How Touchscreens Changed the Restaurant Industry

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Throughout modern times, the restaurant industry has undergone various changes, some visibly subtle and some notably striking. Given how technology has advanced and subsequently became adopted by various industries, restaurants being one such area, a component of the eating experience has evolved. Specifically, it is the way how one looks and physically orders meals from menus. The technology that is responsible for this change are touchscreens. Touchscreens have dramatically altered the concept and behavior of ordering food; creatively speaking, they also have contributed to the betterment of choice by visual ergonomics. Though touchscreens have been around for awhile, it had to evolve to a point where the restaurant industry could feasibly incorporate them. To understand how important and why this technology plays a role today in having people order efficiently, one must understand a few key points. Among them are its definition, its role that allowed it to be applied to the restaurant industry, what effect it had on it that was missing prior to their introduction and integration, and what problems it immediately or gradually solved?

Today, touchscreens are ubiquitous, most prominently as an essential part of smartphones. However, touchscreens were not always looked at as a widely adopted technology that millions of people use daily. The idea of a screen that a user can engage with to perform commands was originally thought of as a futuristic dream that came into fruition in 1965. British inventor E.A Johnson created a device that utilized a process capacitive touch, which is what today's smartphones have. Capacitive touch works "by sensing the conductive properties of an object, usually the skin on one's fingertip." What this means, scientifically is that when a finger hits a screen, a tiny electrical charge is transferred to complete a circuit of electric energy (or motion of swiping and tapping by flow of electrons). The screen itself is one electrical field where upon contact, voltage drops and thus allows built-in software to process the location of the touch and subsequent actions.

Even though capacitive touchscreens were developed first, they were quickly surpassed by resistive ones, which senses the pressure being applied onscreen and registers input. The way this

works is described as two electronically conductive layers, one bending to the other upon force being applied by pressing. One of those layers absorbs those forces whereas the other acts as a barrier with an electrical current flowing between them. As a press is engaged, the absorbing layer sinks above and touches the barrier, where a change in electrical current prompts a built-in software to recognize a change in the current and sends out a function to the user's request onscreen within the running program. More recent iPhone models that use "force" touch are an example of devices of use this touchscreen technology.

Whenever and wherever there is a need for eating and dining, the demand is always high. Food service is provided almost everywhere and is produced in restaurants of all shapes and sizes. Format-wise, these include full-service stores, quick-service stores, cafeterias, buffets and snack bars. More so, various brands and franchises specialize in one or more of these restaurant types, leading to fierce competition over consumers and their demographics, desired tastes and spending income. Both large and small restaurants engage in marketing, branding focus, finance, and especially technology to thrive commercially and in some cases, survive. There in fact can exist many differences in these strategies between all eateries, chains or local. But, there are two constants that these businesses all share: tending to the "who" and the "how." The who addresses the target audience that resturants seek to earn business from: hungry consumers. The how, which leads into the purpose of this paper, refers to the method in which those consumers get their meals.

Up until the 21st century, restaurants were accustomed with traditional ways of providing customers the time and means to decide on a meal. Namely, this was given and/or presented in the form of menus. Historically speaking, when the first eateries were emerging centuries ago, people simply ate whatever chefs were cooking on a given day. Gradually, when the concept of going out to eat became more formal and specialized, options became part of the experience as it was convenient and eventually necessary for business flexibility. By the mid-1700s, paper menus detailing choices for meals started to become the norm, first originating in France.

Throughout the next two centuries, restaurants from all over the world adopted menus and stayed as a fixture in aiding many to look for a desired order, whether in the form of easel and

wall chalkboards, over-the-counter letter boards or table pamphlets. Table menus notably took on a life of their own, many of them being stylized graphically as part of a restaurant's identity. Although this certainly improved the presentation of food items and beverages by the ways of color and typography, some of the more decorative and intricate designs made such menus hard to read. Another challenge with these menus is the ever perennial habit of restaurants (mainly fast-food and high-end diners) reprinting and changing menus with the advent of desktop publishing in the 1980s and 1990s.

Coupled with the practice of replacing usual terms associated with a meal and its ingredients to "fancier" and "gimmicky" phrasing (a practice that still exists today), confusion and time wasted on deciding on a perfect meal for anyone seemed all the more common for restaurant goers. Habits like these often lead to indecision and lack of focus at the dinner table despite the expectation for all those hungry to be satisfied with their desired order, let alone know exactly the amount of calories to be consumed.

In the decades following the invention of the touchscreen, as previously talked about, advancements were made in refining the technology. In 1974, the first touchscreen incorporating a transparent surface was developed and later, in 1983, the first computer monitor had it. The 1990s marked the rise of personal device assistants (PDAs), whose touchscreens made use of styluses. Then, it was the first time this technology became portable, though it would take until the following decade when the less bulkier and more powerful smartphones and tablets made touchscreens commonplace in households and on the go. Effectively, with millions of users becoming more fluent or familiar with touchscreens than ever before, restuarants in recent years have responded by embracing and adapting with the technology. Naturally, the best fit that touchscreens could be utilized for was in menus.

Design-wise, to accommodate for personalized user access, this meant that touchscreens had to be portable, or at least at a table so that ordering could be done, similar to traditional table menus. Various takes on such design forms have been implemented, mainly being from small, moveable touchscreen stands (common) to built-in ones beneath a table's surface (less common). Given that fine dining and local chains specialize in table service, such technology could only

apply to those locations. However, with fast-food chains, a different kind of touchscreen has been utilized in soda fountain machines. The reasoning here would be due to the nature of ordering from an above-counter menu, the only part of the meal where one directly chooses their preference is in what to drink.

Whatever the style to which such touchscreens were used, the number of issues it solved were numerous. These include: increased clarification on orders, customized meals (i.e. extra toppings, cooking preparation) and time lessened between order placement and fulfillment. Also notable as well as innovative, some restaurant touchscreens started to replace cash registers by processing payments directly from the customers; furthermore, they also could keep tabs on food supplies thanks to software that track meals selected frequently by users.

Touchscreen technology, though only adopted in recent years, has significantly changed aspects of the restaurant industry. Due to the widespread public familiarity and fluency with the technology, the user-friendliness of browsing menus has replaced the need for looking at boring and confusing printouts. More so, customers have less time to waste thanks to reduced or no reliance on waiters. Mistakes in human error, either by poor customer service or forgetfulness are also eschewed in favor of straightforward directions directly from a customer via touchscreen menu. This sharply reduces long waits for ordering, though obviously not so much on food preparation; despite this, kitchens that receive orders by monitor are more likely to efficiently work on each table's meal in a quicker and more organized fashion, which can lead to a higher volume of customers.

From the restaurant owner's perspective, touchscreens have served as a crucial investment in maximizing profits and improving customer service. Regarding the former, restaurants will no longer need extra staff to train for serving customers, with all focus going into the kitchen, cleaning, and menu updating. For the latter, touchscreen programming allows managers to easily track the duration between when an order was requested to when it ultimately is served; this kind of feedback further improves the efficiency of food being served on time.

Lastly with touchscreens, a new kind of culture has given way to the restaurant experience. Customers browsing a menu are expected to be helped by graphics, not so much heavy text when

looking at a meal. Depending on the level of interaction, customers may be further aided by voice (if impaired) and/or additional options unrelated to ordering, such as seating arrangements, lighting and number of plates and utensils requested prior to getting to a table. Having these in place motivates and piques the interest of customers to explore menus entirely, from entry to exit to warranting many returns in the future. The potential for new markets in touchscreen technology to cater to functions outside food ordering is high. For example, touchscreen kiosks have been developed to replace human cashiers. According to CEO of Panera Bread, Ron Shaich, “touchscreen kiosks are making business faster as it has reduced the long queues for ordering, pick up and payment.” This not only can be applied to restaurants whose business depends on self-service, but also for stores in retail, entertainment, medicine, and other industries.

Without a doubt, touchscreens have had and will continue to make an impact on the restaurant industry. Though largely contributing as means for digital menus, the effect it will have on replacing other aspects of the dining experience is evident today. In addition, a precursor of where touchscreen technology is headed next is seen in over-the-counter menu screens, where live display of meal listings are shown with calorie counts. As technology evolves, it won’t be surprising to see one day a form of touch screen that projects a three-dimensional holographic display menu. Such an advancement would serve to visually illustrate each food item along with ingredients right in front one’s eyes. This would increase and encourage the reliance on physical user interaction by swiping and could also lead to integration with holographic gaming to kill time while waiting for food to be delivered. Either way, it will not be surprising to see restaurants gradually become less human-involved, outside cooking food. Perhaps further in the future, machines can even take over this task where touchscreens too could serve as an input for the customer. Meals to be cooked in this scenario would need to be processed automatically, which is far advanced from where the restaurant industry is at present time.

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