

Research Snapshot

Accessibility of Payment Terminals

What is this research about?

Accessibility is important in the design of various things, everything from essential products to entertainment. Accessibility allows people of all abilities to use what they need and enjoy what they want.

Point-of-Sale systems and payment terminals are some of the technologies that we all use when going to the store to buy something, like self-checkouts or card readers. But as many people who have used these technologies can say, they are not always easy to use, and so, they do not have accessibility in mind when they are designed. This creates barriers for many people, including persons with disabilities. As part of this study, the researchers looked at the features of payment devices and their accessibility in their environments by looking at current and new technology.

What did the researchers do?

Using different disciplines like social science and ergonomics, the researchers looked at what physical and digital accessibility considerations have been or need to be implemented in these systems, considering various factors like usability and effectiveness. For the study of current and emerging technologies, the researchers conducted a literature review, looking at the existing information on payment systems. When looking at the actual measurements of these systems and what the experience is like when

What you need to know

Accessibility is a major consideration in current design, leading to universal design principles that promote inclusion of all people, regardless of ability, and social and economic status. The Canadian population with disabilities is growing: in 2017, Statistics Canada reported that 1 in 5 Canadians under the age of 15 experience some form of disability, and Canadians who had some form of disability more than doubled at the age of 75.

interacting with them, physical environmental scans were done. Sellers of the systems were contacted for additional information on their products and standards.

What did the researchers find?

The researchers found that there is a lack of standards for payment terminal software and hardware components, with newer devices favouring inaccessible technology such as touch screens. This creates barriers for many people due to the lack of physical references when navigating through the system.

There are many software design issues, such as the unclear status of the payment software, the high difficulty for a user to recover after making an error, and visually cluttered interfaces with contrast issues.

An overall lack of standards has created a trend for faster transactions, pushing towards cashier-less systems that decrease communication and interactions



between the employee and the user. This is a problem for persons with disabilities that need assistance when paying.

The environment where the device is used has a great influence on accessibility considerations, such as terminals on checkouts being out of reach because of their height and placement. Because there are no significant guidelines in place to support the payment process, individual stores are responsible for how the environment is customized.

Lastly, a possible trend for payment systems is the use of biometrics, like fingerprint scanning. This makes the payment process easier for some users with disabilities, but user safety and privacy need to be balanced before using this technology.

What are the researchers proposing?

One of the main issues that were found was the lack of meaningful accessibility standards. Developing standards under [Accessibility Standards Canada](#) can change the current trends that make payment devices inaccessible for the better. When developing these standards, it is important to consider users' experiences and the various research done, to create a flexible environment that responds to a variety of visible and non-visible disabilities.

How will this research be used?

This research contributes to the overall discussion on accessibility and what is being done to make it better in Canada. The findings of this study inform policymakers, service providers, and vendors/manufacturers of the specific flaws in payment systems which cause the gap between the accessibility needed and the accessibility currently available.

About the Lead Researchers

[Dr. Boris Vukovic](#) is the director of the READ Initiative, an Adjunct Research Professor with the School of Industrial Design at Carleton University, and an Adjunct Professor in Educational and Counselling Psychology at McGill University. [Dr. Beth Robertson](#) is an Adjunct Research Professor and Postdoctoral Fellow at the Department of History. [Chantal Trudel](#) is an assistant professor at the School of Industrial Design.

Citation and Keywords

Vukovic, B., Robertson, B., & Trudel, C. (2020). Accessibility of Payment Terminals [Unpublished manuscript]. READ Initiative, Carleton University, Ottawa, Canada.

Accessibility, Point of Sale, Payment, Standards

Funded By

Employment and Social Development Canada

About the READ Initiative

Building on Carleton University's reputation in supporting persons with disabilities, the READ Initiative endeavours to establish Carleton as a Centre of Excellence in Accessibility, through multidisciplinary, cross-sectoral research, education and development toward a world that is accessible and inclusive.

We bring the expertise across all academic disciplines and service departments at Carleton into collaboration with individuals and organizations that are committed to accessibility for persons with disabilities.



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