THE RENEWED HUMAN DIMENSION OF THE SCHOOL IN THE DIGITAL ERA

António Dias de Figueiredo*

Abstract

Recent advances in digital technologies, algorithms, and machine learning cause both excitement and concern. Excitement, because they offer a world full of social and economic promise. Concern, because they can result in immensely harmful effects. Our schools play a core role in preparing the next generations for this transformation, but the territory is uncharted, and no one knows how to explore it. This article attempts to lift the veil on the issue by proposing a conciliation between the cultural appropriation of digital technologies and the renewal of the human dimension in schools.

Keywords: algorithms, culture, digital transformation, education, human values, reading, schools, technologies.

Resumo

O progresso recente das tecnologias digitais, algoritmos e aprendizagem automática é hoje motivo de grande excitação e preocupação. Excitação, porque oferece um mundo de promessas sociais e económicas. Preocupação, porque pode produzir efeitos imensamente prejudiciais. As nossas escolas desempenham um papel fundamental na preparação das próximas gerações para esta transformação, mas estamos em território não cartografado que ninguém sabe como explorar. Este artigo tenta levantar o véu sobre a questão propondo uma conciliação entre a apropriação cultural das tecnologias digitais e a renovação da dimensão humana nas escolas.

Palavras-chave: algoritmos, cultura, educação, escolas, leitura, tecnologias, transformação digital, valores humanos.

1. Introduction

The progress of digital technologies has captured the imagination of many educational reformers who believe that education should be more centered on technology. This view recognizes that we live in a

* University of Coimbra, Portugal

world dominated by technology but overlooks that technological progress also creates unpredictability, complexity, social injustice, and chaos. The new generations must learn to take advantage of technology, but they must also be able to put it at the service of human values and avoid its harmful effects. Meanwhile, the pandemic has shaken the foundations of our civilization and exposed the weaknesses of our institutions, namely our educational systems, which call on us to rethink them from the ground up. This presentation argues that we can achieve this renovation by reconciling the cultural appropriation of technologies with the renewal of the human dimension in schools.

2. Digital Transformation

Digital transformation, a management buzzword used to describe the organizational and cultural changes sparked by the widespread use of digital technologies, seems to be finding its way into education. The idea of transforming education through technologies is of course overblown, but it seems helpful as a scenario to reflect on the future of education. What role should the schools play in preparing the new generations for a world transformed by digital technologies? Should the schools be transformed to accommodate the pedagogical and organizational opportunities afforded by digital technologies?

These interrogations lead to further questions. What citizens should the schools be developing? Should the schools predominantly prepare the digital technologists of the future? Or should they develop a generation with strengthened culture and ethics, capable of facing the disruptions of our planet and the growing social complexity and uncertainty of our times? Should the new citizens be mainly driven by concerns of effectiveness and efficiency, or should they care for human values, collaboration, solidarity, empathy? Should the new school be more technological, or should it be more human?

Most of our schools still follow an organizational and pedagogical model inspired by the pattern of the 19th-century industry. The rows of desks, the inflexible teaching times, the artificially separated subjects, the rigid curricula, the cultivation of subjects out of context, the memorization and reproduction of facts, the acquisition of knowledge with no visible application, the isolation and competition of schoolwork have shaped the schools to a worldview of machine-like uniformity, effectiveness, and efficiency. Fortunately, the teachers can thwart the coldness of the model and build a school with room for emotion and human warmth. They do so, however, strongly limited by organizational principles of effectiveness and efficiency that have little to do with human values. The main risk of a digital transformation inspired mainly by the machine-like principles of efficiency and effectiveness is that it may end up replacing the mechanical inhumanity of the 19th century, against which the most eminent educators of the 20th century have raised their voices, with digital inhumanity of the 21st century. How can we replace this transformation devoid of human qualities by a transformation that reconciles technology with humanity?

3. Human Transformation

I propose that, instead of building a digital transformation of the school, we build a cultural and human transformation of the school — a transformation supported by technology, because technology belongs to our times, but a transformation that goes far beyond the instrumental use of technology, to become a deep cultural and pedagogical reform.

From an anthropological point of view, instrumental approaches tend to be primitive and shallow. Our cave-dwelling ancestors spent millennia trying to figure out how to explore their primitive tools, but they only stepped up openly into civilization when they incorporated those tools into the cultural practices afforded by the invention of agriculture. Our children will likely remain culturally and technologically underdeveloped if we keep training them just for the instrumental use of technology and fail to help them incorporate technology into enriched everyday cultural practices.

4. The Rational *vs* Relational Worldviews

Our era is characterized by two worldviews: a rational worldview and a relational worldview (Birhane, 2021). The rational worldview, of positivist inspiration, largely dominates our times. The relational worldview, of phenomenological inspiration, is slowly starting to stand out as an alternative.

The rational worldview believes in a world of predictability, stability, order, separation, and uniformity, a world without emotions, inspired by machines and technology. The relational vision believes in a complex world with plenty of uncertainties, a world of diversity, connection, interdependence and dynamic relationships, inspired by life itself and by nature. If we want to transform our schools, we must decide which worldview we value most. Do we want a rational, computer-based, digital school? Or do we want a relational, organic, human school?

In the last years of the 20th century, when Edgar Morin was invited to dream the school of the 21st century, he advocated a relational school where the fragmented knowledge of our times could be reconnected and made capable of responding to the growing complexity of our world (Morin, 1998). He also called for a school concerned with the human condition, the identity of the Earth, the recognition of uncertainty, the need for mutual understanding, and the imperative of ethics for the human genre (Morin, 2001).

The rational worldview disregards these minutiae. When faced with complex problems, it develops mathematical and computational formulations where the variables that cannot be expressed

computationally are excluded as negligible. By removing these variables, it often takes away the human, social and ethical richness of the problems. When developing an algorithm or establishing a data model to assign medical care, prevent crime, or decide who benefits from social assistance, the removal of the "negligible" variables removes from the solution the most fragile populations, or treats them badly, and favours the most privileged. Algorithmic injustice is already one of the most burning issues of our times (Birhane, 2021).

5. Algorithmic Injustice

This state of affairs is dangerous because most of the big decisions of our times, affecting whole populations and the entire world, are increasingly made by algorithms. On one hand, most of the transparency of the training procedures underlying these algorithms cannot be scrutinized. On the other hand, we are becoming more and more unaware of the interests and criteria that lay behind the construction of the data sets (O'Neil, 2016).

What does this have to do with the schools? It has everything to do with the schools because it is in the schools that the workers of this transformation are educated. If we develop highly competent experts in technology who are indifferent to ethics, human values, and the social complexity of today's world, we will be building a world where no one will want to live.

Google's recent dismissal of two of its most prominent specialists in algorithm ethics who denounced the ethical violations of their company's algorithms (Silverman, 2021) is eloquent in showing the risks we run if we keep educating amoral generations of technologists to serve soulless masters and fail to prepare people who are culturally capable of counteracting their abuses. The same can be said about the recent confession by one of Facebook's top algorithm developers that he is unable to fix the wrongs of his contribution to the spreading of misinformation by his company (Hao, 2021).

6. Back to the Present

These concerns relate to our collective responsibility towards the future, but the list of our duties towards the present, which the pandemic has made even more visible, is staggering. How can we overcome the lack of equity in today's schools? How can we create a more autonomous and self-disciplined generation of learners? How can we strengthen the persistence of our younger generations? How can we encourage their ability to think critically? How can we stimulate their creativity? How can we foster a deep sense of ethics? How can we develop engagement and passion?

All these problems can be solved by proper education. Do we want to solve them? Or do we prefer to sweep them under the carpet with the argument that we are too busy preparing for the challenges of digital transformation?

7. The death of Reading

To illustrate how far we have gone in developing poor educational practices, it makes sense to focus on one of the most deeply rooted in our schools: the tradition of transforming the written words of the textbook into the spoken words of the teacher, thus freeing the students from the effort of reading on their own, to learn.

The result is that the students get used to believing that learning does not require autonomous thinking and that they just need to listen and carry out the exercises assigned by the teacher. The normalization of this practice leads to the assumption that they do not need to be proactive to learn: the teacher is supposed to teach them. They also get used to trusting that they are not supposed to confirm for themselves the truth of what they are learning: the truth is what the teacher tells. In this way, learning becomes the act of believing in what they are told, and once they realize how comfortable this is, it is impossible to talk them out of it.

This practice, criticized by Mortimer Adler (1954) in *How to Read* and derided by Jacques Rancière (2004) in *Le Maître Ignorant*, discourages the habit of reading, generates laziness of thought, and deters reflective reading and critical thinking. Today's citizens do not master critical thinking because they do not develop it autonomously through reading.

The habit of believing in what the teachers say can also turn into the habit of believing in what anyone says with convincing finality. Our teaching practices can thus become major inductors of the acceptance of fake news and alternative truths by the younger generations.

8. The Cultural Challenge

Despite forty years of using digital technologies in schools, our educational practices have hardly moved beyond the instrumental stage of learning how to use them to achieve dispersed ends. They were never able to generate genuine cultural appropriation. Like our prehistoric ancestors in the early days of agriculture, who only jumped into civilization when they culturally assimilated technology into the agricultural practices, we must culturally appropriate the use of technology in education. How can we do this?

Two main categories of digital technology are currently used educationally in our schools: personal computers and programmable micro-controllers. Personal computers have been used in schools since the early 1980s, emphasizing the education of the ordinary computer user. The exploration of micro-controllers, such as the Arduino, emphasizes the development of the future computer expert. It is now a popular solution for developing programming skills and designing computer-based solutions. Both these approaches are important, but it is clear today that neither has succeeded in going beyond merely instrumental use to promote cultural transformation.

Cell phones have remained conspicuously divorced from this reality. In the early 2000s, when they started showing up in the hands of some students, they were quickly banned, as causes of disturbance and conflict. Despite this rejection, some exploratory projects emerged in a few schools, and UNESCO even published, in 2013, a guide encouraging their use in education (Kraut, 2013). Despite this incentive, the technical limitations of the traditional cell phones of that period precluded their adoption in regular education.

In the last two years, however, the price and technical specifications of smartphones and their widespread adoption in daily life radically transformed their potential as learning tools. We can now buy for just over 100 euros, even without discounts, smartphones with high-quality cameras, large screens, and substantive amounts of RAM and working memory. On the other hand, the statistics tell us that the use of smartphones by the school-age groups has now become almost total. In Portugal, according to *Marktest*, a market analysis company cited by the *Marketeer* magazine in August 2018, smartphone use was over 99% among young Portuguese between the ages of 10 and 24 (Almeida, 2018). In the UK, the numbers disclosed by *Statista* for 2019 indicated rates of 97% for children in the age range of 12-15 years (O'Dea, 2020).

A smartphone can be used today for almost everything. It is a book, dictionary, encyclopedia, library, photo camera, photo lab, video camera, movie studio, classroom, graphic arts workshop, text and image scanner, newsroom, meeting room, museum, scientific and graphics calculator, mathematical environment, database management system, word processor, spreadsheet, communication tool, measuring instrument, simulator, biological data collector, plant and animal identifier, disease diagnosis kit, map, atlas, compass, GPS locator, navigation tool … The list is endless.

A fourteen-year-old child who travelled to an unknown planet carrying a smartphone in her pocket to perform these functions would be seen as a prodigy. Even on our planet, a child who uses a smartphone for these functions can be a prodigy — if she knows how to use it! But does she know how to use it skilfully? Where did she learn? As the schools do not develop these skills, the children who obtain them at home become prodigies, and the less favoured children who cannot get them at home will never

become prodigies. The mere existence of smartphones creates inequalities that only the school can solve.

Another aspect to bear in mind is cybersecurity. Shouldn't the school develop the child's cybersecurity skills? Does it make sense to teach the safe use of smartphones without integrating them in class? If it does, how can the school teach cybersecurity? Through lectures and slide projections?

The cell phone has become the single most powerful personal connection between human beings and the world. This means that if the school fails to inscribe the smartphone in its practice, it risks reducing its relevance as a means of learning about the world. As much as it pains us to recognize it, our genuine access to the world is achieved today more and more through smartphones and less and less through the practices taught in schools. Even when we need to confirm our identity before official and non-official services, we must increasingly do it by using the smartphone.

What about personal computers? Unlike smartphones, which have been culturally assimilated into everyday life, personal computers are used in schools as mere instruments. They do not promote, and they could not promote, a cultural appropriation of digital practices because for most people they are not part of regular, intensive, and permanent social practices. The only instrument lending itself to full cultural appropriation, because it is personal and it is integrated into everyday life, is the smartphone. It is, indeed, the only universal personal tool for digital literacy, whether used by children, adults, or elderly people.

It is ironic to notice that many of the difficulties we experienced when the pandemic forced the school to migrate to the online space would have been avoided if our school children had already become prodigies with smartphones in their pockets. Even if some of their equipment were limited and access conditions problematic, a massive purchase of smartphones and Internet accounts would have been much cheaper and easier than the chaotic acquisition of personal computers whose maintenance quickly turns out problematic.

This is one of the lessons we should learn from the pandemic: the need to urgently build a path of cultural appropriation of the smartphone for pedagogical practice. This appropriation will not be easy or quick. It involves a very ambitious project of renovation of the curricula and the school practices around the use of smartphones. In some areas of knowledge, such as mathematics, there is a lot of work done, with powerful solutions such as Wolfram Alpha already available. In other areas, there is some valuable international work that must be improved and made more practical. In many areas, however, we will have to start from scratch. It is no doubt a difficult task, but also an exciting one because it opens up perspectives for a deep cultural transformation of the school practices.

9. Epilogue: A Human Transition With Technologies

The misuse of distance learning technologies during lockdown has created a wave of rejection of online technologies and a strong call for the benefits of face-to-face social relationships in schools. True enough, the lack of social contact had a vastly negative effect on the emotional balance of the children and their personal development. However, it was not the social contact with their fellows inside the classroom that they missed most. What they missed most, regarding their fellows, was the social contact with them in the playgrounds and spaces adjacent to the school. What they missed most was playing together.

They did not miss much the social contacts inside the classroom because they hardly exist, especially when there are twenty or thirty students in a small room and nowhere to split them into groups. For practical reasons, traditional classrooms can hardly explore the pedagogical virtues of social relationships. Paradoxically, the only comprehensive way of exploring social relationships in education is online.

Online, the opportunities are endless. The teacher can split the class into breakout rooms, a few students to each room, and the students only come together at agreed times for plenary debate or collective synthesis. The same goes for projects, which can be split between student groups following the principles of project-based learning, so that the students only come together later on to build and refine the result.

This complementarity between face-to-face and distance learning cries out for integrated pedagogical approaches that smoothly extend the face-to-face school to the distance. Unfortunately, we waste years in endless debates about the advantages of one over the other instead of working hard to make them work together naturally.

What the students missed badly from face-to-face classes during lockdown were not the social relationships with their colleagues. What they missed most, which could genuinely transform their lives, was the role model and empathy of the teacher and the passion the teacher could instil in their minds. No technology can outperform this attribute.

Regarding the role of the teacher, the challenges of extending the classroom to the distance are paramount. In the face-to-face classroom, the teacher can smoothly scan the room with her eyes and see, like the experienced photographer, everything that no one else could see: the body language, the sparkle in the eye, the doubt, the perplexity, the withdrawal. Her affective attachment to the class is largely born out of this physical and emotional closeness.

In online space, none of this happens. The anxiety, the indifference, the insecurity, the withdrawal, are there, but nobody sees them. Can we change this? Like the friend who cheers us up in a difficult moment by just being there, without saying a word, the distant teacher should aspire to that magic: "be there!", not in body, not on the screen, but in spirit. Sometimes, all it takes is a two-line email message, a word of encouragement, an unexpected phone call saying: "I liked your work!" This illustrates the challenges we face if we wish to transform education for the times we live in. An education that reconciles humanity and technology.

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