Public opinion on new technologies : is the idea of continuous progress being called into question ?

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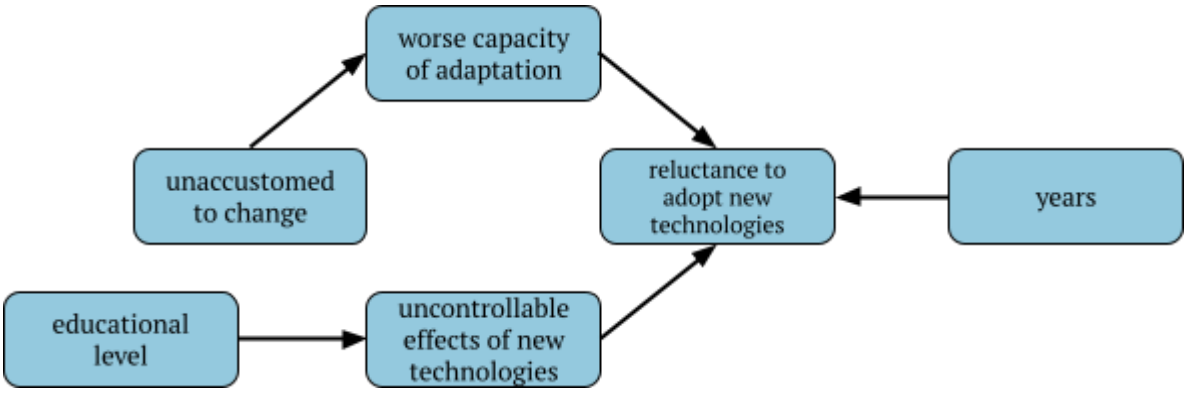
I - Introduction

Some people are reluctant to adopt new technologies (cf L. Feiroue Boudokhane). This idea calls into question the idea of continuous progress insofar as some people reject the latest innovations outright. This is not a question of reluctance, but rather a rejection after having used these new technologies. Technical progress is a continuous process of innovation and improvement that plays a crucial role in economic and social development. In a world where technological innovation is progressing at an unprecedented rate, how can we explain the persistent resistance to new technologies observed among certain individuals, accentuating the idea of a rejection of technical progress ?



Directed acyclic graph : graph representing the hypothesized causal links

Predictions derived from the **Directed acyclic graph** :

- P1 : this phenomenon is typical of our time
- P2 : new technologies are a source of concern, particularly today. They affect things people can't control : our data and the job market.
- P3 : people who are used to change have a greater capacity to adapt and are therefore less reticent when faced with something new

II - Data

World Value Survey is a project chaired by political scientist Inglehart, dedicated to the scientific and academic study of the social, political, economic, religious and cultural values of the world's peoples. I extracted one question and concatenated the 7 versions (from 1981 to 2022) of the *World Value Survey* to obtain the answers to this question over time.
https://www.worldvaluessurvey.org/WVSContents.jsp

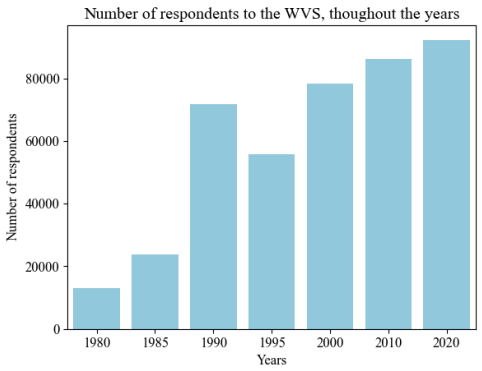


Figure 1 : Number of respondents to the *World Value Survey* throughout the years

In addition, I use a questionnaire that I created. It's called *Public opinion on new technologies : towards a questioning of the idea of continuous progress ?* and includes questions on people's fears and hopes with regard to new technologies. It was distributed to 247 French people aged between 17 and 87, in May to June 2024.
https://forms.gle/B6xSMGtLju4uerpM7

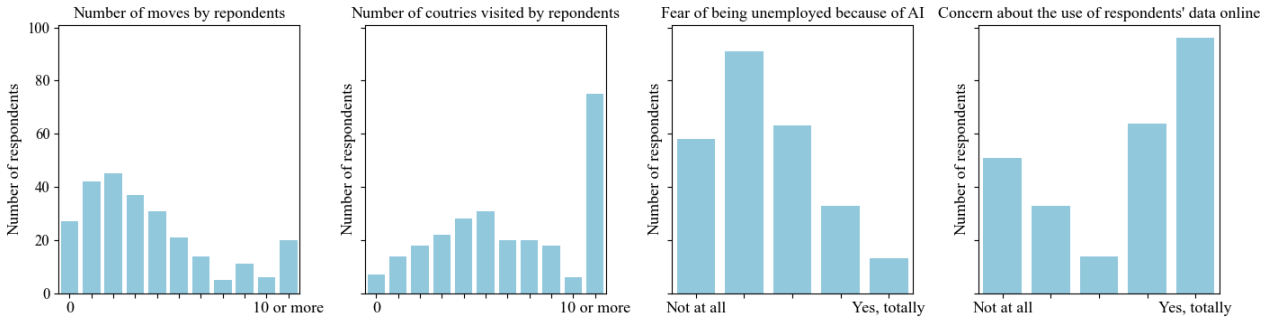


Figure 2.1 : Distribution of the respondents to the different questions

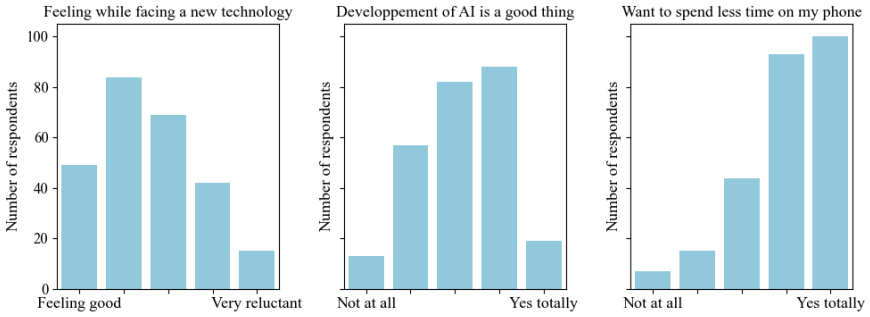


Figure 2.2 : Distribution of the answers to the different questions related to the opinion on new technologies

To represent the reluctance to adopt new technologies, I created a score. I standardized the data from **Figure 2.2** and added them together : the higher the score is, the more reluctant the respondent is to adopt new technologies.

III - Methods

First of all, I used a linear regression to find out whether time has an influence on opinions about new technologies.

$$O_i = \beta_0 + time_i \cdot \beta_1 + \varepsilon_i$$

O : opinion about the emphasis of new technologies

β : standardized coefficients
time : years from 1981 to 2022

Finally, I ran a multivariate linear regression to test my other two predictions. Firstly, I wanted to check whether people reject new technologies because they affect things we can't control: our data and the job market. This could explain why new technologies are a source of concern. Secondly, I used the number of moves and the number of countries visited as indicators of people's adaptability. I used multivariate linear regression to determine whether exposure to change influences the adoption of new technologies.

$$RAT_{i,j} = \beta_0 + data_i \cdot \beta_1 + job_j \cdot \beta_2 + moves_i \cdot \beta_3 + countries_j \cdot \beta_4 + \varepsilon_{i,j}$$

RAT : reluctance to adopt new technologies
Uncontrollable effect of new technologies : *data* : use of our data, *job* : influence of AI on job market
Accustomed to change : *moves* : number of moves, *countries* : number of countries visited

IV - Results

Variable	β	ε	t	p	CI 90%
years	0.0257	0.002	16.700	0.000	[0.023 ; 0.029]

Table 1 : Linear regression of the evolution of opinions about new technologies throughout the years

Variable	β	ε	t	p	CI 90%
data	0.0669	0.052	1.073	0.284	[-0.056 ; 0.190]
job	0.0851	0.052	1.363	0.174	[-0.038 ; 0.208]
countries	0.0985	0.063	1.575	0.117	[-0.025 ; 0.222]
moves	-0.0707	0.063	-1.129	0.260	[-0.194 ; 0.053]

Table 2: Multivariate linear regression of opinions on new technologies correlated with stress related to the use of our online data (data), the influence of AI on the labour market (job), the number of visited countries (*countries*), and the number of moves (*moves*)

Firstly, **Table 1** shows that reluctance to use technology increases by β = 0.0257 each year. The result is clearly significant ($p < 0.001$) and the residual error is very small (**ε** = 0.002). To continue, concerns about the use of our online data have a positive influence on the refusal to adopt new technologies (β = 0.0771, **Table 2**). However, the p-value is higher than 0.05 ($p = 0.337$) so we can not conclude. The same applies to the influence of artificial intelligence on the labour market (β = 0.1330 $p = 0.110$) ; we cannot therefore conclude on the impact of artificial intelligence on people's reluctance to use new technologies. The p-values in **Table 2** are far too high, so we are forced to refute these hypotheses.

V - Discussion

In *Diffusion of Innovations* (1962), Everett M. Rogers identifies five main categories of actors in the process of adopting innovations: innovators, early adopters, early majority, late majority and laggards. Each of these groups reacts differently to the innovation, thus influencing its diffusion in society. Rogers notes that the diffusion of an innovation is a social process that evolves over time and is influenced by contextual and environmental factors. Changes in society, such as growing concerns about data security or the social impacts of technologies, can influence attitudes and behaviour towards new technologies.

VI - Conclusion

In conclusion, the growing reticence towards new technologies is very much a feature of our times. Nevertheless, it should be stressed that, according to Rogers' theory, resistance to adoption does not necessarily lead to a slowdown in technical progress. Indeed, new technologies affect things people can't control, but this is not correlated with opinion of these innovations. Finally, the fact of being confronted with change may encourage people's ability to adapt, but this is not linked to whether or not new technologies are adopted.

VII - Appendix

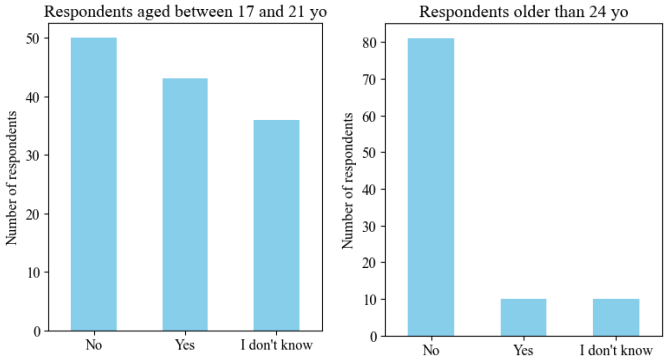


Figure 3 : Breakdown of answers concerning the desire to have experienced adolescence at another time

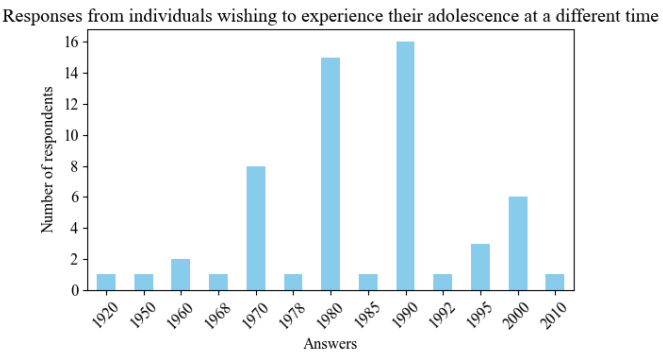


Figure 4 : time when those who wish to do so would have liked to spend their adolescence

Going a step further, 42 of the 130 people aged between 17 and 21 (**Figure 3**) would have preferred to spend their teenage years in an earlier era (mostly between 1980 and 2000, **Figure 4**). Of these, 19 made this choice because of the technology available at the time. Conversely, only 9 of the 105 people aged between 25 and 87 (**Figure 3**) said they would have preferred to be in their teens at an earlier time. These results are not significant due to the size of our sample; they are simply observations.

VIII - References

Lima FEIROUE BOUDOKHANE, “Étude sur les non-usagers d'Internet : analyse de la perception des TIC et du rapport aux médias”, *Les enjeux de l’information et de la communication*, N°12, 2011

Everett ROGERS, *Diffusion of Innovations,* 1962