

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON CONSUMERS EXPERIENCE: THE
CASE OF MC DONALD TOUCH SCREENS

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Abstract

This paper has the aim of investigating through a questionnaire, the reaction of people and their adaptation to the “Artificial Intelligence” or “AI” and how it can have an impact on social interaction.

More specifically, we wanted to investigate the reaction of people going to Mc Donalds’ restaurants where new touch screens have been placed to take the orders instead of humans behind the counters. It appears evident from data that older people feel uncomfortable in using these new touch screens, they are afraid of making mistakes or, in other cases, they would prefer to be served, as it has always been.

The reaction is extremely positive among youngsters under thirty; they find it faster and easy, in few cases they prefer them because they do not have to talk to anyone. This last consideration opens a huge debate on how technology has been affecting more and more the way people interact in reality or virtually and their habit to do it.

Key Words:

Artificial Intelligence, AI, technology, service, human relations, fast food.

1. Introduction and Objectives

The inspiration for this work arose from hearing comments of people that used for the first time the touch screens introduced in several Mc Donald's restaurants in big cities. These touchscreens have been introduced to take the orders instead of the staff behind the counter.

From the observation of the early users of Mc Donalds' restaurants touch screens, our interest has moved at a higher level too, for Artificial Intelligence experiments also in other fields and not only restaurants and for the implications that the introduction of artificial intelligence may have on human relations in several fields.

When mentioning "Artificial Intelligence" or "AI", what do we really refer to?

The concept itself is very intriguing and debated; the idea of creating machines that are as smart as humans finds its origins already at the time of ancient Greeks, who had myths about automatons created by the gods.

However, real interest and deep researches about Artificial Intelligence started in the fifties.

As Burnett wrote: "Disruptive times call for staying attuned with consumers' changing needs and lifestyles. We are at the brink of the 4th industrial revolution, which will undoubtedly shape the future of many aspects of consumers' lives, including how we shop. Thus, the time for keeping a close eye on new technologies and innovating for the future has never been better." (Burnett J., *Retail today and tomorrow: Innovating in the age of disruption*, Nuremberg, 2017).

The AI has acquired very much importance in the last decades and it has been accelerating the pace of its development especially in the last years, however the scientist considered as the "father" of computer science and Artificial Intelligence is Alan Mathison Turing (23 June 1912 – 7 June 1954), born at the time of the first World War and with a crucial role during the

Second World War: he intercepted and cracked coded messages that enabled the Allies to defeat the Nazis in many decisive engagements, including the Battle of the Atlantic, and in doing that, he helped to win the war.

It has been estimated that this work shortened the war in Europe by more than two years and saved over fourteen million lives.

The decades has been passing and the role of technology has been more and more important in *“transforming industries, challenging traditional marketing channels, and providing digital avenues for dynamic growth”* (Crittenden et al., 2017).

A shared worry among people, however, is the threat of AI as a reason for companies to substitute employees with machines. One book on this topic is *“ Rise of the robots – technology and the threat of a jobless future.”*, written by Martin Ford.

It is also agreed by the majority that technology helps to simplify our lives and daily activities, but it is also true that more and more jobs are no more necessary due to the introduction of it.

2. Research question.

The aim of this research is to “measure” through a questionnaire, the reaction of people and their adaptation to the “Artificial Intelligence” or “AI” and how it can have an impact on social interaction.

More specifically, we wanted to investigate the reaction of people going to Mc Donalds’ restaurants where new touch screens have been placed to take the orders instead of humans behind the counters.

3. Conceptual Framework and Literature Review

Several pieces of literature have been written around Artificial Intelligence recently, discussing about the future of the Consumer experience and the possible further evolutions strictly linked to what technology can offer. However, a recent study has investigated on how newly evolved touchscreen technologies affects consumer behaviour. They found interesting differences in consumer intentions and decisions in relation with the kind of device they were using as support and the kind of and product they were focusing on.

One of the main important result is that “touchscreens evoke a stronger experiential thinking style, while desktops evoke a stronger rational thinking style. Moreover, the findings suggest that greater experiential thinking enhances a consumer preference towards hedonic products, while greater rational thinking endorses utilitarian products.

Together, this pattern leads touchscreen users to prefer hedonic products over utilitarian products.” (Ying Z., Jeffrey M., *Getting in touch with your thinking style: How touchscreens influence purchase*, New York, Elsevier (2017): 51-58)

However, our research aims to explore the impact of touchscreens not related to “products” shopping, but to the experience of “ordering food”, in a place where there have always been persons to do this activity, not only in terms of functionality of course, but as the progressive lack of human interaction.

“Some claim that this may change drastically with the widespread introduction of AI technologies leading to massive job reductions and bringing us towards Huxley's *Brave New World*.” (Makridakis, Spyros, *The forthcoming Artificial Intelligence (AI) revolution: Its impact on society and firms*, “Futures”, n. C XC (2017): 46–60. <https://doi.org/10.1016/j.futures.2017.03.006>).

But this job's reduction could, at the same time, possibly bring to job quality improvement: since most of the easy and manual tasks will be managed by the AI, people will have the chance to focus on more complex ones.

The support of AI will imply that people will develop new skills that would result in better quality jobs, working in a smarter way with less efforts and more productivity.

This will bring us to a better life-work balance, improving the quality of our life, work and those direct consequences on our behavior, eventually finding new time to be spent with people since we will progressively reduce it in the daily occasions due to the AI? This is an interesting debate to discuss on.

4. Research Model

To investigate around the abovementioned topic, as first step, we chose to work in arranging a qualitative survey using an on line questionnaire focused on the following key issues:

- The socio-demo profile
- At what extent the usage of the touchscreen is “new” for the interviewed at the time of the interview
- Which feelings the interviewed felt in doing the order by himself and his/her reasons
- The positive effects and feelings of ordering by the touchscreen, if any
- Finally a question to understand psychologically how they welcomed or not the innovation by asking directly their feedback about substituting men and women with machines and the possibility we will feel the nostalgia of smiles and jokes.

5. *The Method*

In order to test the research questions, a sample of 150 interviewed persons has been considered and results elaborated. The interviewed persons were asked to reply to an on-line questionnaire.

The basic characteristics of the sample are shown in Table 1.

Table 1. Panel profile

Gender		Average age	Scholarisation	
Females	53%	28,5	Secondary school	13%
Males	47%	31	high school	36,5%
			Degree	47%
			master	3%

Since we were more interested in basic psychological processes than generalisations, the sample size was considered appropriate (Grewal et al., 2000; O’Cass, 2000).

The survey was thought and run according to the following procedure:

- a) Definition of an on-line questionnaire, based on the abovementioned aim and key issues to be investigated, developed by the members involved in this research.
- b) The prerequisite of the interviewed people, was the experience already done at the Mc Donalds’ Restaurants with their Kiosks, the new touch screens display that let the customer order his meal.

This selection brought to the following features of the sample:

Size: “150” people; age range: “14-69”, age average “30”; gender: 53% females, 47% males.

c) Field survey: the interviewed people city of living was Turin in the north of Italy.

d) The duration of the questionnaire was approximately : three minutes, structured in nine questions.

e) Collection of the replies, data processing and standardisation of the output format.

6. Findings

Out of the 150 people interviewed, the frequency of visiting a Mc Donalds' restaurant was the one shown in table 2.

Table 2. Frequency of meal at Mc Donalds

76%	once every 3/4 months
21%	once a month
3%	once a week

Out of the 150 interviewed people, we investigated on how many times they had already used the screen to order, in order to understand at what extent they could have already overcome the initial barrier of not knowing how to do and of the “surprise” effect that can be a reason of anxiety. The results are shown in the table 3.

Table 3. Experience with the touch screen

15%	It's the first time
30%	1-2 times
55%	3 or more

We have then investigated on their reaction; if they liked this new solution or not.

The results are shown in the table 4

Table 4. Consumers' reaction

27,3%	It makes me anxious
27,3%	I don't care
45,4%	I like it

Out of the group who replied “It make me feel anxious”, that is the 27,3% of the total panel, the average age is: “44” with a minimum age of 19 and a maximum age of 69.

Out of the same group, the 68% was at the first or second experience with the touchscreen; the rest had already used it three or more times.

Out of this group, the main reason to feel anxious is the fear to make mistakes (53,6%) and the second is the preference of being served (46,4%).

Out of the group who replied “I like it”, that is the 45,4% of the total panel, the average age is: 24 years old with a minimum age of 15 and a maximum age of 51. Out of the same group, the 22% was at the first or second experience with the touchscreen; the rest had already used it three or more times. At the question “why do you like it?”, the 90% replied that “it is faster and more comfortable”, the 3% replied that in this way “I don't have to speak with anyone” and the 7% “other reasons”, such as “I have more time to decide”...

Out of the group who replied “I don't care”, that is the 27,3% of the total panel, the average age is: “25” years old, with a minimum age of 14 and a maximum age of 51.

Out of the same group, the 61% was at the first or second experience with the touchscreen; the rest had already used it three or more times. Here below the recap of the results, in the table 5:

Table 5. Replies recap

	"I like it"	es me ar	"I don't care"
% on total sample	45,4%	27,3%	27,3%
Average age	24	44	25
Min-Max age	15-51	19-69	14-51
First or second experience	22%	68%	61%
Third or more times ex.	78%	32%	39%
Reason to feel anxious			
Fear of making mistakes		53,6%	
Preference of being served		46,4%	
I like it because it's faster and more comf.	90%		
I don't have to speak with anyone	3%		
Other reasons (ex. it gives me more time to decide..)	7%		

We furtherly elaborated the results by segmenting the panel according to three age bands: under 30, from 30 to 50 and over 50.

The results are the following, as shown in table 6:

Table 6. Age bands & reaction

	< 30	30-49	≥ 50
I like it	41%	4%	1%
It makes me anxious	7%	10%	11%
I don't care	22%	5%	1%

As next check, we have compared the replies of females with the ones of males, to see if any interesting trend could emerge.

The results are the following, as shown in table 7:

Table 7. Data by gender

	Females		Males	
	% on tot.	% <30	% on tot.	% <30
I like it	44%	94%	47%	85%
It makes me anxious	26%	24%	29%	25%
I don't care	30%	79%	24%	82%

Apparently there are not significant evidences of a different attitude between “males” and “women”, but it appears clear the significant percentage of youngsters appreciating the new touchscreens; the 94% of females that declared “I like it” is under 30 years old and the 85% of males who gave the same reply is under 30 too.

7. Discussion

From the data it appears clear the correlation between the younger age and the positive feedback on the new Mc Donald touchscreens. The 41% of the interviewed people appreciating the new touchscreens is under 30 years old. Out of the total who replied they like the new screens, the 90% is under thirty!

Moreover, the 78% of this group, has already experienced three or more times the screens, so their positive reaction can also come from having overcome the initial barrier of not knowing the system, due to the novelty.

They find the touchscreen faster and more comfortable (90% of the replies among who appreciates the screens).

The group who feels anxiety because of the touch screens and no more the human support in ordering, is the 27,3% of the total interviewed people and they have an higher average age: 44 years old. One of the elements that can also bring to this result is that the 68% of them has used the touch screens only once or twice.

People were also requested to express an opinion on the fact that AI machines are also preventing customers to receive a smile or a greeting. It emerged that they are expecting a “fast” service so they do not really mind and moreover, the 8% noted that Mc Donald’s staff is not smiling so much normally, so the touch screens are not affecting particularly the user experience from a human relation point of view. The focus is being served and make it quick.

8. Conclusion

The introduction of the AI in the Mc Donalds' restaurants has improved the service in terms of timing, thus strengthening more and more the "core" concept of the "fast food". On the other hand, the more the customers are older the more they struggle with technology and they feel a sense of anxiety whereas they were used to the usual order system directly to a person and to find the usual menu. Mc Donald customers do not expect to create a relationship with the staff but in general they recognize the introduction of machines will step by step reduce the number of people actually working and without knowing, so far, if new jobs will be created thanks to this way of applying technology.

9. Limitation

This survey has the limit of the age distribution, in fact we could not reach enough aged people, but many interviewed people, belonging to the university environment are under thirty.

This survey has been done through an on line questionnaire, so it is already addressed to people that normally use technology and devices. To be closer to the reality we should have done this survey on field, directly at the Mc Donald restaurants, by interviewing random people and not automatically filtering them by sending them an email to fill in an on line questionnaire.

10. Further research

Step by step technology has been introduced into several fields, even in restaurants, however we could grasp that in the case of Mc Donald, customers are not expecting a cured treatment, rather than a fast service, with the less queue possible.

A further research could be to investigate if customers have or not the same attitude in case of services where the person has always played an important role, for example the “barman”.

In this case there is a new Bar, the “Makr Shakr”, where users can create an almost limitless number of alcoholic and non-alcoholic drink combinations by accessing a simple app. The cocktail creations will then be assembled by two robotic arms, whose movements - shown on a large display positioned behind the bar - mimic the actions of a bartender, from the shaking of a martini to the thin slicing of a lemon garnish to the muddling of a mojito. Makr Shakr is a great example of how advanced technologies can impact the interaction between people, products and personalization of the offer, but on the other hand it has completely cancelled the interaction between people and the Barman, an appealing character that has been also the protagonist of a famous Hollywood movie with Tom Cruise, in the dreams of thousands of dreaming girls all around the world.

11. Managerial Implications

This research offers hints for reasoning on how and if introducing AI in companies instead of humans. The discussion is either a matter of productivity but also of the kind of service and relation every Brand wants to establish with its customers.

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