The authority of the teacher in the context digital algorithmic authority[1]

A autoridade do professor no contexto da autoridade algorítmica digital[2,3]

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Abstract:

In the history of the development of the teaching and learning process, the teacher's figure has always been regarded as having fundamental importance for students to develop their cognitive, emotional, and ethical capacities. However, in the digital culture society, there are indications of radical changes in this relationship, mainly because students access information, algorithmically located, through their electronic devices, especially their cellphones. In this context, the main objective of this article is to critically reflect on how teacher authority is gradually subsumed in relation to digital algorithmic authority. It is concluded that the critique of this process of subordination becomes necessary to think how teachers and students can become authors and architects of the teaching and learning process through the use of digital technology.

Keywords: authority, love and hate ambivalence, teachers and students, algorithms, digital culture

Resumo:

Na história do desenvolvimento do processo de ensino e aprendizagem, a figura do professor sempre se destacou como de fundamental importância para que os alunos desenvolvessem suas capacidades cognitivas, afetivas e éticas. Porém, na sociedade da cultura digital, observam-se indícios de transformações radicais nessa relação, sobretudo porque os alunos acessam as informações, algoritmicamente localizadas, por meio de seus aparelhos eletrônicos, principalmente os celulares. Diante desse quadro, os autores deste artigo têm como objetivo principal refletir criticamente sobre a forma como a autoridade do professor está gradativamente se subsumindo em relação à autoridade algorítmica digital. Conclui-se que a crítica desse processo de subordinação torna-se necessária para que se possa pensar como os professores e alunos podem se tornar autores e artífices do processo de ensino e aprendizagem por meio da tecnologia digital.

Palavras-chave: autoridade, ambivalência de amor e ódio, professores e alunos, algoritmos, cultura digital

Introduction

Teacher authority has progressively become an object of criticism in contemporary society. However, this has not emerged in the society of the so-called digital culture and, historically, the identification of the teacher as an authority figure has been questioned since the early days of Greco-Roman Antiquity. Nonetheless, it is precisely in the current society that the critique to teacher authority reaches unprecedented levels, mostly due to how the questionings are increasingly exposed in social networks, such as Facebook and YouTube.

In the present context, the uniqueness of the massive exposition of images and commentaries about teachers in the mentioned social networks occurs because the development of the productive forces, especially those of technological nature, enables the ubiquitous dissemination of audiovisual information contesting the authority of teachers. It is exactly this continuous propagation of posted images and comments—often in a derogatory manner—which illustrates how the love and hate relationships between teachers and students are radically being transformed, since information can be currently obtained at any time or space through clicks on a computer, through a cellphone screen, or even through voice commands.

It is as if the teacher is no longer necessary because the uninterrupted access to any type of information, algorithmically located, provides the feeling of self-sufficiency mimicked by students. Hence, the cellphone and the students seem to compose a single body, and it is not that far from the truth that adolescents, when forgetting their cellphones somewhere, declare that they are missing an arm or a leg. The feeling of empowerment prevailing among adolescents—who mimic their identities in applications related to the several functions of their cellphones—needs to be thought according to the historical mediations of the current context, in which the relationships between people tend to become increasingly digital.

Actually, behind the fascination that cellphones and other electronic gadgets exert over people and, mostly, over students, lies a kind of absolute trust in the apparent infallibility of these electronic devices which makes there be, in the digital culture society, a form of submission which reinvigorates what Kant called "the state of immaturity" in the text "An answer to the question: 'What is enlightenment?'" (Kant, 2005). It is through digital tutelage that individuals affirm their states of immaturity, since they become subordinate to how information is offered to them without being able to critically reason about whether, in many occasions, the news being received are *fake*—to use a term from the current electronic language.

Nonetheless, this condition of immaturity in the digital culture cannot be exclusively attributed to the idiosyncrasies of a certain individual, as there is a society sustaining the so-called "digital algorithmic authority", which gradually surpasses teacher authority. Facing this context, we aim to reflect upon how teacher authority is incrementally being subsumed in relation to the digital algorithmic authority made present in the current technological fetishization of the cellphone device. Before we elaborate critical considerations on the characteristics of this kind of authority, we must discuss the historically superseded meanings of teacher authority in the relationships established with the students until the age of the microelectronic revolution.

Teacher authority and the ambivalence of love and hate

Mario Aliguiero Manacorda (1989) highlights a sentence by Seneca the Elder which can be regarded as a synthesis-sentence for the spirit of a time—in this case, ancient Rome: "it was shameful to teach what was honorable to learn". In other words, there was an awareness of the importance of learning how to read and write and how laws were elaborated and disseminated among the free citizens, but the same could not be sad in relation to those responsible for the spread of such learning. The fact that it was shameful to teach refers to the ontological condition of the teacher: a Greek slave or freedman who had become, therefore, a type of second-class citizen. In the condition of a craftsman, the freedman or slave teacher could never be identified as an author, as an authority responsible for "augmenting the city". It was in the context of ancient Rome that the concept of authority emerged, in the following manner:

> It is in this context that word and concept of authority originally appeared. The word *autorictas* derives from the verb *augere*, "augment," and what authority or those in authority constantly augment is the foundation. Those endowed with authority were the elders, the Senate or the *patres*, who had obtained it by descent and by transmission (tradition) from those who had laid the foundations for all things to come, the ancestors, whom the Romans therefore called the *maiores*. (Arendt, 1961, p. 121-122)

According to this line of thought, noble authors, socially considered figures of authority, were responsible for "augmenting the city", to the degree that their spirit was materialized both in the elaboration of laws ruling the social fabric and in the architectonic shapes of Roman buildings, for example. Master teachers, conversely, as slaves and freedmen, were identified as artisans, as executors of the directives designed by citizens denominated *maiores*.

However, even if teachers were placed on the level of artisans, it is not possible to affirm that the only feeling students nurtured towards their masters was hatred due to contempt for their social position. When faced with the beauty of the contents they were learning, it was difficult, if not impossible, for students to separate the apprehension of such contents from the figure of the one who taught them. Thus, even if they were socially shunned, it is probable that masters, already in this historical period, were identified as objects for students' love.

It is interesting to observe the diverse ways through which the ambivalent relationship of love and hate between teachers and students is historically transformed, to the degree that it is revealed as the cornerstone of the process of consolidation of teacher authority. In the social context of ancient Rome such ambiguity of feelings prevailed projected in the figure of the slave or freedman master. Conversely, during the High Middle Ages, in the so-called Christian Paideia supported mainly by Thomas Aquinas, the figures of God (as the supreme authority) and of Christ (as the divine son made human) prevailed to the point where they became identified as role models even if their followers were aware that, due to their own human limitations, they would never be able to fully comprehend these figures' holy designs.

According to Thomas Aquinas (1955), it becomes clear that "sensible things, from which the human reason takes the origin of its knowledge, retain within themselves some sort of trace of a likeness to God. This is so imperfect, however, that it is absolutely inadequate to manifest the substance of God" (p. 75-76). Nonetheless, even aware of such imperfection, the so-called "Divine Father", represented by the clergymen responsible for the spread of the holy word, congratulates his followers for trying to come as near as possible to the knowledge of the divine essence: "Enter these truths by believing, press forward, persevere. And though I may know that you will not arrive at an end, yet I will congratulate you in your progress" (Hilary, as cited in Thomas Aquinas, 1955, p. 76).

God and his son were identified as undisputed authorities, being, therefore, the object of total admiration by their coreligionists. Conversely, the priests which represented these figures were responsible for conducting the process of Christian education in a way which also reinvigorated the love and hate ambivalence between masters and pupils, since these masters would often physically punish their students for not making the required effort in the mnemonic learning of the studied contents.

However, even if students hated their masters for proceeding in this manner, the internalization of the discipline and, therefore, the recognition of the figure of authority in the clergymen-teacher happened due to the acceptance of the excuse that the suffering experimented was part of the educative process and that this was the teacher's prerogative, since "it belongs to the wise man to order" (Thomas Aquinas, 1955, p. 56).

Although in a different historical context, the teacher's prerogative "to order" can also be noticed in a work which can be considered a landmark in the history of pedagogical theory and practice: Comenius's *The great didactics*. Published at the beginning of the 17th century, *The great didactics* is considered the first pedagogical treaty and its main objective was "to seek and to find a method of instruction, by which teacher may teach less, but learners may learn more; by which schools may be the scene of less noise, aversion, and useless labour, but of more leisure, enjoyment, and solid progress" (Comenius, 1907, p. 4). It is well known that Comenius focused, as the main objective of the educational process, on using this process to provide students with the ability to come closer to God in a serene and conscious manner. Moreover, for students to become disciplined enough to recognize the relevance of such objective, Comenius posits that floggings and beatings "are far more likely to produce a distaste for letters than a love for them" (Comenius, 1907, p. 250).

Teachers should employ another method more related to the social conditions of the new times. According to the author of *The great didactics*, teachers would have greater success in stimulating the permanence of students' attention in the studied contents through the following reproach, performed before the whole class:

> "See how well son-and-so attends! See how quickly he sees each point! While you sit there like a stone!" It is often of use to laugh at the backward ones. "You silly fellow, can't you understand such a simple matter?" Weekly, or at any rate monthly, contests for the first place in class may also be introduced, as we have shown elsewhere. Great care, however, should be taken that these experiments do not degenerate into a mere amusement, and thus lose their force; since, if they are to act as a stimulus to industry, they must be backed on the part of the pupil by a love of praise and a dislike of blame or of losing his place in class. (Comenius, 1907, p. 251)

Comenius realized that the impact of psychological violence could be much more compelling that the floggings and the beatings, the marks of which would probably disappear in a day or two, while the scars of the psychological violence would certainly last for far longer, especially because they had been produced in front of the other students.

Competition among students was not an absolute novelty—in the 12th century, for example, Abelard was known as a practically undefeatable speaker in disputes with other scholars—, but the emphasis given by Comenius on the relationship established between the desire for compliments, the fear of vituperation and humiliation, and the production of knowledge inaugurates, in a certain way, a new period in the teacher-student interaction and in

the ambivalent relationships of love and hate. Hence, public praise and reprimands could never be employed as if they were some sort of amusements or game, but as *productive* didactical-methodological resources intrinsically connected with the objective of making students focus on learning the studied contents.

According to this line of thought, if teachers become feared and hated figures of authority, precisely because they could, at any moment, select and humiliate a student they considered distracted, using this student as an example of what not do for the others, teachers could also be identified as objects of admiration by students, mainly due to public praises done to the student who, when chosen, could promptly answer the question asked. Hence, not only positive feedback, but also the negative one—if we are to use Skinnerian concepts—would be valuable for teachers who wish to perform disciplinary practices in the classroom.

However, before we highlight Skinner's ideas on the role of the teacher, it is important to remember how influent Johann Friedrich Herbart's thoughts were, during the 19th century, in defending the teacher as a symbol of authority for students. Indeed, teachers were identified as *the* intellectual, moral, and aesthetical organizers, making teachers' personality as crucial an aspect as the contents being taught. Not surprisingly regarded as a follower of Kant, Herbart did not accept that the learning of the studied content could be separated from the necessary moral reflection about how these contents could contribute for the establishing of an ethical conduct, the same conduct which would be the cornerstone of the student's education (*Bildung*).

According to Herbart (1908), the structuring of students' character implied the possibility of their choosing their forms of conduct in an absolutely rational manner. Thus, students' so-called "memory of the will" (p. 202) had to necessarily be based on the reflection of the consequences of their behaviors in relation to other people. In other words, their capacity to choose could not be exercised *per se*, as if for making a choice they only had to desire something without any regard for the effects it would have on others. And, for students' characters to be formed under the influence of the memory of the will, the teacher had a crucial role. As Herbart (1908) affirms:

> Education *through* instruction regards everything as instruction which is given to the pupil as a subject of consideration. The discipline (Zucht) itself under which he is placed, belongs to this, and it works far more through *the example of an energy that maintains order*, than it can through the direct checking of single naughty acts. . . . The mere checking may leave the desire quite untouched. . . . But if the pupil reads in the mind of the teacher who punishes, moral disgust, the disapproval of this taste (Geschmack), opposition to all disorder, then he passes over to *his* point of view, he cannot help seeing things in the same way. (p. 86)

For discipline to be identified as "the example of an energy that maintains order", instead of as a mere inhibitor of bad habits, the strong affirmation of another conduct model would be required: the teacher. It is the teacher who has the moral and intellectual conditions to, on Herbart's (1908) words, present students with the "*aims of the future man*". If teachers can exert their superiority over students to the point where they are identified as role models, then a kind of educational force is established, makings students themselves consider the internalization of the discipline as a condition for their intellectual, ethical, and aesthetical development. Thus, to Herbart, we must respect the distance between teachers and students so that students can be encourage to become new teachers in the future: "Is not the *far* that which we see in the interval between the child and the man? . . . And to this end teachers are exhorted to come down even to the level of children, and, cost what it may, to enter their narrow sphere." (Herbart, 1908, p. 88)

If for Herbart teacher authority should be based on distance, which would make students recognize teachers as role models of educational force, for Rousseau the teacher-student relationship needs to have different nuances. According to Rousseau, teachers must put themselves in their students' place so they can not only understand their pupil's reasons for not being interested in learning the studied content, but also to relate this learning with students' educational time. In other words, if a student does not yet possess the cognitive and emotional abilities to learn a specific topic, then there is a significant risk of this student only repeating the transmitted information, without properly incorporating it to his or her education. As Rousseau (1979) affirms: "We never know how to put ourselves in the place of children; we do not enter into their ideas; we lend them ours, and, always following our own reasonings, with chains of truths we heap up only follies and errors in their heads" (p. 170)

Adept of the procedure in which the student should be instructed through a "guided freedom"—i.e., a procedure which fosters a reflective attitude regarding any initiative undertaken by students—, Rousseau redefines the concept of teacher authority, especially by criticizing teachers who hold to their pedestals in a prideful manner and, thus, drive their students away. The author is emphatic in defending a respectful approximation between both educational agents:

> I would want him [the teacher] to be a child himself if it were possible, to be able to become his pupil's companion and attract his confidence by sharing his enjoyments. . . . Moreover, I call the master of this science *governor* rather than *preceptor* because his task is less to instruct than to lead. He ought to give no precepts at all; he ought to make them be discovered. (Rousseau, 1979, p. 51-52)

In other words, students ought to be encouraged to reflect on the studied concepts, so they can have the freedom to question even the precepts shared with their teachers. Certainly, this concept of teacher as the promoter of student's guided freedom makes students recognize in their teacher an authority able to perform a self-criticism resulting from the intervention of the students themselves. From one of the main maxims of Rousseau's pedagogical concept, "To live is not to breathe; it is to act" (Rousseau, 1979, p. 42), we can infer the following: those who live life the most are not the ones with more years, but those who feel life the most. Therefore, students ought to be instigated to perceive that reason can only be what it is because it was stimulated by the exercise of natural passions. And if the teacher acts in the sense of sparking students drive for a participative action in the publicly discussed matters, then there would be a concrete possibility of students developing a non-confrontational relationship between the realization of their desires and the moral consciousness pertaining to the reflection on the consequences of their behaviors.

It is interesting to notice that, despite the different concepts of the proximity and distancing relationship between teachers and students, both Herbart (19th century) and Rousseau (18th century) consider the teacher as a decisive authority figure for the development of student's cognitive and emotional process. However, in the middle of the 20th century, this situation was radically changed in face of the increasingly constant presence of teaching technologies, which produced the so-called teaching machines, the current relevance of which is reinstated by the algorithmic mechanical reproduction.

The teacher facing the authority of the algorithms from the digital culture

When comparing how important Darwin's and Morse's ideas were for human history, Postman (1994) observes that, even though the Darwinian theory of evolution might indeed be regarded as revolutionary, it has also become object to contestation by an immeasurable amount of religious fundamentalists. Conversely, the communicational revolution developed my Morse with the electric telegraph is an irrefutable fact, because while Darwin offered ideas embodied in language, Morse "offered us ideas embodied in a technology" (Postman, 1994, chapter 5, para. 5). In other words, that the struggle of religious fundamentalist "is vain and pathetic is not to the point, which is, simply, that one can live without believing in evolution. But everyone must confront the conditions of electric communication" "(Postman, 1994, chapter 5, para. 5). Indeed, Morse's invention has transformed the very nature of human communication, precisely because his ideas were incorporated in a technology which makes the communicational act impersonal and uncontrollable: "The telegraph created an audience and a market not only for news but for fragmented, discontinuous, and essentially irrelevant news, which to this day is the main commodity of the news industry" (Postman, 1994, chapter 5, para. 9)

In a certain way, we can identify a similar situation in relation to the historical moment when teaching machines not only become something of an appendix to the teaching and learning process, but are also integrated in this process and, moreover, are now considered the main element of it, at least regarding the desire of their main promoter: North American psychologist B. F. Skinner. According to him, although there is relevance in all discussions about the best didactical-pedagogical methodologies—coming from the most varied epistemological roots—, these methodologies are, in a way, unfruitful precisely because they originate in discussions. Skinner's didactical-methodological proposal, conversely, is necessarily identified as the most adequate because it is embodied in a technology: the teaching machine. The author describes these machines as such:

> The device is a box about the size of a small record player. On the top surface is a window through which a question or problem printed on a paper tape may be seen. The child answers the question by moving one or more sliders upon which the digits 0 through 9 are printed. The answer appears in square holes punched in the paper upon which the question is printed. When the answer has been set, the child turns a knob. . . . If the answer is right, the knob

turns freely and can be made to ring a bell or provide some other conditioned reinforcement. If the answer is wrong, the knob will not turn. A counter may be added to tally wrong answers. (Skinner, 2003, p. 39-40)

Skinner realized, after a while, that the positive feedback received by students every time they got a correct answer, such as the green light, could not be exclusively associated to a multiple choice test, since the same students would have another cognitive development level if they could compose their answers: "An appropriate teaching machine will have several important features. The student must *compose* his response rather than select it from a set of alternatives, as in a multiple-choice self-rater" (Skinner, 2003, p. 51)

The way Skinner highlights the verb "compose" demonstrates his awareness of the importance of mechanically evaluating students through more complex answers. A technological development became, then, required to allow these compositions of answers to be evaluated. Skinner (2003) trusted the power of the teaching machines so completely that he affirms the following: "We have every reason to expect, therefore, that the most effective control of human learning will require instrumental aid. The simple fact is that, as a mere reinforcing mechanism, the teacher is out of date" (p. 39).

The reinforcing mechanism of the machine, therefore, is considered superior to the possible efforts employed by the teacher regarding the encouragement of the development of a more effective human learning. The author himself recognizes the relevance of teachers in relation to the work performed with the students. Despite this recognition, Skinner (2003) also emphasizes his position that teachers, when using the teaching machines, could spend their time with the "intellectual, cultural, and emotional contacts" (p. 44) of their students. Moreover, the teaching machine has an advantage because "above all, it has infinite patience" (Skinner , 2003, p. 71)

We could argue that Skinner is being ironic in his observation that a teaching machine would possess infinite patience compared to the finite one of teachers. This does not seem to be the case, as we can verify the defense of the idea that a human attribute, such as the capacity of being or not patient when facing someone else's actions, could also be imputed to machines. Thus, it would not be surprising if the superiority of the authority of the teaching machine could be attested in relation to the authority of teachers regarding students.

Actually, this attribution of patience to the machine made by Skinner illustrates how a certain spirit of a time and of a culture is made present even in expressions such as the aforementioned one: being machinal is presented as an increasingly more common desire in the most varied relationships inside and outside of schools. Whenever human beings compared their finite and weak condition, decurrent of their biological existence, with the power and resistance of the machine, it foments the rise of what Günther Anders (2002) denominated a "promethean shame". Such expression refers to the myth of Prometheus, the titan who was severely punished by the gods of Olympus for having revealed to human beings the secret of the production of fire.

The belief in the gods was, thus, severely shaken since humans had become gods themselves through the proficiency in this technique. However, with such technical power, human beings also began to notice their own frailty, which prompts Anders to use this metaphor to evidence the human feeling of shame when facing the power and the force of another product: the machine. As Anders (2002, p. 23) affirms, human beings are troubled when standing before a machine and presenting, to the eyes of such perfect devices, their pathetic condition of being made of flesh, the imprecision of their human condition. Actually, the author concludes, it is perfectly expected that we should feel ashamed in such a situation.

Both philosophy, represented by Kant, and Freudian psychoanalysis have defined shame as a moral sentiment, to the degree that an individual who is ashamed before another tends to reflect about the consequences of his or her actions. The presence of self-criticism of the one ashamed is a result of this person being able to ponder on his or her own limitations, which are made visible after the practice of the act which provoked this feeling. Nonetheless, in contemporary society, the individual who is feeling ashamed of his or her own fallibility when facing the power of the machine seeks, in every possible manner, to instrumentally *match the machine*, instead of performing an act of self-criticism regarding this fallibility. In other words, self-criticism and the ability of conceptual production are weakened while the feeling of narcissistic omnipotence is increased, something which is instrumentally reinforced by the mimetic relationship with the power of the machine. Evidently, this reification of consciousness is produced in a social context in which the relationships of production determine the form of how the machinal *ethos* is spread to every social relationship. There are already researches aiming to produce drugs which reduce the period of sleep to the minimum

level, making individuals stay in a vigilant state and produce as much as possible, like machines operating incessantly (Crary, 2013).

This view of sleeping as an unproductive time which "disconnects" people from their work relationships must be understood as the product of a society in which the very relationships between people tend to become increasingly digitalized. It is precisely in this digital culture society that it its crucial to critically reflect on how identities are digitally reconfigured. According to Crary (2013), "at present, the particular operation and effects of new machines or networks are less important than how the rhythms, speeds, and formats of accelerated and intensified consumption are reshaping experience and perception" (p. 39).

Reflecting on how the experience and the perception are being reconfigured implies investigating how a certain type of authority is establishing itself in the digital culture, mostly through the use of cellphones: the digital algorithmic authority. The *Merriam-Webster* dictionary defines algorithm as "a procedure for solving a mathematical problem (as of finding the greatest common divisor) in a finite number of steps that frequently involves repetition of an operation" ("Algorithm", 2019). When this definition is applied to the computational sphere, we can perceive the algorithmic logic, which is precisely the one responsible for the process through which computers perform the tasks they are programmed to do. Hence, algorithms are responsible for mediating the relationship between humans and machines because they instruct computers to do all the necessary steps to execute a determined task. In other words, the so-called "programming language", which makes a computer able to comprehend the characteristics of the task it is being designated to perform, is fundamentally based in the algorithmic operational logic. It is this logic which indicates, to the computer program, the necessary procedures for the resolution of a determined human demand.

It is interesting to notice that the reading of the concept of algorithm may elicit the conclusion that individuals' free-will take precedence over the way their demands are met through the codified operations performed by the computer. However, the digital reconfiguration of the ideology of personalization is based on the social power of algorithms. These algorithms, then, become decisive control and vigilance instruments for gigantic companies, such as Facebook, YouTube, Amazon, and Google. In order to measure the

power of these platforms and social networks, we can verify the determining role of Facebook when personal data from approximately 90 million of its users was utilized by a political consultant firm to influence the elections in the United States in favor of Donald Trump, who became the country's 45th president in 2017.

Companies are not the only entities engaged in creating devices such as these. China, for example, has been developing a virtual ranking of social credit, aiming to inscribe its approximately 1.4 billion citizens in a national system of social credit by 2020. This algorithmically controlled system, with investments of around US$ 150 billion in artificial intelligence until 2030, combines information from several sources, such as social, traditional, and online, to determine people's place in society, granting them or not access to lower loan interests, special entrance in public transportation such as trains and airplanes, health plans, internet services, and discount in products. All in the name of establishing an effective way of life for stimulating mutual trust and for reducing the contradictions of society, which should be harmonious according to the directives of the Chinese government (Lima, 2018, April 15th).

From the most known algorithms we highlight *PageRank*, which was originally developed by Larry Page and Sergey Brin in 1998 (Mager, 2012). This algorithm enabled Google, through its search engines, to find, filter, classify, and rank the most accessed websites and, thus, associate the respective advertisements of certain products to these websites. Although the participation of algorithmic codes used to interpret the programming language of computers is generally known, people are not aware of how these codes work in their smallest details, especially regarding how they make the search engines of the mentioned communication companies not only find, but also select, filter, classify, and rank any type of information and images to a degree of precision which could have been only imagined in the science-fiction novels. The control of these communication giants over the current algorithmic technology leads to the reflection on the social power of the algorithm in the following manner:

> When thinking about the power of the algorithm, we need to think not just about the impact and consequences of code, we also need to think about the powerful ways in which notions and ideas about the algorithm circulate through the social world. Within these notions of the algorithm we are likely to find broader rationalities, knowledge-making and norms—with the concept of the algorithm holding powerful and convincing sway in how things are done or how they should be done. (Beer, 2016, p. 2)

The longer that knowledge regarding algorithmic technology remains inside a black box of sorts—to use an expression coined by Pasquale (2015)—the bigger these transnational companies' power of control over all sorts of data collected from the billions of internet users who are often unaware of how their private information is registered, classified, and used for the most varied ends. Following this line of thought, Lash (2007) affirms that "a society of ubiquitous media means a society in which power is increasingly in the algorithm" (p. 71).

Hence, the act of typing any word in Google's search mechanism, with the intention of obtaining the information associated with it, becomes so natural that acquisition of knowledge seems unable to happen in any other way. It is, indeed, a seducing idea to think that absolutely any questions and doubts might be solved with the simple act of typing a keyword in a search mechanism and hitting *enter*. This is an enticing prospect because it is as if this click could provide entrance to a world which sidelines not only the effort of the search for knowledge, but also the reflection about the *relationships* of the obtained information, since the directives of such data would be offered beforehand.

In this sense, the verb "to google" acquires the meaning of solving any doubt which might emerge on the most varied subjects. On this issue, Pasquale (2015) affirms that "critical decisions are made not on the basis of the data per se, but on the basis of data analyzed *algorithmically*" (p.21). In other words, the manner through which data is collected, filtered, classified, and ranked by the algorithmic codes determines both the current characteristics of information production and how some of this information is accessed while some is not. In the current context of algorithmically composed information, "authority is increasingly expressed algorithmically" (Pasquale, 2015, p. 8). It is in digital culture that algorithmic authority is consolidated in a speed compatible to the on-line mode of obtaining information. Indeed, algorithm is directing how decisions are made, and it has acquired "the ability to learn from its experiences, generalize from what it's encountered, and develop adaptive strategies in response" (Greenfield, 2017, p. 213). This is equivalent to delegating to someone the task of defining a position which requires a "personal" reflection.

If in the 18th century the beliefs and the predictions were justified mainly by the authorities, be them religious, professorial, or both, in the beginning of the 19th century predictions began being based on algorithmically calculated models and simulations, making authority increasingly more algorithmically and mathematically determined (Mackenzie & Vurdubakis, 2011). This form of imposition of directives makes a certain type of information, the most accessed kind, remain on Google's first page, for example, thus making the visibility resulting from this exposition produce something akin to a vicious circle (Bucher, 2012), because, the more visibility such information has, the bigger possibility of it being accessed and, consequently, collected, classified, and ranked by the algorithms of the search engines of Facebook and Google.

In this context, we might have the false impression that algorithms are acting by themselves, i.e., independently from human intervention—the same intervention responsible for their creation and operation. Actually, the defense of an alleged algorithmic neutrality is based on the ideology that machines have total autonomy in relation to the actions of their producers. But criticism of this false representation must be made to question how the data files are organized, who classifies them, and what interests guide this classification (Beer, 2012). It is the criticism of the alleged algorithmic neutrality which uncovers the ideological veil of the social power of the so-called digital algorithmic authority.

However, the permanence of the technological fetishization of the algorithm attests to its social power, mainly through how the reification of consciousnesses is digitally effectuated in the society of the microelectronic revolution. Indeed, researchers are increasingly questioning the transformations of the mnemonic ability due to the everyday coexistence with digitalized objects and information (Van Dijck, 2004; Van House & Churchill, 2008).

Apparently, it is in the digital culture society, in which it is possible to remember everything, that new forms of forgetting are conceived. This happens every time that the obtained information is decontextualized, i.e., when we completely disregard the fact that in the fabric of this information we find the mediation of human contradictions which were produced and fostered by a certain culture. If such historical mediations are disregarded, then the information obtained can be employed to justify the dissemination of stereotyped thinking and of prejudicial actions, a fact which reinstates, in the digital culture, the characteristics of "ticket thinking", as it was denominated by Adorno (1972). Whenever both people and the socially produced situations are ticketed with labels which confer them an apparently unyielding judgment sentence, we can identify the ideal social conditions for a "retrogression to the infantile level of stereotypy and personalization." (Adorno, 1972, p. 346).

It is known that Adorno developed the ticket thinking concept in the context of the North American culture industry of the middle of the 20th century. In this sense, it is relevant to point out how this Frankfurtian thinker observed the weakening of the moral consciousness in a society whose culture industry, through its most varied products, was increasingly strengthened in its condition of determining the directives of behavior:

> The individual no longer has to decide what he or she is supposed to do in a given situation in a painful inner dialogue between conscience, self-preservation, and drives. For the human being as wage earner the decision is taken by a hierarchy extending from trade associations to the national administration; in the private sphere it is taken by the schema of mass culture, which appropriates even the most intimate impulses of its forced consumers. The committees and stars function as ego and superego. (Horkheimer & Adorno, 2002, p. 168)

In the digital culture, however, decisions and directives related to conduct are algorithmically calculated and presented to people, who are, in many occasions, labeled by slogans which are completely decontextualized of their origin conditions; this occurs, for example, when individuals are fired or not even hired by a company due to previously posted comments and images in social networks. Indeed, "algorithms are not just abstract computational processes; they also have the power to enact material realities" (Bucher, 2017, p. 40) and people's lives.

In relation to the teacher-student relationship, it might be possible to interpret the weakening of the authority figure of teachers as the result of, among other factors, the empowering sensation of students who can—at all times or spaces through the use of their

electronic gadgets, especially their cellphones—access any information algorithmically selected, classified, and made available. It is as if students are asking themselves: "why do we need our teachers, if we can find, through our pocket computers, any type of information not only at school, but in any other place?". Another question, derived from the last one, is: "what is the reason for attending school nowadays?".

These are not questions we can answer promptly and completely, since the transformations in the teacher and student identities in the digital culture are still underway in an increasing speed, which will certainly cause structural changes in the cognitive, emotional, and ethical aspects involved in the elaboration process of such identities. The evidences of these changes are already visible, and we can notice the modifications in students' and teachers' capacity of concentrating in the contents studied in the classroom. Students access data in the social networks of the courses they attend even during the classes, sometimes under the complicit eyes of high school teachers and university professors, for example.

The truth that, in the case of higher education, certain students access, in their electronic devices, the texts selected by the professor to be discussed in class does not oppose the fact that several other students use their cellphones, laptops, and tablets to access their Facebook and WhatsApp accounts, which means these students are no longer attending the class, even if they remain physically present. We must also point out that many teachers do not resist the addiction of being connected at all times and also access their private social network accounts during their classes.

In this context, Christoph Türcke (2016) posits that the attention deficit cannot be exclusively substantiated by the psychological and biological idiosyncrasies of those who are diagnosed with this disorder, since it is already possible to distinguish an *attention deficit culture*. In this culture, as Türcke (2016, p. 50) affirms, the brain activity of an increasing number of children and young people does correspond to certain traditional standards of culture. Indeed, the stimuli produced by audiovisual shocks, which are consumed in a practically uninterrupted manner, seems to be making constant reestablishments of synaptic brain connections take place, to the degree that, as Türcke (2016, p. 48) defends, when faced with so many measures of reconstruction, they can no longer reach the construction and consolidation of some of the neural networks actually permitted by their genetic equipment and by their possibilities of arrangements.

Evidently, when facing this dispersion of focus of the deficit of attention culture, the seduction of the algorithmically produced labels becomes even more present because algorithms offer a certain directive, a conduct line which provide the feeling that it is possible to hold on to something in a society in which the relationships between people are increasingly accelerated (Rosa, 2016).

This false sensation of security promoted by the access to information, which is instrumentally integrated as slogan, as label, also seems to be strengthened by the weakening of teacher authority and by the intensification of the algorithmic authority embodied in electronic devices, especially in cellphones. It is as if teachers are giving up on *proposing* information directives to their students—which could be *related*, *discussed*, and *transformed* in knowledge—to surrender to the attraction of algorithmic calculated directives, presented beforehand as if they were, philosophically, some kind of the absolute, some truths in and of themselves.

Moreover, there is another aspect which must be highlighted: by using such devices and by the continuous access to social networks, we notice that the current weakening of the frontiers between the public and the private spheres, which compose the relationships between teachers and students, are already entailing previously unseen moral dilemmas. This is the case of teachers and students who, say, connect to each other through Facebook. How can a teacher evaluate a student who is his or her "friend" in this social network? Furthermore: are students whose posts are more algorithmically highlighted closer "friends" to their teachers on Facebook? The fact is that aspects of the private sphere, such as the exchange of ideas and opinions, become "algorithmically mediated interactions" by Facebook (Van Dijck, 2013, p. 65).

The same reasoning applies to the case of cyberbullying manifestations made by students in relation to their teachers. It is increasingly more common to find posts made by high school and university students of humiliating images and comments about their respective teachers and professors. If we insert the Portuguese words "*professor*" [teacher] and "*celular*" [cellphone] in the search engines of social networks such as YouTube, we can find dozens of videos and hundreds of comments posted by students in which teachers are ridiculed in situations of desperation facing the lack of attention of their pupils. In some of these videos, teachers take the cellphones from their students' hands and throw them to the

floor, crushing them instantly. If we search for the English equivalents of the same words, we can access videos posted by students from several countries with images and comments very similar to those posted by Brazilian students. Certainly, hate demonstration by students regarding their teachers are not an invention of the digital culture. They have been present since Greco-Roman Antiquity, as we have discussed in the first part of this article.

However, it is in the digital culture that these demonstrations are exhibited in a way which is not restricted to the physical space of the school institutions and their surroundings but are accessed and viewed at any time or space. The more these denigrating and humiliating images and comments are not only posted, but visualized, the more YouTube algorithms, for example, will highlight them from other less visualized images and comments. Hence we can observe a tendency of exacerbation of the aggressiveness of audiovisual shocks, to the degree that the students who practice cyberbullying against teachers know that if the steps of this planned act are more visually shocking and aggressive, there is a bigger chance that these shocks will go viral, i.e., that they will be viewed and liked by thousands, if not millions, of internet users.

It is the culture in which the relationships between these educational agents are increasingly digitalized that students tend to criticize the image of the teacher, mainly due to one factor: if today we can have access to any algorithmically calculated information through electronic devices such as cellphones, what is the point in identifying the teacher as a figure of *auctoritas*? Are we finally fulfilling Skinner's prediction that, nowadays, teachers would be indeed out of fashion and would have become something of an outdated version, since the algorithms of Google's search mechanism are more efficient reinforcers of behaviors when compared to teachers?

Conclusion

Currently, it is increasingly necessary to reflect about the new levels reached by the relationship of ambivalence of feelings between teachers and students in the digital culture. It was observed that this relationship has determined the characteristics of the cognitive and emotional bases of the structuring of teachers' and students' identities, including those bases attributed to what we denominate teacher authority.

Despite the didactical-methodological differences between the traditional humanist pedagogy (Herbart) and the modern humanist pedagogy (Rousseau), the teacher was still identified as a decisive figure of authority for the promotion of the process of internalization of the discipline and of the development of students' moral consciousness and cognitive abilities. In other words, all of a student's effort—consequent of the internalization of the discipline and, thus, of the development his or her moral consciousness—was based on the feeling of admiration for the figure of those who were responsible for the exposition and for the discussion of the information: the teachers. Hence, it was as if students told themselves: "it is not easy to know how to control the form of manifestation of my desires because I have to consider the consequences they will have on others. Similarly, it is also difficult to get used to the fact that I must focus, with all my strength, on the learning and on the discussion of the subjects addressed in class so that knowledge can be constructed collectively". However, all this effort would be rewarded by the teacher's appreciation, sometimes expressed by a simple smile or look when noticing students' progress.

According to this line of thought, the student, in a certain way, desired to one day become similar to the teacher, maybe not in the strict sense of having the same profession, but regarding the aspiration of becoming adults able to produce concepts, to relate past and present events for the conception of possible futures, and to reflect on the relationship between their rights and their duties as citizens.

However, in the digital culture, we verify the increase in evidences indicating a radical transformation in this ambivalent relationship. There is a myriad of objective and subjective factors determining the nuances of this transformation. In the case of Brazilian public schools, for example, any form of connection established between teachers and students is hampered due to the precariousness of the infrastructural conditions of the school institutions and to the fact that many teachers must work in several schools during the week to guarantee the

minimal resources for their survival. In relation to the objectives of this article, we have presented reflections about how digital algorithmic authority is being consolidated to the detriment of teacher authority, since, for students, often the predominant thought is that teachers are no longer necessary because information can be algorithmically retrieved through clicks in keywords in the search engines of social networks, without the requirement of relating these pieces of information to each other. Even teachers act this way when they surrender to algorithmically calculated directives and no longer reflect about the information which is, in a reified manner, considered an unquestionable truth.

However, it is precisely in the digital culture society that the presence of the teacher becomes indispensable, to the degree that he or she becomes a promoter of conceptual mediations. When teachers, together with students, historically relate the information acquired on the internet and reflect on the contradictions engendered in this information, then there is a chance that the tickets and labels algorithmically obtained can be critically analyzed and questioned regarding their ideological pretense of neutrality. Thus, it would be possible for teachers to reinvigorate, through the use of digital technology, their condition of *auctoritas* because it would be an authority based on the condition that these teachers and their students would become the authors and architects of the knowledge production process.

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