication tools, and smart devices. Examine social interactions in family, workplace, and public spaces. Analyze emotional and cognitive responses associated with device usage. Provide recommendations for practitioners, designers, and policymakers to improve acceptance and psychosocial outcomes.

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VI. METHODS

To address the above challenges, a multi-method approach can be employed:

1) User-Centered Design and Co-creation: Involve users in the design process to ensure assistive technologies are tailored to their specific needs. This can be achieved through workshops, focus groups, and participatory design sessions that gather user feedback and preferences.
2) Qualitative and Quantitative Research: Employ both types of research to explore barriers and facilitators of assistive technology use. Qualitative methods, such as interviews and thematic analysis, can provide in-depth insights into user experiences, while surveys and statistical analyses can quantify adoption rates and identify trends .
3) Pilot Studies and Prototype Testing: Develop prototypes of assistive technologies and conduct pilot testing in real-world settings to gather data on usability, effectiveness, and user satisfaction. This iterative process helps refine products and ensure they meet user needs.
4) Interdisciplinary Collaboration: Collaborate with experts from fields such as healthcare, engineering, and social sciences to integrate diverse perspectives and expertise in the development and implementation of assistive technologies.
5) Social Acceptance: The degree to which society and communities embrace AT users, recognizing and respecting their needs and choices.
6) Psychological Impact: Emotional and cognitive effects that AT usage has on individual self-esteem, identity, mental wellbeing, and social participation.
7) Stigma: Negative perceptions or stereotypes that may be attached to using visible AT devices.
8) Inclusion: Active participation in society and reduction of barriers for AT users

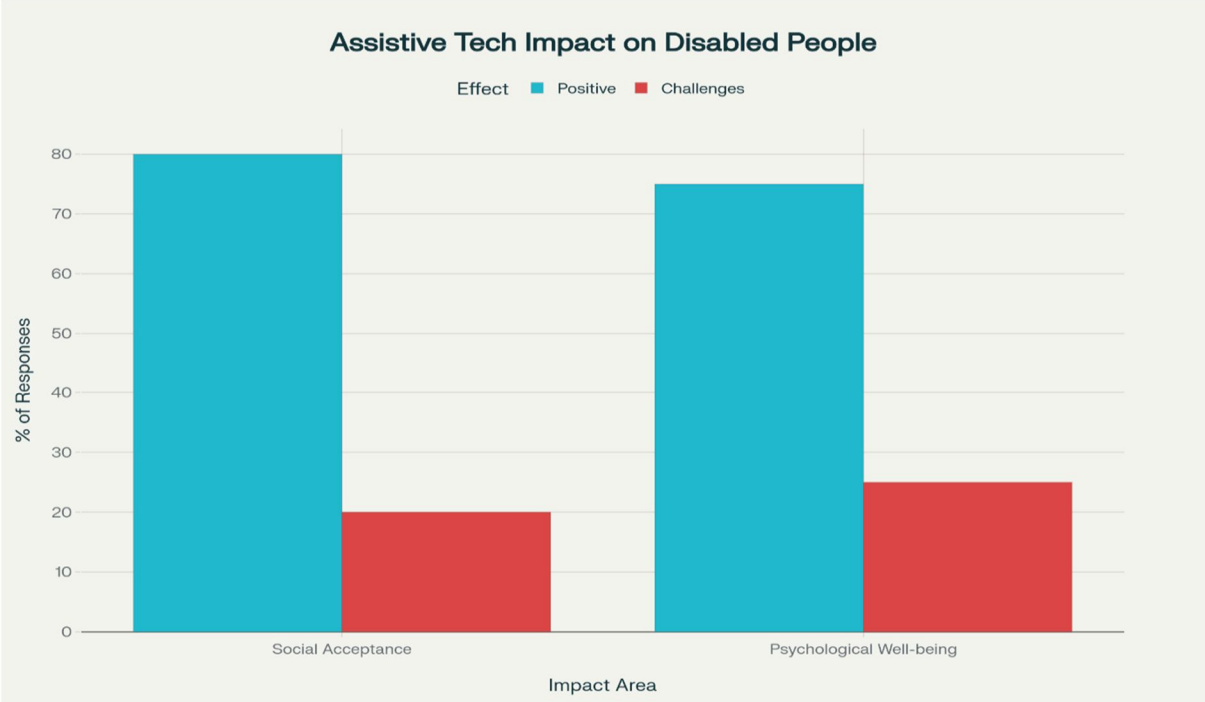
VII. DATA ANALYSIS

Data analysis involves critically examining the collected data to discern patterns and themes that align with the research objectives. For example, studies using mixed methods provide a comprehensive view by combining quantitative satisfaction metrics with qualitative feedback on psychosocial impacts . Through this analysis, researchers can explain the data by linking the quantitative scores to qualitative experiences, such as how specific devices impact user independence and participation in daily activities. People who use assistive technology often report increased participation in daily life and improved opportunities for social interaction. AT enables users to join in work, education, and community activities, reducing isolation and making it easier to stay connected with family and friends. Many users say these tools make them feel more included in society “AT means I can meet and speak with people” is a commonly reported sentiment. However, some users still face social stigma or discomfort, especially if their devices draw attention, which can sometimes lead to feelings of exclusion or embarrassment. The psychological effects of AT are mostly positive—many users report boosted independence, self-esteem, and peace of mind. Assistive products are often seen as essential for reducing anxiety and making people feel secure, at home or outside. Individuals describe emotional attachment to their devices, considering them an extension of their body and identity. For example, statements like “My assistive products feel like a part of my body—they’re integral to who I am and how I live” are typical. Yet, challenges exist. When assistive devices fail to meet user needs or if adapting to new technologies is difficult, users may feel frustration or stress. The speed of improvements in technology sometimes brings anxiety, especially for those who struggle to keep up or lack access due to financial barriers. Support from family, friends, and professionals is crucial for positive adjustment without negative emotions and withdrawal can increase.

Impact Area	Positive Effects	Challenges/Barriers
Social Acceptance	Inclusion, participation	Stigma, drawing attention
Psychological Well-being	Independence, confidence	Adaptation stress, frustration
Emotional Attachment	Devices seen as part of self	Loss of device causes anxiety
Support Systems	Family/friend help boosts effect	Isolation worsens negative feelings
Access/Digital Divide	High access improves all areas	Low access increases disadvantage

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ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
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A. Advantages

Increases independence by allowing people to perform daily tasks without relying on others.

1) Improves communication, especially for those with speech, hearing, or language impairments.
2) Enhances learning for students with disabilities through tools like audiobooks and educational apps.
3) Offers better mobility using aids such as wheelchairs and scooters, leading to greater freedom of movement.
4) Promotes social inclusion and participation in community life and Improves overall quality of life and empowers users to make their own choices.

B. Disadvantages

1) Some devices and software are expensive, making them inaccessible for people with limited finances.
2) Lack of awareness and insufficient training lead to underutilization or improper use.
3) Can isolate users socially if technology reduces the need for direct human help, potentially harming emotional health.
4) Stigma and misconceptions about "dependence" on technology persist in some communities.

C. Application

1) Mobility Aids: Devices like manual and electric wheelchairs, scooters, walkers, canes, and prosthetic limbs help people move independently and safely.
2) Communication Tools: Augmentative and alternative communication (AAC) devices, speech-generating devices, and voice recognition software support those with speech or language impairments in expressing themselves.
3) Educational Support: Adaptive keyboards, switches, touch monitors, screen readers, and educational software enable students with physical limitations to participate equally in classroom activities.

VIII. CONCLUSION

Assistive technology is very important because it helps people with physical challenges do many things more easily and independently. These technologies can be simple tools like magnifiers or special utensils, or complex devices like wheelchairs and computer programs that help people communicate or move around. With assistive technology, a person can live a fuller life by doing everyday tasks on their own, such as cooking, dressing, or using a computer. One big benefit of assistive technology is that it allows people to communicate better. For example, someone who cannot speak clearly can use special devices to express what they want to say.

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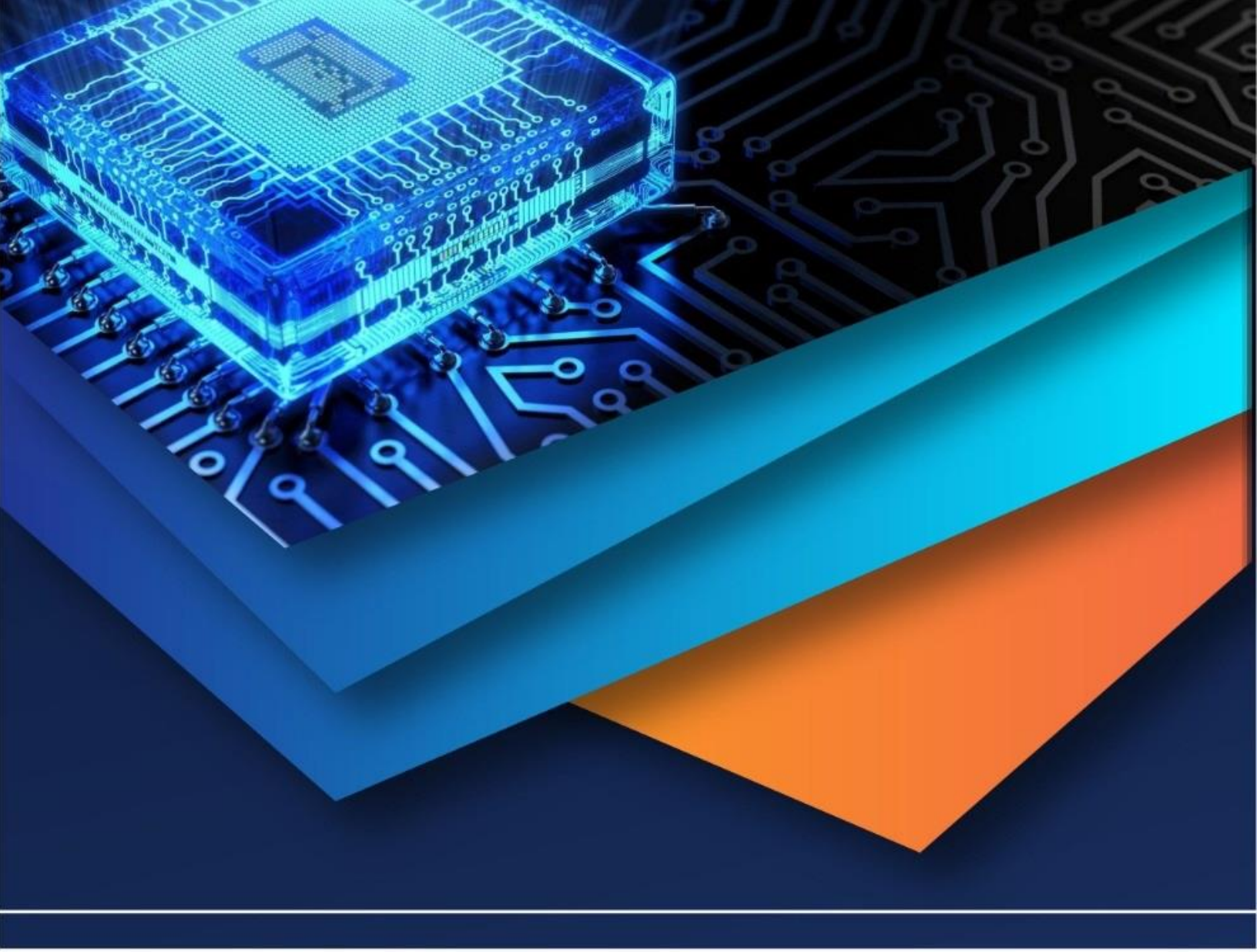
This helps them connect with family, friends, and teachers, making life much less lonely. It also helps children and adults learn better in schools by giving them special tools and software made just for their needs. Assistive devices also improve mobility. Wheelchairs, scooters, and walking aids enable people to move around more freely and safely,which means they can take part in social activities, work, and hobbies. These technologies help people feel more included and part of their communities because they can join in activities that otherwise might have been too difficult. Using assistive technology can make a person feel proud and confident. It gives a sense of freedom because they can do things themselves instead of always relying on someone else. This independence lowers stress and increases happiness. Families and friends also feel better because their loved one can handle more things on their own.One important thing is that assistive technology is for everyone—young children, older adults, and people with various disabilities. It helps people live healthier, happier, and more productive lives. It's not just a tool but something that changes lives by giving people the power to do what they want and to be part of society just like everyone else.

In conclusion, assistive technology is a powerful helper that makes life easier and better for people with physical challenges. It improves independence, communication, learning, and social life. It helps people feel confident, included, and healthier. With the right support and access, assistive technology can open many doors and create a world where everyone can live their best life. This is why assistive technology is so valuable and deserves more attention and support worldwide.

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