

## ALGORITHMIC TEACHING MANAGEMENT AND EDUCATION IN TIMES OF UNCERTAINTY

### *GESTÃO ALGORÍTMICA DA DOCÊNCIA E EDUCAÇÃO EM TEMPOS DE INCERTEZA*

### *GESTIÓN ALGORÍMICA DE LA ENSEÑANZA Y LA EDUCACIÓN EN TIEMPOS DE INCERTIDUMBRE*

AndréCECHINEL<sup>1</sup>  
Rafael Rodrigo MUELLER<sup>2</sup>

**RESUMO:** Este artigo propõe-se a discutir as memórias educativas em tempos pandêmicos a partir da análise de um fenômeno recente, a saber, o crescente controle algorítmico da docência e da educação. Em poucas palavras, a pandemia da Covid-19 serviu e tem servido ao propósito de produzir o alinhamento entre, por um lado, o chamado capitalismo atencional e sua produção e acúmulo permanente de estímulos e dados, e, por outro, o espaço institucional das práticas educativas, até então pensado em termos de relativa autonomia e autocentramento. Para defender o argumento, dividimos o artigo em dois momentos: primeiro, assinalamos o surgimento de uma desconfortável figura para o campo da educação, o duplo ou *Doppelgänger* educacional; a seguir, discutimos o laço, cada vez mais sólido, entre gestão algorítmica e educação. O que se busca demonstrar, em suma, é que a educação constitui um campo fértil para o acúmulo de dados e a produção de estímulos segundo as demandas do capitalismo hoje, e que a pandemia da Covid-19 serviu para acelerar um processo de aclimação e controle do campo já antes em curso.

**PALAVRAS-CHAVE:** Educação. Covid-19. Doppelgänger. Algoritmos. Atenção.

**RESUMEN:** Este artículo propone discutir las memorias educativas en tiempos de pandemia a partir del análisis de un fenómeno reciente, a saber, el creciente control algorítmico de la enseñanza y la educación. En pocas palabras, la pandemia de Covid-19 sirvió y ha servido para producir el alineamiento entre, por un lado, el llamado capitalismo atencional y su producción y acumulación permanente de estímulos y datos, y, por otro, el espacio institucional de las prácticas educativas, hasta entonces pensado en términos de relativa autonomía. Para defender el argumento, dividimos el artículo en dos momentos: en primer lugar, señalamos la aparición de una figura incómoda para el campo de la educación, el doble educativo o *Doppelgänger*; a continuación, discutimos el vínculo cada vez más sólido entre la gestión algorítmica y la educación. Lo que se pretende demostrar, en resumen, es que la educación constituye un campo fértil para la acumulación de datos y la producción de

<sup>1</sup>University of the Extreme South of Santa Catarina (UNESC), Criciúma – SC – Brazil. Professor of the Graduate Program in Education. Doctorate in the Graduate Program in Literature (UFSC). ORCID: <https://orcid.org/0000-0002-6620-3447>. E-mail: [andrecechinel@unesc.net](mailto:andrecechinel@unesc.net)

<sup>2</sup>University of the Extreme South of Santa Catarina (UNESC), Criciúma – SC – Brazil. Professor of the Graduate Program in Education. Doctorate in Education (UFSC). ORCID: <https://orcid.org/0000-0001-6637-2948>. E-mail: [rrmueller@unesc.net](mailto:rrmueller@unesc.net)

*estímulos de acuerdo con las demandas del capitalismo actual, y que la pandemia de la Covid-19 sirvió para acelerar un proceso de aclimatación y control de campo ya en marcha.*

**PALABRAS CLAVE:** *Educación. Covid-19. Doppelgänger. Algoritmos. Atención.*

**ABSTRACT:** *This article intends to discuss educational memories in pandemic times based on the analysis of a recent phenomenon, namely, the growing algorithmic control of teaching and education. In a few words, the Covid-19 pandemic served and has served the purpose of producing an alignment between, on the one hand, the so-called attentional capitalism and its production and permanent accumulation of stimuli and data, and, on the other hand, the institutional space of educational practices, until recently thought of in terms of relative autonomy and self-centeredness. In order to defend this thesis, the article is divided into two moments: first, it points out the emergence of an uncomfortable figure for the field of education, the educational double or Doppelgänger; after that, it discusses the increasingly solid link between algorithmic management and education. What is intended to demonstrate, in short, is that education constitutes a fertile field for the accumulation of data and the production of stimuli according to the demands of capitalism today, and that the Covid-19 pandemic has served to accelerate a process of acclimatization and field control already in course.*

**KEYWORDS:** *Education. Covid-19. Doppelgänger. Algorithms. Attention.*

## Introduction

The momentary cooling down of the Covid-19 pandemic in Brazil opens space and invites, especially the field of Education, to reflect both on the reconfigurations of educational practices resulting from the experiences accumulated during the years 2020-2021 and, in particular, on the teaching memories, the identity displacements, and the affective transits that have radically reorganized and transformed what we had previously conceived as the final horizon of our pedagogical activities. Whether it is being gathered at home to give remote classes in an often improvised space, often crossed by constant interruptions of external stimuli that now also make up this new school space, or through the production of materials - videos, audios, handouts, visual resources, etc. - for synchronous or asynchronous, face-to-face or remote meetings, what is certain is that no teacher has emerged unscathed from the new educational contours in classrooms measured in inches. Cautiously waiting for the "new normal" - which has always been announced, but until today has been rejected due to the improvisations resulting from the frequent resumes and suspensions of a presence that, it seems, will no longer be the same - we remain suspended, as in the verses of Eliot (2004, p. 181), "between idea / And reality / Between movement / And action [...] / Between

conception / And creation / Between emotion / And reaction". It is time to, as they say, "close for balance".

And it is not exactly a simple task to take stock of what has happened. At first, we could assume that, after almost two years of schools functioning intermittently, of classes precariously taught through electronic devices, of little or no contact with other people - with an "other" that was fated to be associated to the contagion of a disease or even to the virtual company of death -, teachers and students would be, at this point, past the most serious moment of the pandemic, anxious for the restitution of a strong presence, of an expensive concept of education grudgingly abandoned, of a physical performance of the body without which the very concept of education loses its strongest meaning. We could imagine all of this, but it does not accurately correspond to the scenario that actually represents what is happening right now. We are not only talking here about the slow pace that takes over Higher Education and that, unlike what happens in Basic Education, indefinitely postpones the return to presence under a public health argument that no longer seems to hold in any other social space; nor are we only referring to the so-called "cage syndrome" (cf. ZANFER, 2021), an expression used to designate the growing feeling among young people - greatly accentuated by the Covid-19 pandemic - that socialization processes produce suffering and reserve unforeseen things that are completely absent from a life spent between four walls, in the bedroom of the home, but connected to the outside by computer screens and cell phones. These symptoms of "self-absorption" and private management of life, which reveal a growing abandonment of the sense of formation as a plunge into a world of alterities and productive friction, are deeply revealing and deserve due attention, but do not constitute the core of our concern here.

Now, what some studies actually reveal - and this fact announces an unforeseen facet of the memories of the pandemic that we might expect - is that for many teachers, despite the immense challenges introduced by it, the Covid-19 pandemic was also a moment of "relief" for a whole general picture of depression, physical exhaustion, professional disillusionment, and psychological instability linked to the profession. According to a research on the mental health and well-being of teachers, coordinated by researcher Flavio Comim, professor at the Ramon Llull University (Barcelona) and Cambridge University (United Kingdom), "the period slowed down the high rates of depression and burnout syndrome identified among Brazilian teachers. In other words, "it is as if the work in Brazilian schools was more damaging to the mental health of these professionals than the instability caused by a

pandemic" (SALDAÑA, 2021). If the data from the survey are correct - and they serve, at least, as an element for reflection - the teachers were simply exhausted before Covid-19, which ended up serving them as a momentary detour from a massacring routine, despite, as said, all the suffering arising from the difficulties of adaptation to the new teaching reality and the broader scenario of the pandemic itself, which could never detach itself from the improvised teaching and a "classroom" without a classroom. In the end, perhaps the study points to a trend that only worsened with the pandemic, but certainly anticipates it: the charm exerted by a virtualization of education that promises formative enlightenment without the discomfort of having to deal with many of the misfortunes of the profession and the classroom.

This indecision between the face-to-face form and the virtualization of formative processes - now embedded in the subjectivity of teachers themselves - seems to update, for the field of education, a logic of complementarity between the virtual and the real that is already expanding to all fields of human life. In short, one of the legacies of the Covid-19 pandemic for the field was, then, the final concretization of a new regime already underway that concerns the accommodation of teachers to the inevitable production of a subjectivity adjusted to the taste of time and to the social-virtual being required of all other professions. Instead of occupying a classroom capable of pulling students out of the virtual space of games, computers and cell phones, and which, by insisting on the four walls as an autonomous space, momentarily restores the possibility of a collective self-centered attentional energy, teachers start acting as agents torn between a school space read as anachronistic and the constant stimuli that must be produced in the virtual platforms that accumulate data and information about everyone and everyone. This article proposes, in general terms, to argue that the pandemic places us in the antechamber of something that we could call an "algorithmic management of teaching", reconfiguring the figure of the teacher as a kind of contemporary Doppelgänger, a subject divided between, on the one hand, a discourse of life in common, of community, and, on the other, the life algorithmically instituted by screens, accumulation of data and virtualization of social contacts. To defend this position, we divide the text into two main moments: first, we present the modern genesis of the Doppelgänger as an example of the modern split of the self; then, we specifically discuss the link between education and the algorithmic management of life and, also, of education. What we hope to indicate, finally, is that the real/virtual schism of the teacher, accentuated by the Covid-19 pandemic, corresponds to the algorithmic actualization of a historical destiny

that teachers and education should resist, namely, the ordering control of the notion of cultural formation.

### **The Cultural Formation of the Double**

The evidence of this discovery was how perfectly he imitated me in the way he spoke and acted, and in the admirable way he played his part. [...] he did not, of course, venture into my higher tones, but the tone was identical: his peculiar whisper became an impeccable echo of mine (POE, 2018, p. 39).

In his work *From Caligari to Hitler - A Psychological History of German Cinema* (1974), Siegfried Kracauer develops an analysis of German expressionist cinema as a way to understand the dominant psychological tendencies in Germany during the period from 1918 to 1933. The book is not concerned with cinema per se, but with a social and psychological analysis of pre-Hitler Germany, taking cinema more as an investigative medium than as the object of his research. For Kracauer (1998), cinematographic analysis, based on the specificity of a given time and context, could help us understand not only the phenomenon itself, but also the "spirit of the times". The films appeared as expressions of a collective unconscious of the nation ("anonymous crowds"), externalizing the internalized (unconscious) and expressing, not always clearly, the desires and anxieties of the masses and their constitutive atom, the subject. According to the author, the 1913 film *The Student from Prague* introduced in cinema a theme that would become an obsession in German cinematography of the time: "[...] a deep and terrible concern with the fundamentals of the self" (KRACAUER, 1988, p. 44). In these terms, the internal conflict of the self would be exteriorized through the constitution of a *Doppelgänger*: self and other, subject and crowd, etc., and this double would mark the representation of the internal conflict of the German middle class.

Films such as *The Golem* (1915) and *Homunculus* (1916) portray characters whose personality traits have originated in an abnormality, or, more properly, Kracauer states that the "I" of these characters would externalize the German collective unconscious based on its own characteristics such as resentment, frustration, inferiority, contempt and hatred. In this case, the "collective self" is expressed through the figure of the *Doppelgänger* from a split moral, in which the "abnormal" characters would group in themselves the undesirable characteristics of the German middle class, making the Germanic double (the "other") responsible for the ills and crises experienced in the period, as well as for the gradual increase in the level of social instability in the country.

The phantasmagoric and supernatural figure of the double present in pre-Hitler German Expressionist films represented the afflictions that the collective self was not allowed to externalize; in this way, just like on the movie screen, the symbolic representations of the other exercised a kind of social domination organized from a circuit of affections such as resentment, revenge and hatred. Thus, through the figure of the *Doppelgänger*, the middle strata of German society at the time could purge their demons, normalizing their psychic and moral suffering by artificially stabilizing the social instability that was visible on the historical horizon. The function of the *Doppelgänger* in the films, according to Kracauer's (1988) analysis, was to represent on the cinematographic plane the subject-form tormented in and by everyday life, suggesting that this split phantasmatic entity (a "virtual-subject") established an organic link with the real collective-being of certain strata of German society, to the point that the representation became the referent for the subject itself.

At first reading, the author's observation would be limited to the space-time elements and the political and cultural dimensions of Germany during the rise of Nazism; however, it is possible to identify in the argument present in the work that such psychological characteristics, supposedly restricted to the country analyzed, would be developments of something present in the constitution of the modern social form itself and that found a fertile ground to germinate in the given context. In this case, we are referring to a process of schism that institutes a certain form of organization and ordering centered on social domination and hierarchization, and that demands a necessary subjection on the part of the individual in order to accommodate to this structure. Such process would be centrally based on an instrumental reason that depends, in order to be effective, on a mathematical and statistical rationality, in which the present order establishes the future on exact bases and, therefore, solid in its objectivity. That is, if the characteristics of such a split identified in the works of Expressionism symbolically represented a phenomenon that was already objectively manifested in German daily life and beyond, it would be possible to predict that this social structure would not only develop during the 20th century, but that it would enter the 21st century under the same mantle of the calculating reason that provided it with elements for the management of modern society, in this case, a new form of organization and social order linked to a scientific-technological basis in accordance with the demands of our times.

The *Doppelgänger* of the 21st century, a socially split figure, would have a home in the same social form, but now fully developed by a fusion between information and communication technologies (ICTs) and computational science, fatally demonstrated by the

omnipresence of algorithms in our daily lives. If indeterminacy would be the representation of modern horror, and the way to eliminate it would consist in the incessant search for social order and hierarchization, one can then conclude, in accordance with Silveira (2019, p. 18), that "[a]n algorithmically operated society seems to be a fate intended by moderns." The belief in the objectivity and neutrality of knowledge, as well as its need for organization and classification-typical scientific promises of modernity-are in fact the hard core typification of algorithms. In a way, it is in the ambivalence between the symptoms of a modernity of the 21st century and the algorithmization of social relations that we identify a process of algorithmic management of teaching, in which education would be submitted to the same regulatory structure of algorithms, thus reproducing with the teaching collective a *Doppelgänger* formative: a subject who, faced with the impossibility of not having his image circulating in the various social networks, establishes a "double self" from the data he makes available in the media universe, more properly, an algorithmic identity. Here we defend the thesis, as said, that the naturalization of algorithmic management in the field of education compromises teaching from a collective dimension as well as in its individual aspects.

### **Algorithm and Education**

Oh, tell me, who was the first to declare, to proclaim that man commits ignominies only because he does not know his real interests, and that it would be enough to instruct him, to open his eyes to his real and normal interests, so that he would immediately [...] become kind and noble? Oh, little child! Oh, innocent and pure creature! (DOSTOIEVSKI, 2000, p. 32-33).

For teachers, as well as for other workers, the isolation time during the pandemic was not synonymous of free time, as many insist in stating, associating the home office to something positive in itself. What was in fact objectively verified was a profusion of school activities taking place remotely, invariably generating a considerable amount of telework by the teachers. Separated from the physical space of the school and welcomed by several screens, the controversial comfort of the private environment, combined with a kind of new individual "freedom", contrasts with the veiled surveillance operated by Big Techs, which not only organize the content (data), but also the way these are appropriated (big data). The "free" offer of educational tools and services by these technology companies, as well as the massive availability of personal data on the web by teachers and students, as part of the process of adjustment to the pandemic state, or the possible "new normal", has caused algorithmic

management (at the collective level) and algorithmic identities (at the individual level) to reorganize the institutional daily life of education to the point of naturalizing both isolation and a new presence at the expense of a formative opacity that blurs the boundaries of the real and the virtual in terms of the teaching work. In this context, the formative *Doppelgänger* is constituted in these shadowed spaces between the presential and the virtual, submitted to a model of social organization that privileges the algorithm, the representation of quantified objectivity, to the detriment of the being in itself.

Even though today we already live with various virtual representations of teaching activities, such as, for example, the edutubers<sup>3</sup>, the teleworking of teachers during the pandemic, through remote classes, blurred the boundaries that previously remained discreetly visible. The expanded use of screens by teachers establishes new forms of control over teaching work through devices such as, for example, the widespread "online class diaries", where teachers provide information regarding, among other things, student performance and attendance control. The central point of these tools is that access to their database generates an infinite amount of information about the teaching work itself, creating possibilities that range from performance ranking to concrete cases of dismissal. This situation, even from a historical point of view, would not necessarily be new: in her book *Algorithms of Mass Destruction* (2020), Cathy O'Neil uses extensively, as an example of a form of algorithmic management that has been improving since the 1980s, cases related to education in the United States, which include both the decontextualized ranking of higher education institutions, as well as the dismissal of highly evaluated teachers from the implementation, in certain American states, of algorithmic systems based on criteria that are not consistent with the reality of teaching..

The challenge identified in the cases cited by O'Neil in the field of education referred to the difficulty of establishing the evaluation (whether of teachers or even higher education institutions) effectively based on objective criteria; therefore, it would be up to the algorithmic systems to perform the task of removing any remnant of subjectivity that could harm the evaluation process so necessary for the good performance of subjects and institutions. What we see in face of this specific dynamic is the mutual removal of the human from the evaluation process, as well as the omnipresence of the algorithmic subject in the

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<sup>3</sup>With more than 3 million followers on her YouTube channel, Débora Aladim, also known as the "ENEM muse," is the most prominent edutuber on the national scene, having sold nearly 200,000 online courses and about 20,000 copies of her book *Redação Infalível*. About the 2021 exam, a recent report indicates that "9 out of 10 students were more anxious to find out what the muse of Enem, Débora Aladim, had to say about the exam than to speculate about the theme of the composition" (DIAS, 2021).



educational space, delegating to it the relevant decisions that directly interfere in the way the teaching work should be organized and managed. And this seems to be the central element that has been permeating the educational context, particularly in its online virtual version: the uncontested possibility, on the part of algorithms, to subtly dictate the pace and tone of teaching, making the algorithmic identity prevail through the *Doppelgängerformative* to which the teacher is subjected.

The concreteness of the teaching work loses strength and visibility next to the multidimensional rhizome that its virtual representation establishes, both from algorithmic management - the subject without a body -, and from its avatars, the edutubers, who conquer the attention of hundreds of thousands of students with their shiny gadgets and little reflection. The paradox of non-presential presence has left its marks on daily school life not only because of the inconstancy of learning, but also because of the praxeological instability in which the teaching subject finds himself in terms of his double dimensional performance: on the one hand, the distancing from the school space has also propitiated the removal of a series of unwanted situations (ranging from physical violence to burnout syndrome, for example); on the other hand, the 24/7 ubiquity of online classes has generated an algorithmic predisposition on the part of teachers with regard to the control of their professional lives by Big Techs. Contradictorily, the possible escape lines in the teaching work of the classroom disappeared during the filling of online diaries and in the uninterrupted flow characteristic of virtual classes through the permanent contacts between students and teachers via WhatsApp, substantially enhancing the algorithmic teaching management. It is in and through the control of the data made available by teachers on the various online platforms (from diaries to teleconferences) that it is currently possible to evaluate individual and collective teaching performance at levels that would not have been considered without the isolation provided by the Covid-19 pandemic. We experience in the space of education what Naomi Klein identifies as the shock doctrine:

[...] the original disaster - coup, terrorist attack, market liquidity, war, tsunami, hurricane - puts the entire population in a state of collective shock. [...] Like the terrified prisoner who gives up the names of his comrades and renounces his own faith, societies in a state of shock often give up things they would otherwise have defended with all their might (KLEIN, 2008, p. 26-27).

Even if the algorithmic surveillance was already felt before the pandemic, the shock state via isolation provided the free passage so that new spaces could show the omnipresence

of management via big data, as is the case of the school. The defense of an uncontested face-to-face performance by teachers no longer presents itself with the same force if compared to the first days of the pandemic, even because the virtual social being of teachers, to a certain extent, has become the ideal referent of the formative Doppelgänger. The school space is not seen as the non-place of algorithmic management, a situational counterpoint not inhabited by the likes and selfies that multiply in the virtual noosphere; In fact, what is left in official documents for Basic Education - such as the Common National Curricular Base (BNCC in the Portuguese acronym) -, are the various forms of online stimuli that should then be unconditionally incorporated into the training process as possibilities to align the school curriculum to the demands of society, so much so that one of the ten general competencies that guide the BNCC is called "digital culture". In these terms, the demands posed by the normative structure of Basic Education have already stimulated what the pandemic has tried to enhance: the naturalization, in our times, of a society managed by Big Techs based on big data.

In the 2020 documentary *Coded Bias*, we saw the case of an elementary school teacher in the city of Houston, Texas, with an exemplary record being fired after a biased analysis by a performance evaluation algorithm. In Cathy O'Neil's book, the dean of the Washington, DC high school system implemented a teacher evaluation system that was "intended to measure teacher effectiveness [...] in teaching math and language skills" (O'NEIL, 2020, p. 10). What was diagnosed after the implementation of the aforementioned value-added modeling system was, in fact, that even teachers positively evaluated by the schools' parent and student group from the criteria established by the algorithmic system were found to be didactically inept in their craft. The diagnosis of an algorithmic management of teaching is no longer a tendency to come, but a phantasmatic presence that does not present itself in its totality, whether by the formative doppelgänger of the teaching self, which competes with itself for the attention of the students/spectators, or by the quantum of data made available and managed in online educational platforms, or by the uncontested positivization of a connected society that considers the most urgent task of the school of our time to be that of providing the deep immersion of the students in the world of hyperconnectivity. The traces left by the sensitive/supersensitive algorithmic presence are sometimes shown in and by the individual condition, sometimes they make up the contours of the expanded society, so that the message transmitted is that the more one seeks objectivity and social organization via algorithmization, less circulates the being and more circulates the thing - or, at least, what would enjoy a greater

degree of autonomy would be the representation of the self, the algorithmic identity of the subject.

If in Kracauer's work the *Doppelgänger* - as a symbolic representation of an extract of German society at the time - had the function of externalizing psychic suffering through the figure of the "other" in an attempt to reorder the social chaos, education, based on 21st century techno-science, has constituted its formative *Doppelgänger*, more precisely a teaching algorithmic subject, as a virtualized representation of the self and an alternative to the psychic suffering produced in the face-to-face space. The splitting of the teaching subject provided by algorithmic management simultaneously institutes a double identity for the teacher, making him/her circulate through two concomitant spaces to exercise his/her office. In this sense, it is as if the algorithmic teaching subject, or the amount of data that this same teacher makes available about himself in the various social networks and online platforms, established not only an ideal of himself, but also a teaching ideal of himself, giving the subject who attends the face-to-face classroom a smaller place in the scale of social representation. In these terms, the figure of the "strange", "abnormal", "evil", attributed to the *Doppelgänger* in Literature or in movie plays, would no longer be linked to the "virtual-subject", but to the real subject, the one who now, due to his or her media and algorithmic incapacity, faces his or her double self with resentment and resentment, reinstating a circuit of psychic suffering that is produced in one dimension and reproduced in another. And if data (big data) mask individual suffering through their uninterrupted circulation, algorithmic teacher management enables what the real world supposedly never achieved: full time control over teacher performance based on objective and quantifiable criteria.

The identification of what would be the possible indications of what we name here as the algorithmic management of teachers seems to be one of the tasks of our time regarding the formative experience, and maybe that is why it is necessary to propose the following question: if education and its preferred locus, the school, are not placed as a means and political space to counteract the algorithmic management process, where would the "emergency brake" for such a condition be socially located?

## **Final remarks**

[...] Then everything seemed to point to this: that I was slowly losing control of my original, better self, and slowly merging into the second, worse self.. (STEVENSON, 2019, p. 314).

Thinking about the split reconfiguration of the subjectivity of educational agents today means thinking, at the same time, about the uncomfortable position that institutional formation itself is forced to occupy against the backdrop of algorithmic neoliberalism and its unfoldings during the Covid-19 pandemic. Education, more than ever, seems to have the task of definitively adjusting itself between two positions or places that, to tell the truth, are irreconcilable, and that delimit its concept and the frontiers of its activity. On one side, to educate is merely to adapt, to adjust for individual survival in a world instituted *a priori*, in a reality whose rules are only symptoms of a general and unavoidable impotence. On the other hand, education could be thought of as an autonomous sphere that, faced with the increasing pressures to update its nature - be it due to the so-called new technologies, by the business world that spreads to all spheres of life, by the need to loosen the "I" to the point of producing a malleable subject in conformity with the unstable flow of the work field, among others -, maintains that the strength of its reality lies precisely in this mismatch between what is requested of it and what it chooses to elaborate as a common need. In other words, education would correspond to the outdatedness of a concept, or rather, to the critical materialization, including institutional, of the bad conscience of the time, that is, of the formative residue that no longer finds shelter in other social spaces. This concept of education would be conscious that when the institutional walls of the school and the university fall down, when the four walls of the classroom crumble as an autonomous sphere, what remains is not the emergence of an "alternative", "de-hierarchized" education, but the appropriation of its content by the logic of the merchandise that is, in fact, its emphatic negation. And when the interior of the concept of education finally breaks down, one wonders if we should not also change this name.

Despite the quite productive relationship between the circulation of goods and what happens in schools and universities - the book "No Logo", by Naomi Klein (2002), constitutes a powerful portrait of the peaceful coexistence between apparently contradictory forces, such as education, marketing and consumption - the truth is that notions like "introspection," "attention," "training," etc., that until yesterday established the minimum horizon of educational practices, have become antipathetic forms to the time regime of 24/7 capitalism and its mechanics of production and circulation of stimuli and products. Far from any critical lesson about the relevance of a presence that was suddenly stolen from us, of the inseparability between body, otherness, and education, the most concrete legacy left by Covid-19, so far, has been that of perforating what we understand about the concept of

Education in order to update it in relation to the demands of the emerging attentional capitalism and the expanded management of attention. The field of education is also increasingly crossed by a whole context "of excess visual, informational, and interactive content", and "what is in dispute is the attention (and the time) to access and consume all this ocean of offers" (BENTES, 2021, p. 47). The classroom is leaked, transpassed, and with it the subjectivity of teachers and other school agents, who now need to "stimulate" the students, "capture" their look, "manage" their behavior, and "check" the interactivity of the resources at their disposal. These same teachers, it is worth remembering, are submitted to a similar control scheme of performance and attentional effort, their actions being checked, among others, by devices that control the number of accesses, time of use, and routine of interactions that take place in digital diaries, interactive platforms, virtual study rooms, etc. This new educational nomenclature, which becomes the current conceptual field of what we still call school or university, corresponds to nothing more and nothing less than what we could classify as an "algorithmic turn" in teaching, that is, an adjustment and updating of the classroom to a hyperpersonal training, "optimized" according to a strictly individual temporality and directed to the production of a *Homo Economicus* that lives and works in function of digital platforms, the production and circulation of stimuli and the capture of the other's attention.

All this may seem, at this point, an exercise in futurology, an early anticipation of an unpredictable future, closed to our gaze. But we should not deceive ourselves here: the seeds of this process are scattered everywhere, in extremely fertile fields, such as, for example, the Brazilian Common National Curricular Base, approved in the form of law in 2017. "Formative itineraries", "life projects", "socioemotional competencies", "formative trails" - all these concepts that express a formation centered on the individual and in tune with the new reason of the world, as many of the general competencies foreseen for Basic Education in the same MEC document do not fail to testify: "digital culture", "work and life project", "self-knowledge and self-care", "empathy and cooperation", "responsibility and autonomy". We could never anticipate exactly how much this abundance of the prefix "self" in the BNCC would gain dramatic and very real contours during the pandemic of Covid-19, an instant in which the training has come to correspond, almost exclusively, to the subject that stands in front of the screens and, abandoned to their own fate - such as whether or not to have a quality screen for himself -, manages a torrent of stimuli not infrequently disconcerted.

In literature, the encounter or conviviality with the phantasmagoric double, with the Doppelgänger, is usually a harbinger of imminent death, or that death has even already happened, silently, without being noticed. This is what occurs in books such as Robert Louis Stevenson's *Strange Case of Dr Jekyll and Mr Hyde*, Oscar Wilde's *The Picture of Dorian Gray*, Henry James' fantastic tales, and many others. But this rule has its exceptions. In the short story *The secret sharer*, by Joseph Conrad, for example, it is through contact with his double, with his "accomplice" or "secret partner", that the young captain of a ship - a young captain rejected and confronted by all the other crew members - regains self-control and decides the final safety of his journey. The encounter with the other who I soon am, in this case, less than an announcement of the dissolution of the self, means a resumption of the autonomy required of the one who leads the voyage. Now that the Doppelgänger of education stares at us like a beast on the prowl, we can only wonder if any new knowledge, if any productive synthesis, can come from such a confrontation, so that the concept of formation can be reconstructed in the midst of its growing refusal.

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## REFERENCES

BENTES, A. A indústria da influência e a gestão algorítmica da atenção. *In:* FERREIRA, M.; BOCK, A. M. B.; GONÇALVES, M. G. M. **Estamos sob ataque!** Tecnologia de comunicação na disputa de subjetividades. São Paulo: Instituto Silvia Lane, 2021.

CODED Bias. Direção: Shalini Kantayya. Netflix, jan. 2020. (85 min). Available at: <https://www.netflix.com/watch/81328723>. Access on: 18 Dec. 2020.

DIAS, P. Nove entre 10 estudantes estavam mais ansiosos em descobrir opinião da musa do Enem, Débora Aladim, sobre a prova do que especular sobre tema da redação. **Yahoo!notícias**, nov. 2021 Available at: <https://br.noticias.yahoo.com/nove-entre-10-estudantes-estavam-182349658.html>. Access on: 30 Nov. 2021.

DOSTOIÉVSKI, F. **Memórias do Subsolo**. Tradução: Boris Schnaiderman. São Paulo: Editora 34, 2000.

ELIOT, T. S. **Obra Completa: Poesia**. São Paulo: Arx, 2004.

KLEIN, N. **A doutrina do choque: A ascensão do capitalismo de desastre**. Rio de Janeiro: Nova Fronteira, 2008.

KLEIN, N. **Sem Logo**. A tirania das marcas em mundo vendido. Rio de Janeiro: Record, 2002.

KRACAUER, S. **De Calighari à Hitler**: Uma história psicológica do Cinema Alemão. Rio de Janeiro: Zahar, 1988.

O'NEIL, C. **Algoritmos de destruição de massa**: Como o big data aumenta a desigualdade e destrói a democracia. Santo André: Editora Rua do Sabão, 2020.

POE, E. A. **Medo clássico**. Rio de Janeiro: Darkside Books, 2018.

SALDAÑA, P. Pandemia desafia professores e traz alívio a quadro geral de depressão e burnout. *In: Folha de São Paulo*, jan. 2021. Available at: <https://www1.folha.uol.com.br/educacao/2021/01/pandemia-desafia-professores-e-traz-alivio-a-quadro-geral-de-depressao-e-burnout.shtml?origin=folha>. Access on: 08 Dec. 2021.

SILVEIRA, S. A. **Democracia e os códigos invisíveis**: Como os algoritmos estão modulando comportamentos e escolhas políticas. São Paulo: Edições SESC, 2019.

STEVENSON, R. L. **O médico e o monstro e outros experimentos**. Rio de Janeiro: Darkside Books, 2019.

ZANFER, G. Síndrome da Gaiola caracteriza jovens que não querem contato com o mundo exterior. *Jornal da USP*, 2021. Available at: <https://jornal.usp.br/atualidades/sindrome-da-gaiola-caracteriza-jovens-que-nao-querem-contato-com-o-mundo-exterior/>. Access on: 08 Dec. 2021.

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