



Touchscreen Kiosks in a Health-Aware World

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By Richard Slawsky | Contributing writer, Digital Signage Today

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COVID-19 promises to be a part of our lives for the foreseeable future, and the impacts are far and wide. For those considering incorporating self-service technology into their operations, one of the chief concerns is the future of touch in a world where the spread of viruses and bacteria is on the top of everyone's mind.

Much of the concern stems from the conflicting messaging that has emerged regarding the virus. A study conducted by Princeton researchers reported that the COVID virus could survive on some surfaces for as long as three days. On the other hand, the Centers for Disease Control reported that while it was possible to contract COVID by touching contaminated surfaces, this wasn't the primary way the virus was spread.

Whatever the risks, though, there's a good chance that many will have concerns with the use of touch-activated devices. With that in mind, what will be the impact on deployers? Will people abandon touchscreen kiosks?

The stickiness of touch

Fortunately, the answer is likely to be no. Touch-activated devices such as smartphones and tablets have made that method of interactivity an integral part of our lives, and we're just too used to tapping, pinching, and swiping to abandon touch control. More than 81 percent

of U.S. adults owned a smartphone in 2019, for example, up from just 35 percent in 2011. That, along with the proliferation of tablet devices, has created an expectation that we can touch the screens we see and get a response.

Touch interactions offer a host of benefits.

- Touch control offers speed. A study conducted by Mitsubishi Electric Research Laboratories found that touch control provided as much as a 20 percent reduction in response time for users compared with other input methods.
- Touch is simple to use, offering an intuitive experience even to those without a computer background.
- Touch overcomes many of the hurdles associated with interacting with a live person. Barriers created by language, accents, or speech impediments aren't an issue.
- Touch can easily accommodate those with physical limitations. Someone with limited hand motion will likely find the task of interacting with a touchscreen presents fewer hurdles than a keyboard.
- Touch offers a low risk of viral transmission as it's easy to sanitize one's hands after completion of a transaction.



“Touchscreens and touch-first content aren’t going away, though the rules are going to change,” said Geoffrey Bessin, chief evangelist at Intuiface, provider of the market’s only no-code platform dedicated to the delivery of interactive digital experiences for physical spaces.

“Setting aside the enormous volume of existing touchscreen deployments, there is no getting past the convenience, the accessibility, the affordability of touch-first digital content,” Bessin said.

A choice of touch-alternative methods

Although touch will remain the primary method of interacting with self-service devices, deployers should consider incorporating alternative methods of interactivity into their solutions as well, giving users a choice of options.

COVID concerns aren’t the only reasons for incorporating multiple interaction methods, either. Offering an alternative to touch control can increase the accessibility of the device to those with limited hand motion or other issues.

But of the various interaction methods currently available, each has its positives and negatives. The choice depends in large part on the specific function of the device and where it's located.

Touch alternatives include:

Voice control – Quite possibly the alternative with the most promise. The technology behind voice control is improving, and comfort level is increasing thanks to home automation devices. However, it can still be an issue when it comes to variables such as accents, speech impediments, and the level of background noise. If a user has to repeat themselves several times to achieve their desired result, chances are they'll end up walking away from the kiosk out of frustration. In addition, not everyone is going to be comfortable with having passersby serve as an audience for their kiosk transaction.

Gesture control – Gesture control has potential and is already in widespread use in self-service devices in Japan, but it can limit the types of interactions possible. A [2014 paper](#) authored by researcher Andrea Attwenger outlined some of the pros and cons of gesture-based interaction.

“Gesture-based interfaces have many advantages and provide the user with a completely new form of interaction,” Attwenger wrote. “However, this kind of input also raises issues that are not relevant to traditional input [methods].”

While a button on a touchscreen can be labeled to identify its function, gestures are more arbitrary. The system needs to be able to accurately recognize the gesture that prompts a particular response, while at the same time ignoring irrelevant movements.

In addition, incorporating gesture control requires some amount of education for the user to know what gestures elicit a specific reaction on the device. Think of it as the “five-second rule.” If a user can't figure out how to interact with the device within five seconds, they're likely to give up and walk away.

Mobile phone apps – Applications such as mobile banking or food ordering have undoubtedly emerged as an alternative to self-service devices, and the potential exists for an app that would serve as a sort of kiosk remote control by allowing users to manipulate the kiosk via their mobile device. Unfortunately, such apps can be limiting thanks to the small size of a mobile phone screen compared with a kiosk touchscreen. In addition, unless they use that specific kiosk regularly, consumers aren't likely to go through the hassle of downloading an app.



Interestingly, mobile phone interactivity may breathe new life into the much-maligned QR code. Rather than download an app, users could simply snap a picture of a QR code to bring up a kiosk's control screen in a web browser on their mobile device.

Real-time video analytics and IoT sensors – Using real-time video analytics technology to gather basic information about the user can deliver personalized content that helps limit the amount of touching that needs to take place. At the same time, “Internet of Things” sensors can aid in presenting targeted content based on external factors such as temperature and time of day. A restaurant self-ordering kiosk, for example, can display dishes such as soup or hot coffee drinks when the weather's cold, swapping those out for frozen drinks or ice cream when the thermometer tops 80 degrees.

And thanks to advances in artificial intelligence, a kiosk might deduce that teenage girls are likely to order grilled chicken sandwiches, while twentysomething men might opt for a double cheeseburger. Gleaning some key demographic information about a user might prompt a rearrangement of how the menu is displayed on the kiosk screen, minimizing contact while at the same time maximizing sales.

Taking it a step further, facial recognition technology is emerging as a way to identify specific customers. By creating an account that incorporates a photo and payment information, users can pay for purchases by merely standing in front of a camera. Such opt-in systems are already in widespread use in some countries and were starting to make inroads into the United States before the COVID-19 pandemic.

On the other hand, the use of video analytics raises privacy concerns that will need to be addressed. In 2019, for example, Sweden's Data Protection Authority issued a fine of 200,000 Swedish Krona (\$20,700) to a municipality for violations of the European Union's General Data Protection regulation. A school had begun a facial recognition pilot program to track students' attendance without securing proper consent. The same issues are likely to arise when using facial recognition in a self-service device.

Addressing touch screen concerns

We've already acknowledged that touch will remain the primary method of interaction for self-service devices, but that doesn't mean users won't have concerns about the impact on their health of touching a screen. To help increase the comfort level of touch users (and to highlight the fact that they're concerned about their customers), deployers can take some steps to promote safety.

Those include:

Antimicrobial screen coatings – Already in use in healthcare settings for years, antimicrobial coatings for touchscreens are seeing increased interest from deployers in other areas as well. Signage on or near the display can convey the fact that the device's screen has been treated in such a fashion. It's important to note, though, that antimicrobial coatings typically “inhibit” the growth of bacteria and other microbes rather than killing them outright. Making a claim that the screen's coating prevents the spread of disease could potentially expose a deployer to legal action.



Hand sanitizer/plastic glove stations – Hand sanitizer dispensers are becoming a fixture in the marketplace, and disposable glove dispensers are becoming nearly as popular. There are several issues of which to be aware, however. Keeping those dispensers filled can be costly. And an empty dispenser can convey the impression that you don't care about your customers.

One other concern: Anyone who visited a grocery store during the height of the COVID-19 pandemic likely saw used disposable gloves scattered throughout the parking lot. As people got into their cars, many simply peeled off their gloves and tossed them on the ground. If you plan to offer disposable gloves, keep a trash can near the exit with signage that indicates something along the lines of "Dispose of your gloves here." In addition, check the parking lot regularly and sweep up any abandoned gloves.

Regular cleaning – Quite possibly the easiest, least expensive, and most effective method for keeping touchscreens safe for users is cleaning them regularly. Supplement your efforts with a posted cleaning schedule, similar to what many stores and restaurants do with restrooms. Along with helping minimize the spread of disease, visitors to your establishment will see your self-service devices being cleaned and will feel safer as a result.

Make sure, though, that whatever cleaning product you use is in line with the screen maker's guidelines. Some touchscreen displays include anti-glare or anti-scratch coatings that can be damaged by certain cleaning products

Catering to everyone

Like COVID-19, the health concerns raised by the global pandemic aren't likely to go away any time soon. Although predictions vary, those concerns are likely to be with us for years, if not forever.

Touch certainly isn't going away when it comes to self-service devices, but clearly, attitudes are changing. Providing multiple interactivity methods when designing a kiosk project not only addresses COVID concerns, it also increases accessibility to more potential users, enhancing the chances of usage and success. While touch will continue as the primary method of interaction going forward, it won't be the only one.

"Touch alternatives will become natural complements and will inevitably lead to richer and more personalized experiences accessible through the medium of preference for each user," Bessin said. "Give your audience a choice, and they will be more likely to engage."

About the sponsor:

Intuiface is the market's only no-code platform dedicated to the creation, integration, deployment, and analysis of interactive digital experiences for physical spaces. Over 1,600 companies across 70+ countries are connecting people to place using interactive options such as touch, RFID/NFC, computer vision, Web APIs, Internet of Things, and much more. It is an ISO 27001 Certified platform that can be used by any industry – including retail, hospitality, real estate, tourism, education – and for any intent – from digital signs to self-service kiosks and assisted selling.